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# Discussion paper

## THE POLITICAL ECONOMY OF FINANCIAL SYSTEMS: EVIDENCE FROM SUFFRAGE REFORMS IN THE LAST TWO CENTURIES

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# The Political Economy of Financial Systems: Evidence from Suffrage Reforms in the Last Two Centuries\*

by

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## Abstract:

Initially, voting rights were limited to wealthy elites providing political support for stock markets. The franchise expansion induces the median voter to provide political support for banking development as this new electorate has lower financial holdings and benefits less from the uncertainty and financial returns from stock markets. Our panel data evidence covering 1830-1999 shows that tighter restrictions on the voting franchise induce a greater stock market development, whereas a broader voting franchise is more conducive towards the banking sector, consistent with Perotti and von Thadden (2006). Our results are robust to controlling for other political determinants and endogeneity.

**JEL classification codes:** D72, G10, O16, P16

**Keywords:** banking sector, financial development, financial structure, political economy, stock markets, voting franchise

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## 1. Introduction

Fundamental institutions drive financial development. Political institutions are together with legal institutions and cultural traits of first order importance (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998; Rajan and Zingales, 2003; Guiso, Sapienza, and Zingales, 2004; Acemoglu and Robinson, 2005). This paper is the first to empirically study how an important political institution – the scope of the voting franchise<sup>1</sup> – impacts on different forms of financial development (stock market and banking) through shifts in the distribution of preferences of the voting class.

The political economy literature shows that shifts in political power help to explain the historical changes in a country's financial system (Rajan and Zingales, 2003; Roe, 2003; Gourevitch and Shinn, 2005; Perotti and von Thadden, 2006; Haber, North, and Weingast, 2007; see also North, 1990). Stock market finance and bank finance confer distinct outcomes for society in terms of distribution of wealth, risk, and power. The benefits and constraints of these outcomes are differently distributed across interest groups in society as each interest group – say, the different stakeholders in the firm – has a different set of claims on firm revenues. The interest groups have to win political majorities to push for (oppose) the financial system that helps (hurts) them the most.<sup>2</sup> These political majorities are determined by formal institutions of preference aggregation, such as suffrage institutions.

There is ample evidence that policies aimed at protecting minority shareholder and creditor rights and at supporting private contractual arrangements do matter for financial development (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997, 1998; Levine, 1998; Modigliani and Perotti, 2000; La Porta, Lopez-de-Silanes, and Shleifer, 2006). The population

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<sup>1</sup> We use the terms “franchise” and “suffrage” interchangeably throughout the paper.

<sup>2</sup> Hellwig (2000) and Gourevitch and Shinn (2005) offer rich discussions on preferences of firms' stakeholders and the possible alliances between them. Both studies also argue that the possible alliances among different stakeholders at the firm level can induce them to converge on common platforms at the political level.

with the right to vote can influence political decisions and induce policy choices that better suit its preferences. Benmelech and Moskowitz (2010) for example show that financial regulation was exploited by elites with political power for their own interests in nineteenth century America. They provide evidence that usury laws – limiting the maximum legal interest rates – were used to hamper competition and control entry. States that restricted suffrage to taxpaying property owners tended to impose more strict usury laws. Haber (2011) documents for Brazil, Mexico, and the United States that less inclusive suffrage institutions amplified the political power of elites and that their power inhibited policies governing banks, which in turn shaped the size and competitive structure of banking sector.<sup>3</sup> Using stock price data, Turner and Zhan (2012) find that investors in British firms, foreseeing future alterations of their property rights, responded negatively to the 1867 suffrage reform.<sup>4</sup> Embedded in the premise underlying interest group theory of suffrage institutions (Engerman and Sokoloff, 2005), this paper goes beyond case studies and investigates whether the impact of suffrage reforms on the historical development of financial systems is generalizable to a broad set of countries.

Suffrage reforms in many countries during the late nineteenth and twentieth centuries are crucial political changes. While nowadays universal suffrage has become standard in democratic countries, the advent of universal suffrage was long and not introduced at the same time across countries. The voting rights were restricted across time and space according to wealth, social status, education, gender, and race. Broadly speaking, by the early twentieth

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<sup>3</sup> About the Brazilian experience, Stephen Haber (2011) explicitly wrote: “[In Brazil,] the parties in control of the government and bankers forged coalitions to limit competition and constrain access to credit. They were able to do so precisely because throughout the nineteenth and early twentieth centuries there were limits on suffrage and political institutions that amplified the power of elites.”

<sup>4</sup> Further examples on the influence of elites on financial regulation can be found in Lamoreaux and Rosenthal (2005), who describe well the history of the incorporation laws in France and the United States. See also Kroszner and Strahan (1999), Rajan and Zingales (2003), and Rajan and Ramcharan (2011), whose studies suggest that specific interest groups hinder financial development in order to restrict barriers to entry.

century most current established democracies allowed the right to vote only to the wealthiest elites. They enlarged it afterwards gradually to adult males and then to female adults.<sup>5</sup>

Thus, paying attention to suffrage institutions gives insights into the shifts in political equilibria affecting financial systems over time. In the spirit of Perotti and von Thadden (2006), the mechanism is as follows. The political support for banks or stock markets is determined by the median voter, which has a mixed identity as investor and worker. If the median voter has little financial wealth and mainly relies on labor income, a political majority will favor high labor and creditor protection. Indeed, this median voter will assign a central role to banks over stock markets since banks, as debtholders, share its aversion to risk. In contrast, if the median voter has sufficient financial wealth, a majority will support strong minority shareholder protection and therefore a greater role for stock markets. Stock market development results in riskier but more profitable investments at the cost of higher labor risk-bearing. Limited suffrage ensures a relatively wealthy median voter, favoring stock markets, whereas a broader suffrage moves the median voter towards lower income classes, favoring the banking sector. Thus, the expansion of the voting franchise, by moving the median voter towards the less wealthy class, directly influences the development and structure of a country's financial system.

Our main analysis relies on a panel dataset of 18 today's established democracies covering the nineteenth and twentieth centuries and for which we obtained sufficiently reliable data on suffrage institutions and financial development – but results are robust to employing a broader set of countries for a more recent time span. Summary statistics indicate that voting franchise was low at the beginning of the twentieth century, with on average 17.3% of the population allowed to vote in 1900. This percentage increased to 25.5% around 1913 and crossed the 50% mark generally after the Second World War only. Using standard

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<sup>5</sup> The point in time the expansion of voting franchise took place varies considerably across country. For instance, New Zealand extended the voting right to all adult women in 1893 whereas Switzerland gave full voting right to women in 1971 only (see Section 3).

panel techniques that account for time-invariant country characteristics and time trends, our evidence shows that the expansion of the voting franchise has a strong economic and statistical effect on financial development. Countries with tighter restrictions on their voting franchise tend to rely more on stock markets, whereas countries with broader voting franchise are more conducive towards the banking sector, reflecting the political support of the newly enfranchised segment of the population. Employing our most conservative estimates, a one standard deviation greater voting franchise leads to a 24.6% lower degree of stock market capitalization and a 16.1% greater banking sector development. As a result, countries with tighter restrictions on voting franchise tend to have a more market-oriented financial structure. These findings hold regardless whether franchise is based on the number of registered voters or valid votes cast. Our results are also robust to controlling for other political determinants of financial development and to other potential channels through which voting franchise may operate, such as corporate tax reforms.

The central tenet of the “modernization hypothesis” as articulated by Lipset (1959) is that economic development causes a country to be democratic. The modernization hypothesis would thus suggest that our results do not establish causality and that they are driven by reverse causality and/or omitted variable bias. Although the most recent studies give little empirical support in favor of the modernization hypothesis (see, e.g., Acemoglu, Johnson, Robinson, and Yared, 2008, 2009; Aidt and Jensen, 2011), we perform two additional exercises. To further address concerns about potential omitted variables, we adopt a difference-in-differences (DID) approach. This allows us to exploit exogenous inter-temporal variations from two major suffrage reforms across countries – namely, male and female universal suffrage reforms. To account for reverse causality, we use an instrumental variables (IV) approach. We motivate our choice of instruments by building on the historical and theoretical literature on the reasons why governing elites granted suffrage to other segments

of the population. Using both identification strategies (DID and IV), we obtain results confirming our predictions of a causal relationship between the expansion of the voting franchise and financial development and structure.

Finally, we investigate whether suffrage institutions exert long-run effects. We find that the time of adopting universal suffrage has long-lasting impacts on financial structure. Our long-run evidence based on 35 countries reveals an impressive impact of the delayed introduction of the universal suffrage on the form of today's financial systems: a 25-year delay in the introduction of universal suffrage relates to a remarkable 17.5% increase in the today's importance of stock markets relative to the banking system.

The remainder of this paper is structured as follows. Section 2 presents the related literature, the testable hypotheses, and some case studies. Section 3 describes the data and proceeds with a discussion of initial assessments of our hypotheses. Section 4 contains our main empirical results, while the long-run analysis is presented in Section 5. Section 6 concludes.

## **2. The Suffrage and Finance Nexus**

This section reviews the existing literature and clarifies the channel through which suffrage institutions affect financial development and structure. In this way, we lay out the main hypotheses. We also provide some case studies to further illustrate the economic channel we capture.

### *2.1. Related Literature*



Economic historians have long recognized that political forces exert a first-order effect on changes in financial development (Haber, North, and Weingast, 2007).<sup>6</sup> Engerman and Sokoloff (1997) shed light on the type of institutions arising during the colonial era in the New World. The emergence of differing institutions is due to initial conditions faced by New World colonial societies established by the Europeans – their respective factor endowments – that fostered equality or inequality. Close to their endowments argument, Engerman and Sokoloff (2005) show that greater inequality was generally associated with tighter restrictions on voting franchise. With tight restrictions on voting franchise, elites wield disproportionate political power. This allows them to shape a regulatory environment that is favorable to themselves in terms of access to finance and economic opportunities. Limited access to political rights by citizens allows regulatory capture by elites, which causes distortions in financial development. As discussed previously, Benmelech and Moskowitz (2010) and Haber (2011) document how enfranchised elites influence regulation in order to limit competition and access to credit; see Kroszner and Strahan (1999), Rajan and Zingales (2003), and Rajan and Ramcharan (2011), for other examples pertaining to entry barriers. Turner and Zhan (2012) find that investors on the London Stock Exchange react negatively to the passage of the Britain 1867 Reform Act, aiming at expanding the voting franchise, as it would undermine their property rights and their freedom of contract.

Improving political institutions undermine, however, the regulatory capture by elites (see Barth, Caprio, and Levine, 2006).<sup>7</sup> Therefore, institutions of preference aggregation (i.e., elections) constitute a corner stone of political outcomes (Gourevitch and Shinn, 2005). Indeed, the rule and the conduct of elections, including the determination of the enfranchised

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<sup>6</sup> Perotti (2013) provides an excellent survey on the political economy underpinnings of financial development; see also Roe and Siegel (2009).

<sup>7</sup> Relatedly, Quintyn and Verdier (2010) show in a large sample of countries since the early 1960 that sustained financial deepening is most likely to occur in countries endowed with high-quality political institutions. Bordo and Rousseau (2006) find similar evidence in a more historical perspective.

population, have major implications for the distribution of wealth and power in society, since they directly influence financial policy choices.

Pagano and Volpin (2005) model the impact of electoral rules (majoritarian versus proportional) on the design of financial systems in democracies. Although their model stresses the role of interest group preferences, which are determined by the distribution of equity ownership in the economy, it does not lend to explain fully variations in the financial systems within a country as changes in electoral rules are rare. Perotti and von Thadden (2006) take in turn the view of the median voter to account for the evolution of financial systems over time (Rajan and Zingales, 2003). The authors argue that median voter preferences for different forms of financial development are subject to changes in response to exogenous shocks.<sup>8</sup> The settings of their model suggest that median voter preferences for bank- over stock market-oriented system depend on its distribution of wealth relative to human capital. They build on the empirical observation that political support (by the median voter) for bank-oriented system appears when the middle class (which generally constitutes the bulk of the population) mainly relies on labor income and the wealthiest class concentrates financial wealth in their hands. A political support for stock market-oriented system is possible when the middle class has also a high degree of participation in the stock market. Perotti and Schwienbacher (2009) propose an empirical test of this view, but they do not look directly at financial development. They show that large shocks in wealth distribution through hyperinflation in the interwar period explain the emergence of different structures of pension system in democratic countries.

## *2.2. Theoretical Framework and Testable Hypotheses*

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<sup>8</sup> Biais and Mariotti (2009) take a similar theoretical setting to analyze the political process through which bankruptcy laws can emerge.

The models of democratic choice described in subsection 2.1 predict that a financially solid middle class is essential for democratic support for a stock market-oriented system, as they generate regulations that foster investor protection and thereby stock market development. In contrast, economies with poor middle class will tend to have stronger banks, as the median voter will have little financial wealth and mostly labor income. Labor income is better secured through bank finance, since it generates less risk-taking by firms (Perotti and von Thadden, 2006). To analyze the links between the variation of the “voting” population and the levels of financial development over time and space, we assume that (1) the distribution of financial wealth within the population is fixed (but we relax this assumption in subsection 4.6 when we further control for heterogeneity in wealth distribution over time and space) and (2) the median voter determines financial policy choices.

By expanding the franchise, the median voter preferences reached the middle class preferences, diluting thus elites’ political power and changing subsequent political equilibria.<sup>9</sup> More precisely, we conjecture that a country’s reliance on specific financial market environments is affected by its median voter preferences on financial return and risk prevailing at each period of development. In other words, we hypothesize that, as an exogenous political change, the expansion of the voting franchise allows switching political majorities towards the preferences of the newly enfranchised segment of the population. By consequence, the level and the composition of a country’s financial development is affected by the franchise expansion, since added voters were drawn mostly from the lower end of the wealth distribution.<sup>10</sup> If poorer people are allowed to vote, then one expects a lower degree of

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<sup>9</sup> Economic theory provides different channels leading political elites to broaden the voting franchise. According to Acemoglu and Robinson (2000, 2006), the expansion of the voting franchise can be understood as a rational response by the governing elites to avoid revolution. In contrast, Lizzeri and Persico (2004) and Llavador and Oxoby (2005) argue that the expansion of the voting franchise was the result of the divergence of interests existing within the elites.

<sup>10</sup> In this respect, our study also complements another strand of the literature devoted to the economic effects of suffrage. This literature, echoing earlier concerns of Alexis de Tocqueville’s *Democracy in America* ([1835] 1965), largely associated the expansion of the franchise with increases in the size of government (e.g., Husted and Kenny, 1997; Justman and Gradstein, 1999; Aidt, Dutta, and Loukoianova, 2006).

reliance on stock markets to find increased support. Thus, more voters imply less stock market development but more bank-based financing as the poor have hardly any financial holdings. They have in turn less advantage with the uncertainty and disruptions that stock markets bring. In contrast, banks tend to limit risk-taking behavior of corporate managers, since, as debtholders, they do not benefit from the upside potential of riskier investments. We therefore expect that countries with tighter restrictions on voting franchise tend to have higher levels of stock market development. In contrast, countries with broader franchise tend to have higher levels of banking sector development. A third prediction is that countries with tighter restrictions on voting franchise tend to have a more market-oriented financial structure.

### *2.3. Case Studies*

A closer look at different countries offers valuable insights into the economic channel through which the expansion of suffrage affects financial development. Högfeldt (2005) describes how the expansion of voting franchise in Sweden generated institutional settings that affected the financial structure of the country. Until universal suffrage was introduced in 1921, the Swedish economy had a well-developed stock market, with a large fraction of the economy held by a few very rich families. The expansion of suffrage however secured long-lasting political power to the Social Democratic Party from 1932 onwards, creating the ground for a more egalitarian economy based on strong corporatism and less stock market development.

Along the same lines, the initial introduction of codetermination in Germany by a 1922 law of the Weimar Republic passed to strike a compromise in a politically divided country (Pistor, 1999). The introduction of this legislation increased “economic democracy” in large companies and followed a period of structural political reforms including the

expansion of voting franchise. In 1919, all states (*Länder*) in Germany introduced universal suffrage for adult men and women which changed balance of power within the country.

In the second half of the nineteenth century, Belgium passed several reforms on stock exchanges, while its franchise was fairly narrow.<sup>11</sup> In 1867, government gave up its right to ban firms from trading on the stock exchange. The Company Reform Act of 1873 abolished in turn government approval to set up a limited liability firm. By embracing these reforms, the Brussels Stock Exchange experienced its fastest development. Van Nieuwerburgh, Buelens, and Cuyvers (2006, p. 26) uncover that “between 1873 and 1914, the total number of listed shares increased from 174 to 1197.” In the years after World War I, Belgium witnessed a reversal of the reforms of 1867 and 1873. In 1919, plural voting is abolished and universal suffrage for men over 21 is introduced, increasing the representation of the Workers Party. The years following these suffrage reforms are characterized by a massive concentration in the banking sector, stimulated by the law of July 23, 1927. Then, the regulatory reforms of the financial system in 1934-1935 tightened to a certain extent government control over the stock exchange. Various events of the era – such as distributional shocks and institutional political reforms – led the Belgian stock market development to reach its peak in 1929 and to drop off sharply afterwards (see, e.g., Rajan and Zingales, 2003; Van Nieuwerburgh, Buelens, and Cuyvers, 2006).

### **3. Data and Initial Assessments**

We now introduce the dataset we use throughout our main analysis of the paper and present preliminary assessments of the link between suffrage institutions and financial development. We document that countries with (1) tighter restrictions on voting franchise are

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<sup>11</sup> Belgium had a restricted manhood suffrage till 1892 with high direct tax minima differing in urban and rural areas. Universal male suffrage, modified by plural voting, was introduced in 1893. Plural voting allows a maximum of 3 votes per person depending on education diploma, social status, or property ownership.

conducive to higher levels of stock market development; (2) countries with broader voting franchise are conducive to higher levels of banking sector development; and in turn (3) countries with tighter restrictions on voting franchise tend to have a more market-oriented financial structure. To this end, Table 1 provides definitions of our variables and their sources, Table 2 contains descriptive statistics, and Table 3 depicts the evolution of suffrage institutions in our sample countries. Table 2 also provides tests of differences in suffrage institutions for low and high countries' levels of financial development as well as pairwise correlations between our financial development and suffrage indicators.

<insert Table 1 about here>

### *3.1. The Sample*

Time-series variation in voting franchise is important to capture its impact on financial development. Our base sample employs an 18-country panel dataset which covers the longest time span possible, composed of different years spaced by around ten years. The analysis on stock market development covers the nineteenth and twentieth centuries while the analysis on banking sector development and financial structure is restricted to the twentieth century due to data availability. Our dataset comprises a set of today's established democracies for which we have sufficient information on stock markets, banking sector, suffrage institutions, and country-specific characteristics. The countries included in the panel dataset are reported in Table A1 in Appendix (in bold). We are dealing with an unbalanced panel (see Table 2). However, every country is well covered in the time-series dimension as the average number of observations for a country in the twentieth century is 9 (out of maximum of 10).

### *3.2. Indicators of Financial Development*

We use indicators capturing the importance of equity markets and the banking sector in a country over time. The goal is to proxy for the degree of availability of stock market finance and bank finance. We rely on a variety of indicators that are commonly used in the literature on comparative financial development and structure (see, e.g., Beck, Demirgüç-Kunt, and Levine, 2000).

We employ two indicators for the size of a country's equity market. The first is stock market capitalization to GDP (CAPITALIZATION). We combine several data sources to obtain the longest time series possible (1830-1999) – Goldsmith (1985), Rajan and Zingales (2003), and Musacchio (2010). We mainly rely on data provided by Rajan and Zingales (2003) where the stock market capitalization to GDP is covered from 1913 to 1999 and reported for 24 countries. Musacchio (2010) however proposes improved estimates for 1913 and complements it with 1900, as Sylla (2006) and La Porta, Lopez-de-Silanes, and Shleifer (2008) had questioned the accuracy of Rajan and Zingales' figures in 1913: the inclusion of corporate bonds and cross-listed companies produced poor estimates in 1913. We therefore employ the re-estimated data of Musacchio (2010) for the years 1900 and 1913 and the data of Rajan and Zingales (2003) for the following years. Goldsmith (1985) provides additional data on stock market capitalization to GDP for the nineteenth century but for fewer countries. We complete our dataset by using Goldsmith (1985) yielding us with observations going back to 1830. The second indicator of the size of the stock market is the number of publicly listed domestic companies per million of inhabitants (LISTED COMPANIES). This variable is less prone to fluctuation of stock valuations and is retrieved from Rajan and Zingales (2003), but is available for the period 1913-1999 only.<sup>12</sup>

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<sup>12</sup> We also complete the Rajan and Zingales' series on stock market development for Belgium with data taken from the SCOB database maintained at the University of Antwerp. We thank the SCOB for providing these data.

BANK DEPOSITS is our indicator of banking sector development. It is defined as the ratio of commercial and savings deposits to GDP. While this indicator does not provide clear information about the amount of private credit granted by the banking sector, it is one of the few that has been compiled in a standardized manner for a long time-series and for a large cross-section of countries and was employed before by Rajan and Zingales (2003).

Finally, we also look at the orientation of the financial system by using a measure of the importance of stock markets as compared to the banking sector. We define STRUCTURE as the ratio of CAPITALIZATION to BANK DEPOSITS; if this indicator is greater than one, it means that in a given country the size of the stock market is larger than the size of the banking sector, thereby suggesting that the financial system is market-oriented.

Some countries from the Rajan and Zingales' (2003) dataset are not in our dataset since our concern is primarily the period covered before World War II and financial data available for this period are somewhat sparse. Our sample ends up being 18 countries over the time period of 1830-1999 for CAPITALIZATION and 1913 to 1999 for LISTED COMPANIES, BANK DEPOSITS, and STRUCTURE.<sup>13</sup>

<insert Table 2 about here>

The top part of Panel A in Table 2 reports the descriptive statistics for our indicators of financial development – mean, standard deviation (overall), standard deviation (within), and standard deviation (between). The mean value of CAPITALIZATION is 0.576 and the within country standard deviation is 0.411. We also note substantial variation across countries in CAPITALIZATION with a between standard deviation of 0.319. This substantial variation

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<sup>13</sup> Years under consideration are 1830, 1850, 1861, 1875, 1880, 1881, 1895, 1899, 1900, 1913, 1929, 1938, 1950, 1960, 1970, 1980, 1990, and 1999. Rajan and Zingales (2003) also employ the fraction of gross fixed-capital formation raised through equity issues. We do not use this indicator as it is not available for many countries and years under consideration before World War II.



between and within countries is confirmed using the other stock market development indicator, LISTED COMPANIES. Table 2 also indicates high variability between and within countries for our indicator of banking sector development, BANK DEPOSITS. Regarding financial structure, the average value of STRUCTURE is 2.041, indicating that on average countries in our sample have a market-based financial structure. STRUCTURE varies quite a bit over time. As an illustration, in 1913, STRUCTURE identifies Spain and Japan (Norway and Austria) as having the most market-based (bank-based) financial systems. In contrast, the United States and the United Kingdom (Austria and Belgium) are classified as countries with the most market-based (bank-based) financial systems in 1999.

### *3.3. Indicators of Suffrage Institutions*

We employ two indicators of suffrage institutions that may explain variations in financial development and structure among countries. First, we use the number of registered voters (i.e., those eligible to vote) for the lower house of the national legislature as a percentage of total population (SUFFRAGE). Second, we employ the number of valid votes cast for the lower house of the national legislature as a percentage of total population (EFFECTIVE SUFFRAGE). Both measures capture restrictions on voting franchise across countries and time. EFFECTIVE SUFFRAGE is used in order to capture the extent to which the enfranchised citizens effectively use their voting right, since not everyone who is allowed to vote may do so. We combine several sources to compute SUFFRAGE and EFFECTIVE SUFFRAGE. Information is mostly collected from the Arthur S. Banks' (2011) Cross-National Time-Series Data Archive (CNTS, from Databanks International), which goes back to 1815 for some countries. When there are missing data or when no elections are held for the year under consideration, we take the most recent election data available. We complement our

dataset before World War II with data reported in Mackie and Rose (1982) and Colomer (2001), and since 1945 with the International Institute for Democracy and Electoral Assistance (IDEA) database. We further find that our data are consistent with those in Flora (1983).

Both measures are scaled by total population instead of the population over the age of 18 (i.e., the voting age nowadays in many countries). For this study looking at cross-country comparisons over a long time period, scaling by total population is actually preferred for several reasons. First, voting age is not the same across countries and time. While it gradually went down to 18 in the last decades, the voting age was substantially higher in most countries during and right after World War II. Moreover, in some countries voting age has continued to decrease; for instance, the voting age in Austria was 24 until 1919 passing gradually over the twentieth century from 20, 19, 18 to 16 since 2007. Thus, considering the fraction of population over the age of 18 is likely to be a contemporaneous benchmark; however, the benchmark has evolved over time. Second, historical time-series of the total population are more reliable and consistent than series of the population of 18 and older, which are in most of the sources rough estimates. This avoids introducing measurement issues. Third, while some of the variation in our suffrage indicators may be due to changes in the population's age pyramid, the effect is likely to be small as the population structure evolves only slowly over time, and is partly controlled for with our time-period fixed effects. Finally, in the robustness subsection 4.6, we further show that our results are robust to using population above 18 as denominator.

Table 2 (Panel A) and Table 3 provide descriptive statistics on our voting franchise indicators – SUFFRAGE and EFFECTIVE SUFFRAGE. Panel A of Table 2 shows there is substantial variability in voting franchise within and between countries. Table 3 presents the evolution over time as well as the variation within a specific time period. We learn that voting

franchise has evolved gradually over time. While SUFFRAGE was only 14.1% throughout the nineteenth century, the percentage has grown to over 70.6% by the end of the twentieth century. This reveals a substantial increase of the fraction of total population that was eligible to vote over time. Table 3 also shows that there is substantial variation in voting franchise across countries within a particular period even in the late twentieth century. For instance, in 1980, the voting franchise still ranged from 9.7% to 74.9%. In terms of votes effectively cast (EFFECTIVE SUFFRAGE), the expansion shows a very similar pattern, with on average 10.1% of total population participating in the elections in the 1830-1899 window and 50.6% in 1999. Interestingly, the standard deviation exhibits an inverted U-shaped pattern for both indicators of suffrage institutions. We observe that the heterogeneity in voting franchise was comparatively low in the beginning of the twentieth century, but then almost doubled in subsequent decades. It became lower towards the end of the twentieth century.

<insert Table 3 and Figure 1 about here>

Universal suffrage is another indicator of the expansion of the voting franchise. It is a critical milestone in any country as it leads to a substantial expansion of voting franchise and gives the right to vote to all men and women above a certain minimum age. Figure 1 shows in which period countries have introduced universal suffrage for a dataset of 35 countries (a broader dataset we will exploit when looking at the long-run effect of suffrage institutions on financial structure (Section 5)). We observe a great variation in the timing of the introduction of universal suffrage, with a few countries having introduced it already before World War I (New Zealand, Australia, and Finland) while other countries only introduced it late in the twentieth century (Switzerland, Portugal, and South Africa).

Panel B of Table 2 provides an initial assessment on whether countries with stricter voting franchise have a greater stock market development, lower bank development, and a structure which is more market-oriented (see also the correlation matrix provided in Panel C of Table 2). We compare our voting franchise indicators for country-year observations where financial development is below and above the sample median, respectively. *SUFFRAGE* and *EFFECTIVE SUFFRAGE* are 5 and 9 percentage points lower in countries where *CAPITALIZATION* is above the median than those below the median, respectively (only *EFFECTIVE SUFFRAGE* is statistically significantly different, however). Similar insights apply for *LISTED COMPANIES* even if these data capture only the twentieth century implying that the voting franchise indicators are somewhat higher. In contrast, countries with an above median sized banking system (*BANK DEPOSITS*) have a larger fraction of their population endowed with voting rights (*SUFFRAGE* and *EFFECTIVE SUFFRAGE* are 9 and 6 percentage points higher, respectively). Finally, countries with an above median *STRUCTURE* have a *SUFFRAGE* and *EFFECTIVE SUFFRAGE* which is 10 and 11 percentage points lower than those with a below median *STRUCTURE*. This suggests that country-years with a greater market orientation have a lower voting franchise. All in all, the differences in means reported in Panel B of Table 2 and the correlations in Panel C of Table 2 suggest that the extent of the voting franchise is associated with financial development and structure.

### *3.4. Controls*

Our empirical analysis controls for other determinants of financial development and structure beyond those related to suffrage institutions. We include the contemporaneous GDP per capita (*GDP PER CAPITA*) as richer countries are more likely to have more developed

financial systems. Another potential determinant is the degree of urbanization (URBANIZATION RATE), defined as the proportion of the population that lives in cities with more than 100,000 inhabitants. The progressive transformation of a rural population towards an urban population may affect patterns of financial development. A rural population involved mainly into agriculture is more likely to finance its investment via trade or bank credit, whereas an urban population goes hand in hand with industrialization and the appearance of new sectors (technology, services) that rely more on market-based finance.

Beck, Demirgüç-Kunt, and Levine (2003) find that factor endowments explain cross-country differences in financial institutions, in line with the theories of institutional development (Engerman and Sokoloff, 1997; Acemoglu, Johnson, and Robinson, 2001). We rely on control variables measuring factor endowments, namely the number of square kilometers of the landmass (LAND AREA) and the distance from the equator (LATITUDE). LAND AREA captures the natural resource endowments, while LATITUDE captures the geographic endowments.

The law and finance literature stresses the role that legal traditions play in explaining cross-country variations in investor protection, contracting environment, and hence financial development. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998) find that countries with English Common law legal tradition tend to have broader stock markets than Civil law countries. We control for this by adding COMMON LAW ORIGIN dummy variable, which equals one if the country adopted legal institutions from the English Common law and zero otherwise.

An argument dating back to Max Weber places greater emphasis on the crucial role of religion to explain the development of capitalism and its institutions. Starting from Weber's work, Stulz and Williamson (2003) shed light on the importance of religion in our understanding of the degree of investor and creditor protection across countries. To control

for the impact religion may have on financial development, we add a dummy variable CATHOLIC which is equal to one if the Catholic religion is the primary religion in the country.

We include two other political economy determinants of financial development and structure to further identify the channel that voting franchise has on development. First, the quality of democratic institutions may exert an influence on financial development (Bordo and Rousseau, 2006; Barth, Caprio, and Levine, 2006; Quintyn and Verdier, 2010). Indeed, the accountability of the government to legislative bodies (i.e., the lower house) or the electorate's real political influence may have direct impact on financial regulations and development.<sup>14</sup> Countries vary greatly from each other in terms of the degree of restraints on the powers of the executive, the competitiveness of political participation, or the extent to which electorate can effectively express their preferences about ruling coalitions and policies via elections. We include a dummy variable POLITY 2, which is based on the *polity 2* variable from the Polity IV database to control for the impact associated with political openness and competitiveness (i.e., the quality of democratic institutions). It equals one when *polity 2* is positive (i.e., when the quality of democratic institutions is sufficiently high) and zero otherwise. Second, the passage from a majoritarian (predominant throughout the nineteenth and early twentieth centuries) to a proportional electoral rule is another institutional political reform that may affect financial development and structure. Accordingly, the type of the electoral rule induces politicians to shape their platforms to cater towards different segments of the electorate. This in turn affects financial regulations and thus financial development and structure (Pagano and Volpin, 2005). We include the dummy

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<sup>14</sup> By the late nineteenth and early twentieth centuries, Germany demonstrated a fairly wide voting franchise but the lower house (*Bundestag*) had little control on her executive. To contain the political consequences of her large electorate, the executive was not chosen by the lower house but by the upper house (*Bundesrat*), which was not directly elected. Contrasting with neighboring countries such as Belgium, the executive in Germany was indeed largely unaccountable to the lower house and therefore to their electorate (Colomer, 2001). When the so-called Weimar Republic was established in 1918, democratic institutions have been improved and notably the executive was made responsible to the lower house.

variable MAJORITARIAN RULE which equals one when the lower house was elected by the plurality rule and zero otherwise.

Lastly, all models include time fixed effects. Some models also contain country fixed effects implying we then exploit within country variation.

## 4. Regression Results

This section presents the main results and it is outlined as follows. We first discuss our econometric specification and identification strategy. Then, we present successively our panel data evidence on the stock market development (subsection 4.2), banking sector development (subsection 4.3), and financial structure (subsection 4.4). Next, we discuss endogeneity pitfalls of suffrage institutions (subsection 4.5). We close this section by discussing robustness checks and potential alternative channels (subsection 4.6).

### 4.1. Econometric Methodology

The econometric model we employ to identify the relationship between voting franchise and financial development and structure can be written as:

$$Y_{ct} = \alpha \cdot S_{ct} + \beta \cdot X_{ct} + u_{ct}, \quad (1)$$

where  $Y_{ct}$  is the outcome variable of interest for country  $c$  at time  $t$ , i.e., our indicators of stock market development ( $\ln(\text{CAPITALIZATION})$  and  $\ln(\text{LISTED COMPANIES})$ ), banking sector development ( $\ln(\text{BANK DEPOSITS})$ ), or the financial structure ( $\ln(\text{STRUCTURE})$ ).  $S_{ct}$  is one of the two measures of suffrage institutions ( $\text{SUFFRAGE}$  and  $\text{EFFECTIVE SUFFRAGE}$ ), and  $X_{ct}$  is the set of other controls (based upon the economic and institutional theories explaining financial development discussed in Section 3). The parameter of interest is

$\alpha$ , whereas  $\beta$  is a vector capturing effects of the control variables in  $X_{ct}$ , and  $u_{ct}$  is an error term.

We add time and country fixed effects:

$$u_{ct} = \gamma_t + \lambda_c + \varepsilon_{ct},$$

where  $\varepsilon_{ct}$  is the remaining stochastic disturbance term. For some specifications, we estimate equation (1) without country fixed effects as these wipe out any time-invariant country characteristics. We base inference on panel corrected standard errors (PCSE) as recommended by Beck and Katz (1995). This procedure allows controlling for disturbances that are both heteroskedastic and contemporaneously correlated across countries.<sup>15</sup>

#### *4.2. Suffrage Institutions and Stock Market Development*

Our findings on the impact of suffrage institutions on our two indicators of stock market development ( $\ln(\text{CAPITALIZATION})$  and  $\ln(\text{LISTED COMPANIES})$ ) are shown in Tables 4 and 5, respectively. Models (1) to (3) and (4) to (6) in Tables 4 and 5 show the results for SUFFRAGE and EFFECTIVE SUFFRAGE each time including different controls, respectively. As the results are quite robust across the different models, we first discuss the impact of the voting franchise indicators of interest on our two stock market development indicators before turning to our discussion of the control variables. Models (3) and (6) include country fixed effects implying that the time-invariant controls become encompassed; hence, we focus on the impact of within country variation of voting franchise on stock market development.

<insert Table 4 about here>

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<sup>15</sup> We investigated the stationarity of our data by plotting them against time but did not detect trends. Conventional panel unit root tests are not feasible due to the unbalanced nature of our dataset and the presence of gaps in the data.



First, Table 4 provides strong evidence in support of the prediction that a more restrictive voting franchise leads to a higher stock market capitalization (over the period 1830-1999). A one percentage point higher SUFFRAGE leads to a drop of 1.798%\*\*\* (Model (1)) to 1.852%\*\*\* (Model (2)) in the size of stock markets relative to GDP. Similarly, a one percentage point increase in the fraction of votes cast (EFFECTIVE SUFFRAGE) corresponds with a drop of 1.759%\*\* (Model (4)) to 1.992%\*\* (Model (5)) in stock market development. Our results are economically meaningful. For example, a one standard deviation drop in SUFFRAGE (i.e., a drop of 0.241 in Model (2)) or EFFECTIVE SUFFRAGE (i.e., a drop of 0.202 in Model (5)) implies a 44.6% or 40.2% higher CAPITALIZATION, respectively. The inclusion of country fixed effects in Model (3) induces the coefficient of SUFFRAGE to drop a bit but within country variation remains important: a one standard deviation (within the same country) drop of SUFFRAGE leads to a 24.6% higher CAPITALIZATION (i.e.,  $0.222 \times 1.108$ ). The inclusion of country fixed effects makes EFFECTIVE SUFFRAGE insignificant.

<insert Table 5 about here>

Second, Table 5 shows that increasing the voting franchise to a broader fraction of the population leads to a reduction in the number of companies listed on stock markets. These results are independent of the inclusion of country fixed effects or not. An increase of SUFFRAGE by one percentage point corresponds with a 0.989%\*\* (Model (3)) to 2.553%\*\*\* (Model (2)) drop in LISTED COMPANIES. Similarly, a one percentage point increase in the proportion of votes cast (EFFECTIVE SUFFRAGE) relates to a 1.803%\*\* (Model (5)) to 2.344%\*\*\* (Model (6)) drop in LISTED COMPANIES. Based on Models (2)

and (5), a one standard deviation drop in SUFFRAGE (i.e., 0.241) and EFFECTIVE SUFFRAGE (i.e., 0.202) leads to a 61.5% and 36.4% greater LISTED COMPANIES. We therefore find clear evidence that the breadth of the stock markets is undermined with a broader voting franchise. Using either measure, there is a strong robust effect of suffrage institutions.

We now turn to a discussion of the results of the control variables included in Tables 4 and 5. Our findings are in accordance with previous literature. Richer countries (measured by GDP PER CAPITA) have more developed stock markets both in terms of stock market capitalization (Table 4) and number of listed companies (Table 5). We find that a higher degree of urbanization (URBANIZATION RATE) has positive effects on stock market development although it is not always statistically significant. In general, LAND AREA has a negative and significant coefficient, meaning that greater natural resource endowments produce adverse effects on stock market development. This is consistent with predictions from Beck, Demirgüç-Kunt, and Levine (2003). In a same vein, LATITUDE is positive and statistically significant suggesting that the further away a country is from the equator the higher its reliance on stock markets. In line with prior findings of the law and finance literature, countries with English Common law legal tradition (COMMON LAW ORIGIN) tend to have more developed stock markets. Catholic religion does not seem to affect stock market development.

Tables 4 and 5 further include two important control variables underpinned by the literature on political institutions and financial development. Models (2) and (5) control for the quality of democratic institutions (POLITY 2) and for the electoral rule (MAJORITARIAN RULE). Except for Model (5) in Table 5, those measures of political institutions are insignificant. More importantly, our results remain robust to the inclusion of

those variables showing that our suffrage variables do not capture other institutional political design of the era.<sup>16</sup>

Overall, these results suggest that broader suffrage institutions have a first-order negative effect on stock market development. The next section investigates whether this pattern is similar when considering banking sector development.

### 4.3. Suffrage Institutions and Banking Sector Development

We now turn to the impacts voting franchise has on banking sector development. Table 6 displays the results of our empirical analysis in which the period covered is the twentieth century. As previously, Models (1) to (3) and (4) to (6) show the results for SUFFRAGE and EFFECTIVE SUFFRAGE, each time including different controls or country fixed effects, respectively. We first discuss our findings on our voting franchise variables of interest before turning to the control variables.

<insert Table 6 about here>

Table 6 shows that SUFFRAGE and EFFECTIVE SUFFRAGE positively impact banking development. In particular, a one percentage point increase in SUFFRAGE implies a

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<sup>16</sup> In unreported regressions we further include POLITY 2 and MAJORITARIAN RULE together with country fixed effects; in general, the results on our suffrage indicators of interest remain unaffected. It is also worth emphasizing that the “original” *polity 2* index (coded on a scale from -10 to 10 as provided in the POLITY IV database) correlates over time with our suffrage indicators. This is expected since several subcomponents of the *polity 2* index are related to elections and thus voting franchise. We adopt a twofold strategy to disentangle their respective effects and avoid misleading conclusions about the role played by our suffrage indicators of interest. First, the use of a simple dummy variable, taking the value of one if the *polity 2* index is positive and zero if negative, reduces the potential problem of collinearity between these variables in our models. Considering the “original” *polity 2* index makes however little difference for our results in the reported models. Second, we include in our models only the subcomponent of the *polity 2* index which is not capturing elections (i.e., the constraints on chief executive which reflects the real political impact of parliament as measured by the variable *xtconst* in the POLITY IV database). Our results on the suffrage indicators when including this *xtconst* variable become somewhat stronger, but are not reported to save space. A similar footnote applies for our other indicators of financial development and structure.

0.724%\*\*\* (Model (3)) to 0.957%\*\*\* (Model (1)) higher BANK DEPOSITS. Taking Model (3) with country fixed effects, a one standard deviation higher SUFFRAGE goes together with a 16.1% larger BANK DEPOSITS (i.e.,  $0.222 \times 0.724$ ). The remaining models of Table 6, which use our second indicator of suffrage institutions, show results consistent with those in previous models. Models (4) to (6) of Table 6 show that the estimated coefficients for EFFECTIVE SUFFRAGE are between 0.975\*\*\* (Model (6)) and 1.460\*\*\* (Model (4)). Also, the impact of EFFECTIVE SUFFRAGE is largely economically relevant: a one standard deviation higher EFFECTIVE SUFFRAGE (using the coefficient of Model (6)) relates to an impressive 16.8% greater BANK DEPOSITS. These results indicate that a broader voting franchise has a considerable positive impact on banking sector development.

We now discuss our control variables. We include the same set of control variables as in explaining stock market development. Furthermore, and specific to banking development, all models in Table 6 include a dummy variable for Switzerland (except for Models (3) and (6) where country fixed effects make the Switzerland dummy redundant). Switzerland has long been a safe haven for international bank deposits and its high banking development may capture this characteristic. Income per capita positively influences banking development. URBANIZATION RATE however is not statistically significant in all models. LAND AREA is statistically significant only in two specifications but overall negative, showing that countries with a greater surface have lower banking development. There is no significant effect of LATITUDE on the levels of banking sector development, whereas it positively influenced stock market development. The measures of legal origin (COMMON LAW ORIGIN) and religion (CATHOLIC) are not significant determinants of bank finance.

The quality of democracy indicator, POLITY 2, enters with the expected sign in regressions but its impact is only significant in Model (5). MAJORITARIAN RULE is negative and statistically significant in Model (2), consistent with the predictions from the

political economy literature. This significance does not persist when we consider EFFECTIVE SUFFRAGE as variable of interest.

In sum, our results on banking development suggest that the newly enfranchised population has on average strong preferences for greater banking development.

#### *4.4. Suffrage Institutions and Financial Structure*

Subsections 4.2 and 4.3 provided robust and contrasted effects of suffrage institutions on financial development, with a negative effect on stock markets and a positive effect on the banking sector. In this subsection, we ask ourselves whether suffrage institutions impact the financial structure, that is, the relative importance of stock markets vis-à-vis banks. Table 7 examines this aspect for the period 1913-1999.

<insert Table 7 about here>

Models (1) to (3) and (4) to (6) study the impact of SUFFRAGE and EFFECTIVE SUFFRAGE including different sets of controls, respectively. Models (1) to (3) show that a one percentage point greater SUFFRAGE goes together with a 1.994%\*\*\* (Model (3)) to 2.265%\*\*\* (Model (1)) lower STRUCTURE. This shows that the proportion of the population eligible to vote produces a strong adverse effect on the market-orientation of the financial structure. The economic significance is considerable as a one standard deviation increase in SUFFRAGE within the same country (based on Model (3)) leads to a 44.3% (i.e.,  $0.222 \times 1.994$ ) lower STRUCTURE. Increasing the size of the voting population augments the size of the banking sector but also reduces stock market development. This is reflected in a drastic decrease in market orientation. Results shown in Models (4) to (6) of Table 7,

considering EFFECTIVE SUFFRAGE as variable of interest, are qualitatively similar (32.9% decrease as a result of a one standard deviation increase in EFFECTIVE SUFFRAGE, according to Model (6)).

Our results on financial structure show that the impact of suffrage institutions on financial development is big enough to influence the market-orientation of the financial structure. Suffrage institutions play thus a key role in our understanding of the divergent orientation that financial systems may take across countries and time. We think of the expansions of the voting franchise across space and time as being exogenous shocks affecting the location of the median voter and, thus, its preference about the orientation of the financial structure. We now turn to further examining the exogeneity of suffrage institutions.

#### *4.5. On the Exogeneity of Suffrage Institutions*

Our evidence presented so far may encounter pitfalls in separating correlation from causality. Indeed, our inference becomes biased if the variation in our suffrage institutions variables employed to explain financial development is related to the random unexplained component of financial development. In this subsection, we deal with reverse causality and omitted variable bias. To do so, we first argue on the plausibility of the exogeneity of suffrage institutions through the lens of the extant literature. Second, we go one step further and use a DID research design. Third, we use an IV technique to further pin down the exogeneity of our suffrage institutions variables.

##### *4.5.1. The Modernization Hypothesis*

In our framework, reverse causality and omitted variable bias echo the modernization hypothesis. This hypothesis postulates that economic development drives the creation and the consolidation of democracy (Lipset, 1959). Since economic development is also related to financial development, the modernization hypothesis could explain our results obtained so far. While earlier studies support the modernization hypothesis, the latest empirical studies reject these earlier conclusions mainly because these earlier studies failed to control for endogeneity. By using extensive panel data and providing careful attention at omitted variable bias and reverse causality, Acemoglu, Johnson, Robinson, and Yared (2008) do not find any impact of income on the level of democracy. Similarly, Acemoglu, Johnson, Robinson, and Yared (2009) identify no causal effect of economic development on the transitions into and away from democracy. Aidt and Jensen (2011) look directly at the effect of economic development on suffrage institutions and refute in turn empirically the modernization hypothesis. These works are rather consistent with the idea that institutional changes during certain critical historical junctures (such as factor endowments affecting the mode of settlement) led to divergent economic and political development (see, e.g., Engerman and Sokoloff, 1997; Acemoglu, Johnson, and Robinson, 2001). Based on these latest results, reverse causality and omitted variable bias do not seem to constitute a major concern in our study and suffrage institutions can be considered as exogenous and we could safely end the discussion on endogeneity here.

We nevertheless make two additional steps, even though the latest evidence on the modernization hypothesis does not point towards endogeneity concerns in our framework. First, we adopt a DID approach to account for omitted variable bias. Second, we employ an IV approach to deal with reverse causality.

#### *4.5.2. DID Approach*

To mitigate some of the concerns about omitted variables, we exploit plausibly exogenous inter-temporal variations from two major suffrage reforms (namely, for male and female universal suffrage) across countries. We examine the financial development of countries having undertaken suffrage reforms relative to countries that did not during different years. Formally, we estimate the effect of the two major suffrage reforms with a DID methodology, using the following specification:

$$Y_{ct} = \delta \cdot R_{ct} + \beta \cdot X_{ct} + \gamma_t + \lambda_c + \varepsilon_{ct}, \quad (2)$$

where the indices, parameters, and variables are defined as in equation (1), except  $R_{ct}$ , the assignment treatment variable, which is either a dummy equal to one if a country  $c$  introduced male universal suffrage (meaning that all males of voting ages were allowed to vote in parliamentary elections) at time  $t$ , and zero otherwise; or a dummy equal to one if a country  $c$  introduced female universal suffrage (in practice meaning universal suffrage as then all males and females of voting ages were allowed to vote in parliamentary elections) at time  $t$ , and zero otherwise. The treatment effect is given by  $\delta$ . We do not include both assignment variables at the same time to avoid confounding effects.<sup>17</sup>

In this DID approach, multiple treatment and control groups take care of many threats concerning validity, such as a reduction of any biases and noise associated with just one comparison. This is well illustrated with the following example. Suppose that we wish to estimate the effect of the 1913 universal suffrage law in Norway on financial development. Because the United Kingdom introduced universal suffrage in 1928 and both countries had more restricted suffrage in 1900, until 1928, the United Kingdom initially serves as a control country for suffrage change; and after that it serves as a treatment country for subsequent years. Therefore, most countries belong to both treatment and control groups at different

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<sup>17</sup> Indeed, both assignment variables are highly correlated. The difference in years between male and female suffrage reforms is less than two periods for 14 countries out of 18.



points in time. This specification is robust to the fact that some countries received the treatment prior to our sample's beginning year.

Models (1) to (4) in Table A2 estimate the effect for each dependent variable of interest. In Panel A, the assignment variable is MALE SUFFRAGE REFORM, while, in Panel B, the assignment variable is FEMALE SUFFRAGE REFORM. The effect is highly significant and the coefficients on both assignment variables exhibit the expected signs.<sup>18</sup> The results in Panels A and B show that the effect of suffrage is present for both male and female universal suffrage. We interpret these results by the fact that the effect for male suffrage is mostly determined by wealth considerations, while the effect for female suffrage is mostly determined by risk aversion considerations. Indeed, when women are allowed to vote, we do not expect a decrease in the median voter's wealth, however we expect that female are more risk averse than their male counterparts (see Eckel and Grossman, 2008; Sapienza, Zingales, and Maestriperi, 2009); both considerations (wealth and risk) move the median voter preferences leftwards (see Perotti and von Thadden, 2006).<sup>19</sup>

#### *4.5.3. IV Approach*

We also examine the exogeneity of our voting franchise indicators, SUFFRAGE and EFFECTIVE SUFFRAGE, in the following way: We employ the Durbin-Wu-Hausman test, with the null hypothesis that the ordinary least squares (OLS) estimator is consistent with the

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<sup>18</sup> We also provide a tighter test of equation (2), by limiting the DID analysis to sub-samples of countries belonging to the same legal tradition. Intuitively, the treatment and control countries are more likely to be comparable if they are from the same legal origin. This is important because treatment and control countries can exhibit differential trends leading to inconclusive or erroneous inferences. In addition, we reproduce the DID analysis with subsamples containing shorter time spans. All these results are qualitatively similar to the results presented in Table A2 and can be obtained upon request.

<sup>19</sup> However, part of the significant results for female suffrage reform may be driven by confounding effects with male suffrage reform (see Footnote 17). Indeed, since the time period between the two reforms is generally short, the variable FEMALE SUFFRAGE REFORM may capture some effects of MALE SUFFRAGE REFORM, especially if the impact on financial development is not immediate.

IV estimator. A rejection of the null indicates that the endogeneity of the regressors has a significant influence on the estimates, and that equation (1) should be estimated using IV methods. We employ two instruments. The first instrument is the threat of revolution. The argument for this instrument is that political elites opt for universal male suffrage in order to make a credible commitment for future redistribution and to avoid social unrest and revolution (Acemoglu and Robinson, 2000, 2006). Following Aidt and Jensen (2011), our instrument captures revolutionary events happening in other countries, excluding events within a country itself. This instrument is therefore unlikely to be correlated with (observed and unobserved) contemporaneous determinants of financial development originating within a country. The second instrument is a proxy for the international norms concerning voting rights. The diffusion of these norms has been amplified by the proclamation by the United Nations in 1948 of the Universal Declarations of Human Rights, aiming at banning all kinds of discrimination and at asserting equality of rights between men and women. While this diffusion effect is relatively weaker for the introduction of male suffrage, it is overwhelming for expansions involving women. Detailed information on the definition and construction of the instruments is provided in Table 1.<sup>20</sup>

Then, we estimate two-stage least squares (2SLS) regressions for the main specifications of Tables 4, 5, 6, and 7; detailed results are available upon request. It must be noted that our instruments satisfy the relevance and exclusion conditions. The relevance condition requires a sufficient correlation between the instruments and the potential endogenous variable after netting out the effects of all the covariates. The relevance condition is satisfied because  $F$ -statistics from the first-stage regressions exceed the threshold value for two instruments. The exclusion condition requires that the instruments are uncorrelated with

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<sup>20</sup> Another instrument used was fragmentation within the elite. Some authors argue that fragmented elites grant male universal suffrage voluntary, in their own interest, either because they prefer public goods over transfers (Lizzeri and Persico, 2004) or because they want to obtain an electorate for particular economic policies (Llavador and Oxoby, 2005). We prefer not to take fragmentation within the elites into account because this argument is rather confined in the nineteenth century's context, a period not covered by Tables 5, 6, and 7.

the error term in the equation of interest (1), which is not testable directly because the error term is unobservable. However, we test for overidentifying restrictions and  $p$ -values of the Sargan statistics are higher than 10% in most of the cases.

Under both theoretical and statistical grounds that our two instruments are valid, the Durbin-Wu-Hausman test results indicate that the exogeneity assumption is not rejected, except for  $\ln(\text{CAPITALIZATION})$ . Therefore, the method of estimation used throughout the paper does not lead to inconsistent and biased estimates and are preferred to 2SLS estimation methods. However, our results remain qualitatively similar with 2SLS regressions, which alleviate the concerns of reverse causality.

#### *4.6. Robustness and Alternative Channels*

In this subsection, we investigate whether our findings are robust to measurement issues regarding our suffrage indicators, further control variables (wealth distribution and trade openness), and potential alternative channels through which voting franchise may operate. All the new variables discussed below are defined in Table 1. For brevity, the results are either untabulated or relegated to the Appendix. Although we focus, in this subsection, on the results for financial structure (see Table A3), the corresponding results for stock market development and banking sector development are similar to those shown in subsections 4.2 and 4.3, respectively.

As discussed in Section 3, our suffrage indicators are scaled by total population and not the population over the age of 18 (i.e., the voting age population nowadays in many countries). Significant variations in our suffrage indicators arise in jumps due to changes in voting legislations (as previously analyzed in our DID analysis). Using as denominator

population above 18 years old would not change the timing and magnitude of these jumps.<sup>21</sup> Still, we investigate further whether some changes in our suffrage indicators may be due to changes in the population's age pyramid rather than changes in suffrage legislations. We use the following two-step approach. First, we regress the suffrage measure on POPULATION GROWTH, which is a reasonable proxy for the population's age pyramid. Second, we use the residuals as measure for suffrage institutions in our analysis. This corrected measure then proxies for any changes in suffrage not driven by changes in the population pyramid. Our results are robust to using this "corrected" measure.

So far, we have considered that the median voter political preferences for bank- over stock market-oriented system are mainly determined by the expansion of the voting franchise, assuming the distribution of wealth constant over time. However, the median voter political preferences can move over time to favor stock markets if the financial wealth spreads across the population – thanks to the economic success of the middle class or the emergence of capitalized pension systems. Conversely, adverse shocks to the population's financial wealth during the wars and depression shocks shaped the median voter political preferences over the role of stock market finance in society. As suggested by Perotti and von Thadden (2006), we relax the assumption that the wealth distribution is fixed over time by including information on the wealth distribution in our regression specifications. We use the top 1% income share as a proxy for the concentration of financial wealth over the population (see Atkinson, Piketty, and Saez, 2011); this control variable is labeled TOP INCOME SHARE and is taken from

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<sup>21</sup> To be reassured that the discrepancy caused by the choice of the denominator is minimized, we provide correlations of our suffrage variables and variables from other data sources employing the voting age population as denominator. The IDEA dataset reports the number of registered voters (similarly, the number of valid votes cast) divided by the population over 18 and variables from Flora (1983) employ as denominator the population over 20. The former includes the 18 countries from 1950 onwards, while the latter only includes 11 Western European countries before 1970. The correlation between SUFFRAGE (similarly, EFFECTIVE SUFFRAGE) and the corresponding IDEA variable is 0.721 for 93 observations (0.857 for 88 observations). Using data available from Flora (1983), the correlations are respectively 0.989 (91 observations) and 0.991 (85 observations). Although the number of observations drops dramatically, employing suffrage variables from these other sources do not change qualitatively the results presented so far.

“The World Top Incomes Database”.<sup>22</sup> Even though this is the most comprehensive panel dataset on income and wealth distribution, data on the early twentieth century are typically not well covered and it leaves us with 15 countries only (data for Austria, Belgium, and Chile are not available). Models (1) and (2) in Table A3 show that TOP INCOME SHARE is not significant but does also not change the magnitude of the coefficient on suffrage. In particular, employing the same sample but leaving out TOP INCOME SHARE yields coefficients on SUFFRAGE and EFFECTIVE SUFFRAGE of -1.507 and -2.353\*\*, respectively. These are very similar to the ones reported in Models (1) and (2) in Table A3.

Rajan and Zingales (2003) argue that the degree of trade openness impacts on financial development by reducing barriers to entry. Therefore, Table A3 reports the results including TRADE OPENNESS as an additional explanatory variable. Trade openness is significant and positive in Model (3) but not in (4). More importantly, the results for SUFFRAGE and EFFECTIVE SUFFRAGE are unaffected.

An expansion of the voting franchise may influence the magnitude of government expenditures. In turn, these changes in government expenditures may affect financial development and structure. For example, a broader franchise may lead to more redistributive measures (see Acemoglu and Robinson, 2000) funded by higher taxes, also on corporations. Such a tax change may favor other creditors at the expense of shareholders and therefore impact on financial development and structure. In order to control for such alternative channels, we include the logarithm of government expenditures per capita ( $\ln(\text{GOVERNMENT EXPENDITURE})$ ) as additional control variable. Models (5) and (6) in Table A3 reveal that  $\ln(\text{GOVERNMENT EXPENDITURE})$  is not significant and that our results on SUFFRAGE and EFFECTIVE SUFFRAGE are hardly altered.

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<sup>22</sup> See Alvaredo, Facundo, Anthony Atkinson, Thomas Piketty, and Emmanuel Saez, The World Top Incomes Database, <http://topincomes.g-mond.parisschoolofeconomics.eu>, 12/02/2013.

## 5. A long-Run Perspective

Section 4 showed that the scope of voting franchise impacts financial development contemporaneously. But is the impact of voting franchise only immediate or does it also generate slower adjustment effects and generate a longer-run effect? We observe today convergence paths of both countries' suffrage institutions and of countries' reliance on stock markets. Indeed, in our sample countries, the fraction of the voting population converged in the post-World War II era and most stock markets recovered in the last decades. This is largely due to the fact that all the countries considered nowadays have introduced universal suffrage for all men and women. Given that all the countries exhibit high levels of voting participation, one might expect that suffrage has no explanatory power anymore if it only generates immediate effects. If suffrage has explanatory power, one might expect that the adjustment process affecting financial development is slow or that suffrage has long-lasting effects. Our empirical analysis below shows that the scope of voting franchise produces longer-run effects, that is, suffrage institutions still exert influence on market-orientation of the financial structure at the end of the twentieth century.<sup>23</sup> It seems important to note that we do not argue that this convergence path of suffrage institutions cannot reverse in the future,<sup>24</sup> but rather that this convergence path, in a period where stock markets have mostly recovered, still produce effects on countries' financial system orientation.

To shed light on this long-run effect, we investigate whether the orientation of a country's financial system – averaged over the period 1980-1995 – is related to the time of introduction of universal suffrage in that country.<sup>25</sup> We focus on two indicators of the market

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<sup>23</sup> Along the same lines, Perotti and Schwienbacher (2009) consider the long-lasting effect of wealth distribution shocks on countries' private pension funding.

<sup>24</sup> Acemoglu and Robinson (2006) present theoretical arguments, historically well-grounded, on the reasons why some democracies once created collapsed, whereas in others the democratic process endures and consolidates.

<sup>25</sup> In a related context, Bordo and Rousseau (2006) show that the advent of universal suffrage impacted the ratio of broad money to GDP, which is a broader measure than ours and more related to monetary economics issues.

orientation of the financial system as constructed and previously employed by Beck, Demirgüç-Kunt, and Levine (2000). The first is the ratio of stock market capitalization to private credit (FINANCIAL STRUCTURE<sup>26</sup>). The second indicator is the average of the deviations from the mean of three measures capturing the relative importance of stock markets vis-à-vis the banking sector in terms of size, activity, and efficiency (FINANCIAL STRUCTURE INDEX). To measure the impact of voting franchise, we employ the year of introduction of the universal suffrage (UNIVERSAL SUFFRAGE), that is, the year of the first parliamentary election in which all males and females of voting ages are allowed to vote in a given country (constructed from Flora, 1983; Ramirez, Soysal, and Shanahan, 1997). We enlarge our sample to 35 countries listed in Table A1. We did not consider those additional 17 countries before due to a lack of data on the early twentieth century. Figure 1 illustrates when universal suffrage was introduced in our 35-country dataset and clearly shows a clustering around both World Wars. Similarly to previous sections, we include the same set of control variables in which we replace the GDP per capita by the initial GDP per capita (INITIAL GDP PER CAPITA).<sup>27</sup>

<insert Table 8 about here>

Table 8 reports the results of estimating the impact of UNIVERSAL SUFFRAGE on FINANCIAL STRUCTURE and FINANCIAL STRUCTURE INDEX. Econometric specifications in Models (1), (3), (5), and (7) consider the whole sample of 35 countries, while Models (2), (4), (6), and (8) restrict the sample to the 18 countries employed in Section 4. We

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<sup>26</sup> We scale stock market capitalization by private credit in our long-run analysis and by bank deposits in Section 4. To distinguish them clearly, we label the scaling by private credit as FINANCIAL STRUCTURE.

<sup>27</sup> The construction of the proxy for economic development, called INITIAL GDP PER CAPITA, is slightly different since it is the real GDP per capita in 1980 using data from Summers-Heston. URBANIZATION RATE, LAND AREA, LATITUDE, COMMON LAW ORIGIN, and CATHOLIC are defined in Table 1 and are related to the year 1980.

present results for OLS regressions and 2SLS regressions. The date of introduction of universal suffrage (UNIVERSAL SUFFRAGE) has an impressive positive (statistically and economically) effect on the orientation of the financial system over the period 1980-1995. Model (1) of Table 8 shows that a 25-year delay in the introduction of universal suffrage implies a 17.5 percentage point increase in the relative importance of stock markets as compared to banks and other financial intermediaries (i.e.,  $0.007*25$ ). Model (2) indicates a similar impact (an increase of 15 percentage point, that is,  $0.006*25$ ) when we restrict the sample to the 18 countries. Next, the introduction of universal suffrage has also a striking effect on our second indicator of orientation, FINANCIAL STRUCTURE INDEX, as can be seen from Models (5) to (8). A 25-year delay in the introduction of universal suffrage is related to a FINANCIAL STRUCTURE INDEX which is 10 percentage points higher (using coefficients of Model (5), that is,  $0.004*25$ ), suggesting an increased dominance of stock markets over banks when universal suffrage arose later. The results are stable to restricting our analysis to the 18 countries. To deal with potential endogeneity, we instrument UNIVERSAL SUFFRAGE with the number of countries already having introduced up to that point universal suffrage (i.e., INTERNATIONAL NORMS).<sup>28</sup> These international norms should not influence the financial development of a specific country directly but be correlated with UNIVERSAL SUFFRAGE, making it a good instrument. We obtain similar coefficients from 2SLS estimations, as can be seen from Models (3), (4), (7) and (8). By focusing on the long-run effect, these cross-section findings provide further support for our predictions.

## 6. Conclusions

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<sup>28</sup> This is the only instrument used in Table 8 since it is specifically related to universal male and female suffrage, whereas the other instrument, proxing the threat of revolution, rather relates to universal male suffrage.



This paper investigates whether the scope of the voting franchise impacts the development and structure of a country's financial system. As an exogenous structural political shock, an expansion of the voting franchise shifts the median voter political preferences. A restricted voting franchise ensures a wealthy median voter and is more conducive to support strong minority shareholder protection and thereby the development of stock markets. In contrast, a broader voting franchise induces a poorer median voter and is more conducive to provide support to the banking sector. Our empirical evidence covering the nineteenth and twentieth centuries supports these predictions. Our results are consistent with Perotti and von Thadden (2006), whose seminal work suggests that different forms of financial system reflect the preferences of the voting median class, which are influenced by its equity stake and risk aversion profile.

We further document that the voting franchise has contemporaneous effects but also long-lasting effects on the orientation of financial development. We find that countries which introduced later universal suffrage exhibit a more market-oriented financial system at the end of the twentieth century. Overall, our findings emphasize the critical role played by suffrage institutions in shaping a country's financial system and the persistent effects that these institutions produce.

This study raises follow-up research questions. The expansion of voting rights may have impact on many other dimensions of financial and economic development. One interesting area to explore is deposit insurance, which has been introduced in most of the democratic countries from 1960 onwards (Demirgüç-Kunt, Kane, and Laeven, 2008). Deposit insurance represents a financial safety net to primarily protect the middle class and its introduction did not take place at the same time; while some introduced it in 1960s, many other countries did so in 1990s or even later. Understanding the motivation for quick introduction requires exploring the effect of suffrage.

In addition, this study finds parallels in many other fields in finance, most importantly in debates on internal corporate governance mechanisms. For example, our analysis can provide insights on the impacts of low participation of retail investors in shareholder meetings of publicly listed companies. While retail investors also hold voting rights just like institutional investors, they often do not participate in shareholder meetings (Hewitt, 2011). This is a worldwide phenomenon which leads to weak “effective” minority shareholder rights due to corporate governance structures that discourage small investors to attend shareholder meetings. Recently, the SEC started investigations on the poor participation of retail investors and initiated rule-making proposals that would provide incentives for retail investors to participate more in shareholder meetings.<sup>29</sup> These include ways to reduce costs for retail investors to cast votes and obtain relevant information. Similarly, the European Union voted in 2007 the European Shareholder’s Rights Directive that enhances rights of small shareholders, as well as facilitates participation in shareholder meetings of firms located outside their national boundaries. Both initiatives may lead to an increase in the “effective” suffrage of retail investors, who most likely have different economic preferences than large institutional shareholders.

Another application is shareholder-based versus stakeholder-based corporate governance systems. A good example of the latter is Germany, where employee representatives have codetermination rights in board meetings (Fauvera and Fuerst, 2006). The suffrage base is then broader than in a shareholder-based system in which only legal owners (i.e., the shareholders) have a say. Fauvera and Fuerst (2006) show that enlarging the voting rights in boards to employee representatives leads to different corporate governance structures and thus firm value, notably when cooperation between management and employees is most needed. One reason is that employees have different economic preferences

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<sup>29</sup> See, for example, <http://online.wsj.com/article/SB125734615206828065.html>, 4/07/2012; and <http://www.sec.gov/investor/alerts/votingrules2010.htm>, 4/07/2012.

than shareholders, since their claims are less sensitive to the upside potential of firms. In contrast, shareholders have incentives favoring riskier corporate activities.

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**FIGURE 1. The Introduction of Universal Suffrage**

This figure shows the number of countries that introduced universal suffrage in our 35-country dataset. The y-axis gives the number of countries whereas the x-axis the different time periods.

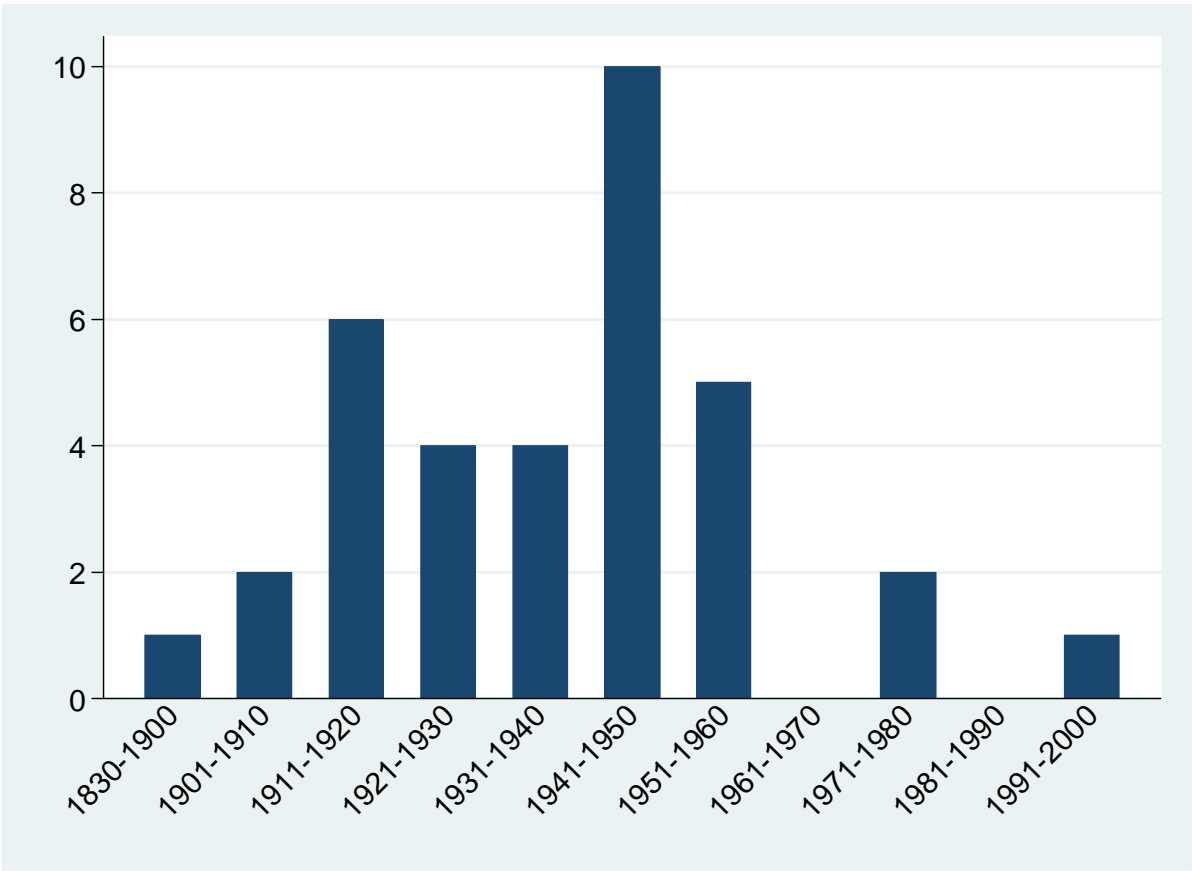


TABLE 1. Description of Variables

Variable	Description	Sources
<b>Financial Development</b>		
CAPITALIZATION	Stock market capitalization divided by GDP.	Rajan and Zingales (2003), Musacchio (2010), Goldsmith (1985), and SCOB Database
LISTED COMPANIES	Number of publicly traded domestic companies per million of inhabitants.	Rajan and Zingales (2003)
BANK DEPOSITS	Deposits at commercial banks and savings banks divided by GDP.	Rajan and Zingales (2003)
STRUCTURE	Ratio of stock market capitalization to bank deposits.	Rajan and Zingales (2003), and Musacchio (2010)
<b>Suffrage Institutions</b>		
SUFFRAGE	The number of registered voters for the lower house of the national legislature divided by total population.	Mackie and Rose (1982), Colomer (2001), Banks (2011), and International Institute for Democracy and Electoral Assistance (IDEA)
EFFECTIVE SUFFRAGE	The number of valid votes cast for the lower house of the national legislature divided by total population.	Banks (2011)
<b>Controls</b>		
GDP PER CAPITA	Per capita GDP (1990 international Geary-Khamis dollars).	Maddison (2003)
URBANIZATION RATE	The proportion of the population that lives in cities with more than 100,000 inhabitants.	Banks (2011)
LAND AREA	Land area (sq. km).	Banks (2011)
LATITUDE	Absolute value of the latitude of a country, scaled between zero and one.	La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1999)
COMMON LAW ORIGIN	Dummy variable equal to one for English common law legal tradition, and zero otherwise.	La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1999)
CATHOLIC	Dummy variable equal to one if Catholic religion is the religion practiced by the largest fraction of the population, and zero otherwise.	Stulz and Williamson (2003)
POLITY 2	Dummy variable equal to one if <i>polity 2</i> is positive and zero if negative. <i>polity 2</i> is an index summing a <i>democracy score</i> (ranging from 0 to 10) for each country and year with an <i>autocracy score</i> (ranging from 0 to -10), with higher values associated with better democracies. The former is an institutional measure of democracy based on country's competitiveness and openness in selecting the executive, political participation, and constraints on the chief executive, whereas the latter scores autocratic limitations on the same dimensions of democratic rights.	Polity IV Database
MAJORITARIAN RULE	Dummy variable equal to one if the country elected its lower house exclusively through plurality rule in the most recent election, whereas for other (mixed and proportional) rules it equals zero.	Flora (1983), Colomer (2001), and Persson and Tabellini (2003)
TOP INCOME SHARE	Top 1% income share. Income is defined as market income including capital gains (excludes all government transfers). Top 1% denotes the top percentile.	The World Top Incomes Database
TRADE OPENNESS	The proportion of world trade (imports and exports).	Banks (2011)
GOVERNMENT EXPENDITURE	National government expenditure per capita.	Banks (2011)
<b>Instruments</b>		
THREAT OF REVOLUTION	Index of the threat of revolution. It is a simple count of major revolutionary events occurring in other countries in a given year. The index remains at its value in each year after the introduction of adult male suffrage.	Mackie and Rose (1982), Aidt and Jensen (2011), Banks (2011), and authors' own calculations
INTERNATIONAL NORMS	Proportion of countries around the world having introduced universal suffrage for all men and women. The measure remains at its value in each year after universal suffrage.	Ramirez, Soysal, and Shanahan (1997), and authors' own calculations
POPULATION GROWTH	10-year average of the annual growth rate of the total population.	Banks (2011) and Maddison (2003)

**TABLE 2. Descriptive Statistics, Tests of Differences, and Pairwise Correlations: Panel Data**

<b>Panel A: Descriptive Statistics</b>						
<b>Variable</b>	<b>Mean</b>	<b>Std Dev (Overall)</b>	<b>Std Dev (Between)</b>	<b>Std Dev (Within)</b>	<b>Nb of Countries</b>	<b>Nb of Obs</b>
<b>Financial Development</b>						
CAPITALIZATION	0.576	0.509	0.319	0.411	18	178
LISTED COMPANIES	34.215	27.103	21.109	16.702	18	138
BANK DEPOSITS	0.421	0.302	0.173	0.251	18	162
STRUCTURE	2.041	2.370	1.716	1.618	18	144
<b>Suffrage Institutions</b>						
SUFFRAGE	0.475	0.241	0.108	0.222	18	190
EFFECTIVE SUFFRAGE	0.377	0.202	0.120	0.172	18	170
<b>Controls</b>						
ln(GDP PER CAPITA)	1.814	0.790	0.308	0.737	18	195
URBANIZATION RATE	0.257	0.150	0.111	0.102	18	194
ln(LAND AREA)	5.936	1.768	1.822	0.092	18	198
LATITUDE	0.516	0.117	0.123	0.000	18	198
COMMON LAW ORIGIN	0.273	0.446	0.461	0.000	18	198
CATHOLIC	0.500	0.501	0.514	0.000	18	198
POLITY 2	0.874	0.333	0.150	0.297	18	198
MAJORITARIAN RULE	0.535	0.500	0.389	0.331	18	198
<b>Panel B: Tests of Differences</b>						
	<b>Low (&lt; Median)</b>	<b>High (≥ Median)</b>		<b>Test Diff. (p -value)</b>		
	CAPITALIZATION		CAPITALIZATION			
SUFFRAGE	0.505	0.459		0.204		
EFFECTIVE SUFFRAGE	0.426	0.333		0.003		
	LISTED COMPANIES		LISTED COMPANIES			
SUFFRAGE	0.608	0.517		0.007		
EFFECTIVE SUFFRAGE	0.482	0.397		0.005		
	BANK DEPOSITS		BANK DEPOSITS			
SUFFRAGE	0.500	0.588		0.008		
EFFECTIVE SUFFRAGE	0.403	0.462		0.045		
	STRUCTURE		STRUCTURE			
SUFFRAGE	0.609	0.511		0.003		
EFFECTIVE SUFFRAGE	0.489	0.383		0.000		
<b>Panel C: Pairwise Correlations</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
(1) ln(CAPITALIZATION)	1.000					
(2) ln(LISTED COMPANIES)	0.280***	1.000				
(3) ln(BANK DEPOSITS)	0.178**	0.095	1.000			
(4) ln(STRUCTURE)	0.783***	0.257***	-0.454***	1.000		
(5) SUFFRAGE	-0.011	-0.215**	0.289***	-0.327***	1.000	
(6) EFFECTIVE SUFFRAGE	-0.122	-0.219**	0.184**	-0.414***	0.930***	1.000

*Note:* This table presents descriptive statistics (Panel A), tests of differences (Panel B), and pairwise correlations (Panel C) for our 18-country panel dataset spanning from 1830 to 1999. Panel B tests the difference in means, for each indicator of suffrage institutions, between low and high countries' levels of financial development (i.e., values below and above the median). Panel C reports pairwise correlation coefficients between our financial development indicators and suffrage indicators. Table 1 summarizes variables definitions and sources. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

**TABLE 3. Descriptive Statistics of Suffrage Institutions Indicators by Sample Year**

Year	Mean	Median	Minimum	Maximum	Std Dev	Nb of Countries	EFFECTIVE SUFFRAGE						
							Mean	Median	Minimum	Maximum	Std Dev	Nb of Countries	
<b>1830-1899</b>	0.141	0.160	0.018	0.333	0.097	9	0.101	0.091	0.010	0.284	0.080	9	
<b>1900</b>	0.173	0.190	0.020	0.339	0.085	17	0.120	0.104	0.026	0.306	0.079	13	
<b>1913</b>	0.255	0.236	0.035	0.626	0.126	16	0.167	0.144	0.106	0.348	0.066	12	
<b>1929</b>	0.428	0.501	0.055	0.650	0.184	17	0.343	0.360	0.041	0.549	0.134	15	
<b>1938</b>	0.472	0.564	0.105	0.684	0.199	17	0.383	0.445	0.083	0.595	0.149	15	
<b>1950</b>	0.545	0.609	0.108	0.681	0.176	18	0.455	0.503	0.089	0.584	0.154	14	
<b>1960</b>	0.549	0.606	0.108	0.691	0.171	17	0.467	0.520	0.076	0.615	0.150	16	
<b>1970</b>	0.575	0.646	0.099	0.710	0.166	17	0.451	0.511	0.068	0.620	0.167	17	
<b>1980</b>	0.647	0.696	0.097	0.749	0.155	18	0.511	0.560	0.040	0.745	0.163	18	
<b>1990</b>	0.716	0.729	0.583	0.797	0.059	17	0.565	0.582	0.242	0.665	0.103	14	
<b>1999</b>	0.706	0.735	0.422	0.853	0.100	18	0.506	0.553	0.239	0.649	0.124	18	

*Note:* This table reports descriptive statistics for our suffrage institutions indicators (as defined in Table 1) for several sample periods.

**TABLE 4. The Effect of Suffrage on Stock Market Capitalization, 1830-1999: Panel Data**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Suffrage Institutions</b>						
SUFFRAGE	-1.798*** (0.679)	-1.852*** (0.668)	-1.108** (0.557)			
EFFECTIVE SUFFRAGE				-1.759** (0.764)	-1.992** (0.861)	-0.744 (0.568)
<b>Controls</b>						
ln(GDP PER CAPITA)	0.561*** (0.179)	0.555*** (0.191)	0.459* (0.249)	0.518*** (0.164)	0.549*** (0.187)	0.663* (0.361)
URBANIZATION RATE	0.456 (0.429)	0.476 (0.519)	2.417*** (0.902)	0.795** (0.389)	1.088* (0.607)	2.620** (1.054)
ln(LAND AREA)	-0.149*** (0.048)	-0.153*** (0.051)	-0.317 (404)	-0.160*** (0.047)	-0.140** (0.056)	-0.309 (427)
LATITUDE	0.544* (0.287)	0.583** (0.274)		0.628* (0.343)	0.724* (0.380)	
COMMON LAW ORIGIN	1.221*** (0.206)	1.198*** (0.213)		1.189*** (0.238)	1.162*** (0.255)	
CATHOLIC	0.014 (0.077)	0.016 (0.081)		0.052 (0.078)	0.078 (0.077)	
POLITY 2		0.124 (0.259)			0.090 (0.191)	
MAJORITARIAN RULE		0.039 (0.201)			0.151 (0.201)	
<b>Fixed Effects</b>						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Country	No	No	Yes	No	No	Yes
$R^2$	0.511	0.512	0.648	0.521	0.523	0.661
Wald $Chi^2$ ( $p$ -value)	0.000	0.000	0.000	0.000	0.000	0.000
Number of Countries	18	18	18	18	18	18
Number of Observations	172	172	172	158	158	158

*Note:* This table reports results relating the stock market capitalization over GDP to suffrage institutions. The dependent variable is the logarithm of CAPITALIZATION. Depending on the specifications, the regressions control for economic development, urbanization rate, factor endowments, legal origin, religion, degree of democracy, electoral rule, year effects, and country fixed effects. The panel spans the 1830-1999 interval and includes 18 countries. Table 1 summarizes variables definitions and sources. Numbers in parentheses are panel corrected standard errors (Beck and Katz, 1995). \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

**TABLE 5. The Effect of Suffrage on the Number of Listed Companies, 1913-1999: Panel Data**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Suffrage Institutions</b>						
SUFFRAGE	-2.450**	-2.553***	-0.989**			
	(0.976)	(0.951)	(0.474)			
EFFECTIVE SUFFRAGE				-1.832**	-1.803**	-2.344***
				(0.804)	(0.784)	(0.652)
<b>Controls</b>						
ln(GDP PER CAPITA)	0.656**	0.606**	0.711***	0.288	0.155	0.622***
	(0.323)	(0.309)	(0.262)	(0.208)	(0.202)	(0.191)
URBANIZATION RATE	1.312***	1.341***	0.525	1.416***	1.296***	1.086
	(0.324)	(0.285)	(0.400)	(0.366)	(0.346)	(0.730)
ln(LAND AREA)	-0.182***	-0.193***	0.471**	-0.250***	-0.273***	0.566***
	(0.046)	(0.036)	(0.191)	(0.045)	(0.048)	(0.164)
LATITUDE	1.772***	1.857***		2.042***	2.046***	
	(0.342)	(0.300)		(0.532)	(0.538)	
COMMON LAW ORIGIN	0.918***	0.831***		1.069***	0.985***	
	(0.179)	(0.131)		(0.182)	(0.169)	
CATHOLIC	-0.121	-0.084		-0.109	-0.093	
	(0.080)	(0.078)		(0.081)	(0.079)	
POLITY 2		0.651			0.557	
		(0.649)			(0.579)	
MAJORITARIAN RULE		0.159			0.240*	
		(0.141)			(0.126)	
<b>Fixed Effects</b>						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Country	No	No	Yes	No	No	Yes
$R^2$	0.338	0.363	0.820	0.310	0.332	0.837
Wald $\chi^2$ ( $p$ -value)	0.000	0.000	0.000	0.000	0.000	0.000
Number of Countries	18	18	18	18	18	18
Number of Observations	135	135	135	126	126	126

*Note:* This table reports results relating the number of listed companies per million of inhabitants to suffrage institutions. The dependent variable is the logarithm of LISTED COMPANIES. Depending on the specifications, the regressions control for economic development, urbanization rate, factor endowments, legal origin, religion, degree of democracy, electoral rule, year effects, and country fixed effects. The panel spans the 1913-1999 interval and includes 18 countries. Table 1 summarizes variables definitions and sources. Numbers in parentheses are panel corrected standard errors (Beck and Katz, 1995). \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

**TABLE 6. The Effect of Suffrage on Bank Deposits, 1913-1999: Panel Data**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Suffrage Institutions</b>						
SUFFRAGE	0.957*** (0.366)	0.870** (0.351)	0.724*** (0.227)			
EFFECTIVE SUFFRAGE				1.460*** (0.267)	1.226*** (0.226)	0.975*** (0.340)
<b>Controls</b>						
ln(GDP PER CAPITA)	0.500*** (0.156)	0.503*** (0.139)	0.816*** (0.207)	0.404*** (0.112)	0.405*** (0.112)	0.901*** (0.306)
URBANIZATION RATE	0.038 (0.256)	0.300 (0.298)	0.871 (0.582)	-0.341 (0.328)	-0.086 (0.287)	-0.077 (0.600)
ln(LAND AREA)	-0.074** (0.031)	-0.040 (0.040)	-0.372* (0.212)	-0.045 (0.039)	-0.032 (0.048)	-0.077 (0.600)
LATITUDE	0.257 (0.317)	0.242 (0.312)		-0.413 (0.414)	-0.397 (0.396)	
COMMON LAW ORIGIN	-0.011 (0.123)	-0.013 (0.125)		-0.035 (0.116)	-0.099 (0.115)	
CATHOLIC	-0.011 (0.123)	-0.062 (0.134)		-0.122 (0.155)	-0.079 (0.166)	
POLITY 2		0.091 (0.191)			0.410* (0.212)	
MAJORITARIAN RULE		-0.217** (0.094)			-0.074 (0.105)	
<b>Fixed Effects</b>						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Country	No	No	Yes	No	No	Yes
Switzerland	Yes	Yes	No	Yes	Yes	No
$R^2$	0.431	0.444	0.604	0.405	0.424	0.572
Wald $\chi^2$ ( $p$ -value)	0.000	0.000	0.000	0.000	0.000	0.000
Number of Countries	18	18	18	18	18	18
Number of Observations	153	153	153	138	138	138

*Note:* This table reports results relating bank deposits over GDP to suffrage institutions. The dependent variable is the logarithm of BANK DEPOSITS. Depending on the specifications, the regressions control for economic development, urbanization rate, factor endowments, legal origin, religion, degree of democracy, electoral rule, year effects, country fixed effects, and Switzerland effect. The panel spans the 1913-1999 interval and includes 18 countries. Table 1 summarizes variables definitions and sources. Numbers in parentheses are panel corrected standard errors (Beck and Katz, 1995). \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

**TABLE 7. The Effect of Suffrage on Financial Structure, 1913-1999: Panel Data**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Suffrage Institutions</b>						
SUFFRAGE	-2.265*** (0.695)	-2.070*** (0.638)	-1.994*** (0.740)			
EFFECTIVE SUFFRAGE				-2.993*** (0.818)	-2.828*** (0.786)	-1.913* (1.020)
<b>Controls</b>						
ln(GDP PER CAPITA)	-0.335* (0.196)	-0.375* (0.202)	-0.334 (0.369)	-0.223 (0.162)	-0.202 (0.212)	-0.348 (0.585)
URBANIZATION RATE	0.649 (0.483)	0.188 (0.491)	0.445 (0.897)	1.217** (0.577)	1.019 (0.684)	1.431 (1.063)
ln(LAND AREA)	0.002 (0.032)	-0.042 (0.031)	0.067 (0.390)	-0.049 (0.028)	-0.059 (0.037)	0.283 (0.347)
LATITUDE	0.758* (0.413)	0.754** (0.376)		1.230** (0.523)	1.228** (0.508)	
COMMON LAW ORIGIN	1.161*** (0.275)	1.178*** (0.271)		1.114*** (0.300)	1.178*** (0.286)	
CATHOLIC	0.040 (0.180)	-0.024 (0.212)		0.104 (0.202)	0.064 (0.220)	
POLITY 2		-0.281 (0.297)			-0.406 (0.267)	
MAJORITARIAN RULE		0.307 (0.207)			0.028 (0.270)	
<b>Fixed Effects</b>						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Country	No	No	Yes	No	No	Yes
Switzerland	Yes	Yes	No	Yes	Yes	No
$R^2$	0.547	0.558	0.669	0.591	0.597	0.688
Wald $Chi^2$ ( $p$ -value)	0.000	0.000	0.000	0.000	0.000	0.000
Number of Countries	18	18	18	18	18	18
Number of Observations	138	138	138	129	129	129

*Note:* This table reports results relating financial structure to suffrage institutions. The dependent variable is the logarithm of STRUCTURE. Depending on the specifications, the regressions control for economic development, urbanization rate, factor endowments, legal origin, religion, degree of democracy, electoral rule, year effects, country fixed effects, and Switzerland effect. The panel spans the 1913-1999 interval and includes 18 countries. Table 1 summarizes variables definitions and sources. Numbers in parentheses are panel corrected standard errors (Beck and Katz, 1995). \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.



**TABLE 8. The Long-Run Effect of Universal Suffrage on Financial System Orientation: Cross Section Data**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	FINANCIAL STRUCTURE				FINANCIAL STRUCTURE INDEX			
<b>Suffrage Institutions</b>								
UNIVERSAL SUFFRAGE	0.007** (0.003)	0.006** (0.002)	0.007** (0.003)	0.006*** (0.002)	0.004** (0.002)	0.005** (0.002)	0.004** (0.002)	0.006*** (0.001)
<b>Controls</b>								
ln(INITIAL GDP PER CAPITA)	0.049 (0.114)	-0.499*** (0.119)	0.051 (0.100)	-0.491*** (0.092)	0.062 (0.060)	-0.041 (0.084)	0.067 (0.053)	-0.003 (0.068)
URBANIZATION RATE	0.287 (0.372)	0.225 (0.298)	0.297 (0.332)	0.252 (0.233)	0.095 (0.196)	0.137 (0.211)	0.118 (0.175)	0.252 (0.171)
ln(LAND AREA)	0.041 (0.032)	-0.061** (0.030)	0.042 (0.028)	-0.059*** (0.023)	0.032* (0.017)	-0.001 (0.021)	0.034** (0.015)	0.008 (0.017)
LATITUDE	-0.065 (0.451)	0.546 (0.455)	-0.052 (0.403)	0.578* (0.349)	-0.053 (0.237)	0.131 (0.322)	-0.022 (0.213)	0.268 (0.257)
COMMON LAW ORIGIN	0.329*** (0.115)	0.649*** (0.111)	0.329*** (0.101)	0.644*** (0.084)	0.185*** (0.061)	0.286*** (0.079)	0.186*** (0.053)	0.263*** (0.062)
CATHOLIC	-0.122 (0.118)	-0.078 (0.070)	-0.123 (0.098)	-0.077 (0.052)	-0.086 (0.059)	-0.095* (0.049)	-0.088* (0.052)	-0.093** (0.038)
Method of Estimation	OLS	OLS	2SLS	2SLS	OLS	OLS	2SLS	2SLS
Sample	Whole	Narrow	Whole	Narrow	Whole	Narrow	Whole	Narrow
F-Statistic for First Stage			107.718	6.807			107.718	36.807
Durbin-Wu-Hausman Chi <sup>2</sup> Test ( <i>p</i> -value)			0.858	0.698			0.447	0.018
R <sup>2</sup>	0.449	0.925	0.813	0.973	0.481	0.855	0.480	0.843
Number of Observations	35	18	35	18	35	18	35	18

*Note:* The regression estimated is:  $FINANCIAL\ SYSTEM\ ORIENTATION_c = \alpha + \beta UNIVERSAL\ SUFFRAGE_c + \gamma X_c + \varepsilon_c$ , where FINANCIAL SYSTEM ORIENTATION is either FINANCIAL STRUCTURE or FINANCIAL STRUCTURE INDEX. FINANCIAL STRUCTURE is the ratio of stock market capitalization to private credit. FINANCIAL STRUCTURE INDEX is the average of the deviations from the mean for the inverse of *dbmcap*, the inverse of *dbvtv*, and *vttover*, which are variables drawn from Beck, Demirgüç-Kunt, and Levine (2000). Higher values of this index indicate a more market-oriented financial system. FINANCIAL SYSTEM ORIENTATION dependent variables are averaged over the period 1980-1995 as provided by Beck, Demirgüç-Kunt, and Levine (2000). UNIVERSAL SUFFRAGE refers to the year of the first parliamentary election to which all males and females of voting ages were allowed to vote in a given country (constructed from different sources: Flora, 1983; Ramirez, Soysal, and Shanahan, 1997). The regressions also include a vector of control variables, X. INITIAL GDP PER CAPITA is the real GDP per capita in 1980, using data from Summers-Heston. URBANIZATION RATE, LAND AREA, LATITUDE, COMMON LAW ORIGIN, and CATHOLIC are defined in Table 1 and are related to the year 1980. The whole sample includes 35 countries and the narrow sample is restricted to the 18 countries used in the panel data analysis. In columns 1, 2, 5, and 6, regressions are estimated using OLS. In columns 3, 4, 7, and 8, regressions are estimated using 2SLS. The instrument used is INTERNATIONAL NORMS, as defined in Table 1. Numbers in parentheses are standard errors. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

## Appendix

TABLE A1. Country Coverage

Country Name				
Argentina	Cyprus	Ireland	<b>Netherlands</b>	<b>Sweden</b>
<b>Australia</b>	<b>Denmark</b>	Israel	New Zealand	<b>Switzerland</b>
<b>Austria</b>	Finland	<b>Italy</b>	<b>Norway</b>	Turkey
<b>Belgium</b>	<b>France</b>	<b>Japan</b>	Peru	<b>United Kingdom</b>
Brazil	<b>Germany</b>	Korea, Republic of	Portugal	<b>United States</b>
<b>Canada</b>	Greece	Malaysia	<b>South Africa</b>	Uruguay
<b>Chile</b>	India	Mexico	<b>Spain</b>	Venezuela

*Note:* This table lists the 35 countries of the cross section analysis and the 18 countries of the panel data analysis (in bold).

**TABLE A2. The Effect of Suffrage Reforms on Financial Development and Structure: DID Regressions**

	(1)	(2)	(3)	(4)
	ln(CAPITALIZATION)	ln(LISTED COMPANIES)	ln(BANK DEPOSITS)	ln(STRUCTURE)
<b>Panel A: Male Universal Suffrage</b>				
<b>Assignment Treatment</b>				
MALE SUFFRAGE REFORM	-0.259*** (0.114)	-0.401*** (0.085)	0.522*** (0.128)	-0.577*** (0.201)
<b>Controls</b>	Yes	Yes	Yes	Yes
<b>Fixed Effects</b>				
Year	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes
$R^2$	0.643	0.817	0.612	0.654
Number of Countries	18	18	18	18
Number of Observations	172	135	153	138
<b>Panel B: Female Universal Suffrage</b>				
<b>Assignment Treatment</b>				
FEMALE SUFFRAGE REFORM	-0.619*** (0.216)	-0.253* (0.144)	0.251** (0.096)	-0.999*** (0.294)
<b>Controls</b>	Yes	Yes	Yes	Yes
<b>Fixed Effects</b>				
Year	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes
$R^2$	0.622	0.816	0.603	0.690
Number of Countries	18	18	18	18
Number of Observations	172	135	153	138

*Note:* This table reports the results of DID regressions of stock market capitalization over GDP in column 1, of number of listed companies per million people in column 2, of bank deposits over GDP in column 3, and of financial structure in column 4. In Panel A, the assignment treatment variable, MALE SUFFRAGE REFORM, is equal to one if all males of voting ages are allowed to vote in a given country-year, and zero otherwise. In Panel B, the assignment treatment variable, FEMALE SUFFRAGE REFORM, is equal to one if all males and females of voting ages are allowed to vote in a given country-year, and zero otherwise. The regressions control for economic development, urbanization rate, land area, year effects, and country fixed effects. Table 1 summarizes variables definitions and sources. Numbers in parentheses are panel corrected standard errors (Beck and Katz, 1995). \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

**TABLE A3. The Effect of Suffrage on Financial Structure, 1913-1999: Robustness and Alternative Channels**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Suffrage Institutions</b>						
SUFFRAGE	-1.391 (1.011)		-2.204*** (0.703)		-2.403*** (0.913)	
EFFECTIVE SUFFRAGE		-2.276* (1.249)		-2.821*** (0.882)		-3.510*** (1.242)
<b>Controls</b>						
ln(GDP PER CAPITA)	-0.306 (0.343)	-0.185 (0.273)	-0.672*** (0.200)	-0.348** (0.162)	-0.388 (0.246)	-0.155 (0.268)
URBANIZATION RATE	-0.531 (0.637)	0.300 (0.677)	0.830* (0.459)	1.228** (0.555)	0.779 (0.689)	1.913** (0.787)
ln(LAND AREA)	-0.155*** (0.040)	-0.155*** (0.034)	0.013 (0.032)	-0.045 (0.029)	-0.028 (0.037)	-0.060* (0.033)
LATITUDE	0.238 (0.541)	0.341 (0.663)	1.096*** (0.377)	1.329*** (0.460)	1.050*** (0.386)	1.829*** (0.440)
COMMON LAW ORIGIN	1.650*** (0.275)	1.436*** (0.208)	1.039*** (0.314)	1.092*** (0.303)	1.393*** (0.216)	1.214*** (0.272)
CATHOLIC	0.076 (0.270)	0.139 (0.249)	0.054 (0.168)	0.113 (0.199)	0.128 (0.241)	0.270 (0.264)
TOP INCOME SCHARE	1.806 (1.893)	0.542 (2.159)				
TRADE OPENNESS			3.897*** (1.346)	1.465 (1.248)		
ln(GOVERNMENT EXPENDITURE)					-0.082 (0.152)	-0.003 (0.149)
<b>Fixed Effects</b>						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Country	No	No	No	No	No	No
Switzerland	Yes	Yes	Yes	Yes	Yes	Yes
$R^2$	0.632	0.668	0.565	0.593	0.567	0.609
Wald $Chi^2$ ( $p$ -value)	0.000	0.000	0.000	0.000	0.000	0.000
Number of Countries	15	15	18	18	18	18
Number of Observations	99	94	137	129	117	109

*Note:* This table reports results relating financial structure to suffrage institutions. The dependent variable is the logarithm of STRUCTURE. Depending on the specifications, the regressions control for top income share, trade openness, size of government, economic development, urbanization rate, factor endowments, legal origin, religion, year effects, and Switzerland effect. The panel spans the 1913-1999 interval and includes 18 (or 15 in columns 1 and 2) countries. Table 1 summarizes variables definitions and sources. Numbers in parentheses are panel corrected standard errors (Beck and Katz, 1995). \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.