

The Structure of Credit Markets

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Abstract

A large literature has studied the causes and effects of financial development. Yet, surprisingly little is known about the allocation of credit across sectors and industries. I assemble a novel disaggregated dataset on the structure of credit markets for 90 countries. The data show that over the last 70 years, credit markets in both advanced and emerging economies have seen a dramatic transformation, driven by the relentless rise of credit to households and non-tradable industries. Higher shares of credit to these sectors are negatively correlated with economic growth rates, which suggests that changes in credit allocation may explain a vanishing or non-linear effect of finance observed in aggregate data. Cross-country differences in credit market structure are associated with measures of financial development and deregulation, but also political and legal determinants.

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1 Introduction

A large literature has studied the determinants and effects of financial development, in particular credit markets.¹ Yet, surprisingly little is known about the allocation of credit across sectors and industries. While the Great Financial Crisis of 2007-2008 has brought finance back to the forefront of macroeconomic enquiry and the regulatory agenda, surprisingly little attention has been paid to what financial institutions *actually do*. In this paper, I attempt to provide a few answers by analyzing the structure and determinants of domestic credit markets.

At the heart of my analysis lies a large, novel dataset on sectoral credit allocation of financial systems in 90 countries. The data offer a look beyond what constitutes “credit to the private sector” – arguably the most frequently used measure of financial development. Different from previous efforts, I provide a much more detailed, disaggregated view about how much credit goes to households, non-bank financial intermediaries, and up to 12 individual industries.² The underlying time series are usually assembled by central banks and regulatory authorities, and as such cover the entirety of the financial sector’s domestic credit exposures, which is a unique feature compared to publicly available firm or contract-level sources.

The database is the result of an extensive, multi-year data collection and harmonization effort and novel in its comprehensiveness and detail. Large parts of the data were retrieved in paper or scanned form and copied manually. In many cases, this meant digitalizing the source tables for the first time. Many central banks shared non-public data with me, often reaching back to the 1960s or earlier. Since sectoral classifications vary across countries and time, I put considerable effort into carefully adjusting the original series in close consultation with the national authorities. For full transparency, all data sources and adjustments have been documented in great detail down to the individual time series level in an extensive forthcoming data appendix.

Understanding credit markets has clearly moved to the top of the research and policy agenda.

¹See, e.g. [Djankov et al. \(2007, 2008\)](#). The literature on finance and growth goes back at least to [Goldsmith \(1969\)](#) and an enormous body starting with the seminal work of [King and Levine \(1993\)](#). Important contributions include [Rajan and Zingales \(1998\)](#), [Arestis and Demetriades \(1997\)](#), [Rousseau and Wachtel \(1998\)](#), [Beck et al. \(2000\)](#), [Levine et al. \(2000\)](#), [Wurgler \(2000\)](#), and [Aghion et al. \(2005\)](#). See [Levine \(2005\)](#) for an excellent survey.

²In this paper, I only exploit a fraction of the full database, both in terms of sectors and data frequency. See the data section for more details.

My work extends much-recognized recent work by Moritz Schularick, Alan Taylor and Óscar Jordà ([Schularick and Taylor, 2012](#); [Jordà et al., 2013](#); [Jordà et al., 2014, 2015](#)), who study the role of credit markets in business cycles and financial crises in up to 17 advanced economies. I extend their efforts by using much more granular sectoral data and including countries from the whole range of economic and financial development. A few other related papers have also attempted to look beyond broad measures of financial development. [Büyükkarabacak and Valev \(2010\)](#) and [Beck et al. \(2012\)](#) divide credit markets into their household and corporate components and find differential effects for their ability to predict financial crises and economic growth. Büyükkarabacak and Valev find household credit is a stronger predictor of financial crises, while Beck et al. find only corporate credit to be associated with economic growth and reductions in income inequality. [Mian et al. \(2015\)](#) predict business cycle downturns using changes in household and corporate credit and find that only the former systematically precedes recessions. The new dataset I assemble adds a much more comprehensive and nuanced perspective to these efforts and enables me to explore the determinants and effects of credit market structure. As such, my work is also motivated by cross-country studies of financing patterns such as [Rajan and Zingales \(1995\)](#) or [Jappelli and Pagano \(1994\)](#), and the important contributions on the role of legal and institutional determinants in financial structure ([La Porta et al., 1997, 1998](#); [Levine et al., 2000](#); [La Porta et al., 2002](#); [Djankov et al., 2007](#)).

I expand existing research on four major fronts. First, I present an extensive new resource for studying credit markets and macro-financial linkages. While much has been written about the ubiquity of micro data, researchers are currently limited to using broad credit aggregates or conducting country case studies with confidential credit registry data.³ My dataset extends existing macroeconomic sources in all dimensions, which results in a substantial sample size of more than 550,000 country-sector-time observations owing to its three-dimensional panel character in the full database (the sample at hand still has more than 200,000 country-sector-year observations). In the sample of this paper, the cross-section spans across 90 countries and up to 12 individual sectors, while the time dimension goes back to 1942 for some countries.

Second, I document that credit markets have seen a remarkable transformation over the last 70 years, especially the last three decades. The experience of the vast majority of coun-

³The most prominent examples are the credit registries of Spain (e.g. [Jiménez et al., 2012, 2014](#)) and Germany (e.g. [Behn et al., 2014](#)).

tries shows that the process often dubbed “financialization” is mainly accounted for by the growth in credit to households, but also construction and real estate as well as business and other services. The tradable sector (agriculture and industry) has lost significant market shares. This phenomenon constitutes a broad secular shift, which is not limited to advanced economies as documented in the important work of [Jordà et al. \(2014, 2015\)](#); credit markets in developing countries show a similar pattern. Crucially, the data suggests that the boom in household lending has not everywhere been driven by a rise in the share of residential mortgages. In most countries, housing credit has in fact *declined* as a share of total household credit. Instead, households have taken on considerable amounts of credit card and unsecured consumer debt, especially in emerging economies.

Third, I study cross-country determinants of credit allocation. I document some stylized facts about correlates with political, legal, and institutional characteristics, but also indicators of financial development. The aggregate data suggest that political clout crucially shapes who receives credit, in line with political economy theories of finance, e.g. [Kroszner and Strahan \(1999\)](#), [La Porta et al. \(2002\)](#), [Rajan and Zingales \(2003\)](#), [Sapienza \(2004\)](#), and [Rajan and Ramcharan \(2011\)](#). Democracies, right-wing parties, and more unequal societies tend to be associated with higher shares of household and lower shares of industry credit. Legal frameworks shape not only the size but also composition of credit markets. Importantly, financial development appears to have an independent impact on the business model of credit institutions, in particular through liberalized capital accounts and banking deregulation.

Fourth, my paper further speaks to recent macroeconomic modelling efforts, where the role of financial institutions usually is to intermediate funds between household savers and entrepreneur investors (e.g. [Boissay et al., 2016](#)). Given the representative agent assumption, differences in collateral and productivity between different corporate sectors in most models have no macroeconomic effects. Importantly, households usually only fund, but do not demand credit. The findings presented in this paper indicate that such models may abstract from important stylized facts about what the business models of credit institutions actually look like. Modelling the causes and effects of the composition of credit, as in the important contributions by [Matsuyama \(2007, 2013\)](#), may be a fruitful endeavour for future research.

2 A New Dataset on Sectoral Credit

I assemble a novel dataset on the structure of credit markets in 90 countries. The main contribution compared to existing work are disaggregated data by households, non-bank financial intermediaries, and non-financial corporations, which in turn are broken down by 12 individual industries. In addition, I was able to collect data on household credit by purpose (residential mortgages, consumer credit, credit cards, car loans); as well as on commercial (i.e. non-residential) mortgages. Given its disaggregated nature, I document the collection and harmonization of the credit data in painstaking detail in an extensive, forthcoming online appendix. The data will be made available to researchers in raw as well as adjusted form, including a thorough documentation down to the individual time series level.

To begin, I retrieved data from statistical publications and data appendices published by national central banks and statistical offices. In many cases, the sources span across multiple organisations, publications, and even media for a single country. Large shares of the data were digitalized for the first time and copied by hand, either from PDF or paper documents. Many of the national authorities also shared previously unreleased, non-public data with me. To make the data comparable across countries and time, I consulted closely with the source organizations and report all harmonization procedures and adjustments in great detail. The online appendix also acknowledges the diligent and tireless support I received from statisticians and bank supervisors in many countries.

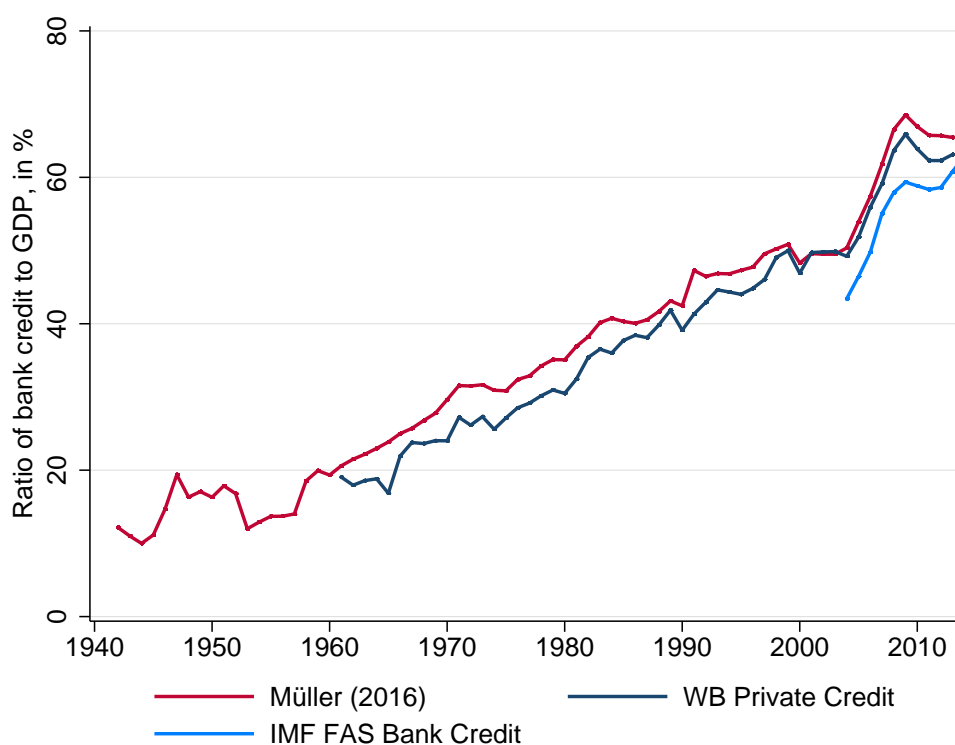
While no existing data source exhibits this level of detail so far, I extend previous academic and institutional efforts by [Dembiermont et al. \(2013\)](#), [Cihák et al. \(2013\)](#), and the Jordà-Schularick-Taylor Macrohistory Database ([Òscar Jordà et al., 2016](#)); also see [Schularick and Taylor \(2012\)](#); [Jordà et al. \(2013\)](#); [Jordà et al. \(2014, 2015\)](#). [Table 1](#) compares these existing datasets with my contribution. [Figure 1](#) compares the newly compiled total credit measures with the existing data from the World Bank's Global Financial Development Database ([Cihák et al., 2013](#)) and the International Monetary Fund's Financial Access Survey. Clearly, the data are comparable and follow highly similar trends over time. I present more evidence on the comparability and differences of my data with existing sources in the online appendix.

Table 1: Comparison with Existing Data Sources on Private Credit

Dataset	Freq.	Countries	Start	Level of disaggregation
Cihák et al. (2013)	Y	203	1960	–
Dembiermont et al. (2013)	Q	40	1940	NFC, Households
IMF FAS	Y	152	2004	Households, SMEs (both limited)
Schularick and Taylor (2012)	Y	14	1870	–
Òscar Jordà et al. (2016)	Y	17	1870	NFC, Households, Mortgages
Full dataset	M/Q/Y	100+	1940	NFC by ISIC sectors (30 on average), Households by purpose, Financial
<i>This paper</i>	Y	91	1940	NFC by 12 ISIC sectors, Households by purpose, Financial

Note: NFC refers to non-financial corporations, ISIC to the United Nations International Standard Industrial Classification of Economic Activities.

Figure 1: Comparison of Total Bank Credit Values with Two Established Sources



Note: Müller (2016) refers to the data on total bank credit compiled for this draft, as described above; *WB Private Credit* refers to the time series on private credit by deposit money banks to GDP in the World Bank dataset described in [Cihák et al. \(2013\)](#); *IMF FAS Bank Credit* refers to total outstanding loans by commercial banks in the International Monetary Fund's Financial Access Survey (available from 2004). All amounts scaled over nominal GDP in national currency.

The newly compiled additional data are an extension along four dimensions: sectors, countries, time, and frequency (see table 1). First, I collect novel disaggregated data on corporate credit, following the United Nations International Standard Industrial Classification (ISIC Rev. 4). While the full dataset includes up to more than 100 individual sectors for some countries, I restrict these to 12 broad sectors in this paper to outline stylized facts on credit market structure. The data lend a new level of detail to the analysis of debt markets, as the aggregate credit to non-financial corporations (NFC) includes industries that may differ strongly in their characteristics. To my knowledge, I am also the first to collect and document systematically data on credit to non-bank financial corporations, often broken down into insurance and pension funds as well as other intermediaries. Second, the full database spans across more than 100 countries from all continents. While the country coverage is lower than the near-comprehensive World Bank data, it expands the coverage of credit to households and non-financial corporates in [Dembiernont et al. \(2013\)](#), which comprises 40 countries in their dataset.⁴ Except for the United States, China, and Sweden, for which I have not been able to identify suitable data sources, the coverage spans across all major world economies but also includes many small open economies. Third, many countries report data starting in the 1960s – some even from after World War II – and the time dimension often goes beyond what has been available before. Fourth, I collect data in higher frequency than previous efforts, in many cases monthly. This increases the size of the full dataset, which contains more than 550,000 observations. For the purpose of the largely descriptive analysis in this paper, I restrict the data to around year-end values and 12 corporate sub-sectors.

The coverage of the credit data in this paper adheres to the following ground rules. All data are end-of-period outstanding amounts in national currency. The coverage comprises the broadest set of lending institutions for which data are available, including non-banks in some cases. Similarly, “credit” is defined to include all debt contracts, loans or securities, denominated in local or foreign currency. For many countries, detailed breakdowns are only available for credit by commercial banks or monetary financial institutions (MFIs). In practice, however, the statistical coverage usually follows the structure of the financial system, which makes large omissions unlikely. That is, countries in which non-bank credit does not play a prominent role usually do not report it, and the same holds for securities-lending.⁵ Household credit comprises

⁴Note that the preliminary draft at hand only includes 90 countries, because the harmonization of the remaining data is still in progress.

⁵Note that the issue of lender and debt instrument coverage is typical for data on financial institutions and not a

all lending to households and non-profit organisations serving households, as in [Dembiermont et al. \(2013\)](#). In most countries, sole proprietorships are not singled out in household credit statistics, so they are not counted as corporate credit to ensure the data remain comparable.⁶ I include as non-bank financial corporations all financial intermediaries who do not fund themselves with deposits (i.e. MFIs).⁷ Many countries further single out statistics on insurance companies and pension funds. Other lending is classified as the credit to non-financial corporations. Finally, I also include a category on “corporate credit” which equals the sum of non-bank financial and non-financial corporations. In general, I exclude data on credit to national or local government.⁸ Since the overwhelming majority of sources does not differentiate by public or private ownership, data on corporate credit in most cases also includes state-owned enterprises.

I construct measures of the credit market structure by scaling the sectoral credit values either by total private credit or nominal GDP in domestic currency.⁹ More detailed data on consumer credit, residential mortgages, car loans, and credit card debt are alternatively scaled over total household credit.

Additional country-level data come from the standard World Bank resources and the existing literature. I provide more details in the appendix.

particular feature of the sectoral credit aggregates assembled here. In the few countries where more comprehensive data was available but not included, e.g. Denmark, the rationale is outlined in detail in the online appendix.

⁶This creates some differences with the existing data by [Òscar Jordà et al. \(2016\)](#), who appear to count sole proprietorships as corporate credit. Different disaggregation regimes by legal organisation or economic activity further mean that in some countries sectors such as agriculture are largely counted as households. In these cases, I cautiously adjusted corporate and household data in close consultation with the national authorities to ensure comparability across countries. See the online appendix for more details.

⁷In a few historical sources, the time series also include interbank credit. Where it was the case, I enquired with the national authorities whether the growth rates could still serve as a proxy for non-bank credit and excluded the series otherwise.

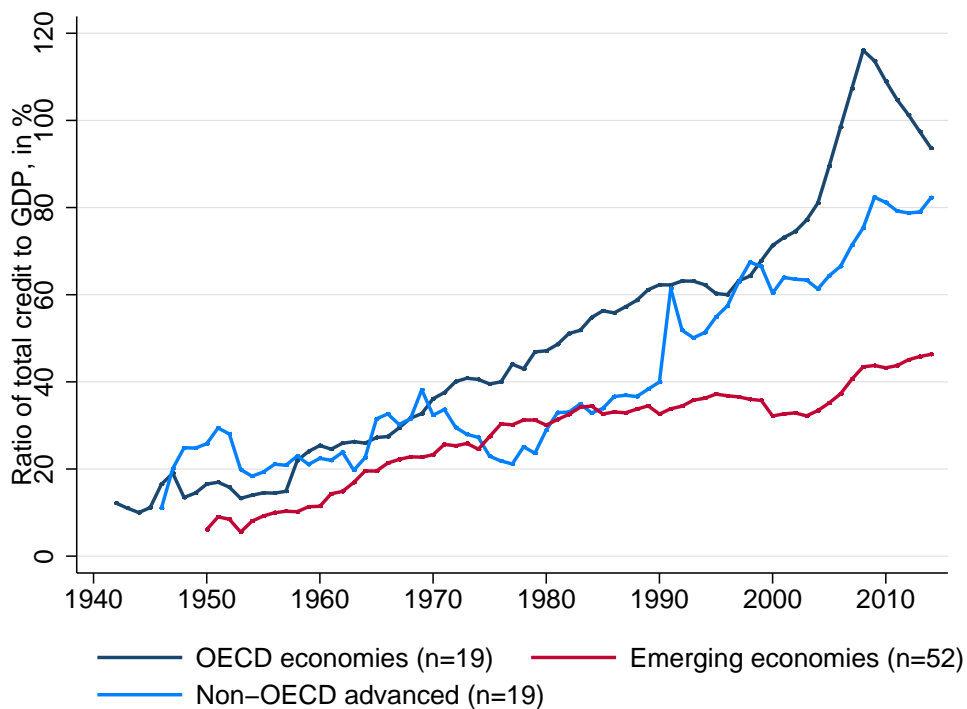
⁸In many countries, there are data on “public administration and defence; including compulsory social security” (ISIC Rev. 4 section O) as part of disaggregated credit to non-financial corporations. Where it was available, I created additional sub-totals to exclude it explicitly, but in practice the category only makes up for a minor fraction of the credit market in all sample countries.

⁹Note that the values for total credit are equivalent to the sum of corporate and household credit, where corporate credit also includes non-bank financial institutions.

3 Credit Market Structure in 90 Countries

Who gets credit in which countries, and why? To guide our investigation, it is instructive to first take a look at the development of total private credit over GDP, an important indicator of the depth of financial activity. Figure 2 plots this ratio by three country groups: OECD economies, other advanced economies, and emerging economies. While the swift uptick in economy-wide leverage in recent decades has been well-documented for advanced economies (see e.g. [Schularick and Taylor, 2012](#)), it is probably much less appreciated that a similar “financialization” has not taken place to the same extent in emerging economies – arguably, the countries who stand to benefit most from it. This is also visible in the average ratios: while OECD economies in the late 2000s reached had an average of more than 100% of credit to GDP, the figure hovers more around 40% for emerging economies.

Figure 2: Which Economies Experience Financial Deepening?, 1940-2014



Note: Figure 2 shows the yearly average total credit to GDP, broken down by country group. Country classification according to the World Bank.

Table 4 provides a first glimpse at what the data say about the underlying structure of the credit market, where I plot the sample countries against the time average of credit exposures in 12 sectors. In each row, the left two columns also show the ratio of total credit to GDP as a proxy for financial development and the macroeconomic loan portfolio concentration, which is defined as the Herfindahl index of the available sector shares (normalised to range between 0 and 1).¹⁰

The cross-country heterogeneity is striking. Countries differ strongly not only in the size of their credit markets, as is well documented in the literature on financial deepening, but also in the concentration of their loan portfolios: the Herfindahl index for the aggregate sectors presented here varies by a factor of ten, ranging from 0.06 in Jamaica to 0.47 in Montserrat. A look at the time-averages for the broad sectors households, non-bank financial institutions, and non-financial services add some intuition. In countries like Switzerland, Denmark, New Zealand, Poland, and Portugal, lending to households makes up around half of the domestic credit market. But this is not limited to advanced economies: Colombia and Panama have similar shares of household credit, and in island states such as St Vincent, Grenada, or Montserrat, it is clearly the predominant form of debt financing. Non-bank financial services also take on different roles across countries and are especially important in the credit markets of Singapore, Ireland, Denmark, and Estonia. In others, they are largely irrelevant. Lending to non-financial corporations, in turn, is especially important in emerging economies like Pakistan, Kenya, the Philippines, India, Bulgaria, or Romania, where household finance plays little to no role.

Diving into the aggregate credit to non-financial corporations, we see that the industry distribution of credit also differs strongly across countries. Particularly noteworthy are the large average fraction of agricultural loans in Costa Rica, India, Tanzania, and New Zealand – likely reflecting their industry structure – and the significant size of the construction and real estate sectors in Spain, Latvia, Lithuania, and Ireland, but also Hong Kong, the United Arab Emirates, Jordan, and Kuwait. Credit to manufacturing and mining plays a major role in Armenia, Greece, India, Peru, the Philippines, and Romania. As we will see below, the averages presented here mask substantial changes in the composition of private credit over time.

¹⁰The Herfindahl index is calculated using household credit, financial credit, and the sub-sectors of non-financial corporations plotted in the table. Detailed sub-categories with limited availability (starting with *of which:*) are omitted. I also include a variable for all remaining, unclassified loans in the calculation, which is not reported in the table.

Table 4: Credit Market Structure in 90 Countries

Country	Private credit/GDP	Sector Concentration (HH)	Households & NPIH	Financial	Non-financial corporate	Agriculture	Industry	of which: Mining & Quarrying	Construction & real estate	Commerce	Transport & Communication	Services	of which: Business services	of which: other services		
AIA	121.57	0.24	44.53	0.33	54.52	0.49	1.51	0.54	1.56	7.6	—	29.89	3.49	—	6.22	—
ARE	62.33	0.11	25.01	4.74	70.25	0.46	6.88	1.52	2.03	13.85	—	20.41	3.1	—	—	—
ARG	23.28	0.1	24.77	2.01	73.22	8.72	16.22	1.19	1.56	3.81	0.94	8.79	1.78	7.46	0.57	6.89
ARM	17.56	0.19	39.75	2.78	57.43	—	22.19	—	9.85	5.06	—	19.39	1.89	—	—	—
ATG	78.77	0.21	43.19	1.12	55.69	0.44	2.59	0.18	2.46	7.37	—	19.93	1.95	—	7.2	—
AZE	16.77	0.16	28.03	2.45	68.15	4.92	6.71	—	6.37	7.02	—	—	9.08	—	—	—
BGR	42.09	0.13	26.81	1.89	71.3	2.54	17.89	1.23	2.09	10.84	5.19	26.43	3.08	10.98	3.38	7.6
BLZ	40.85	0.23	42.99	0.6	52.62	19.09	7.78	1.37	2.1	—	6.09	25.03	2.9	4.54	1.44	3.1
BOL	37.5	0.15	—	1.17	—	10.69	21.9	2.35	—	29.4	20.41	22.9	—	—	9.74	—
BRB	34.78	0.12	31.35	3.21	64.25	4.08	8.42	0.25	3.48	6.42	—	25.62	1.93	10.13	6.73	3.4
BWA	19.18	0.25	50.55	1.37	39.26	1.46	8.59	2.75	0.63	7.42	4.01	10.15	2.74	—	13.95	—
CAN	38.63	0.18	44.8	7.87	47.94	6.92	11.95	1.5	1.76	7.81	1.78	7.22	—	4.94	3.82	1.12
CHE	136.79	0.32	58.63	4.65	36.73	0.83	6.91	0.21	0.39	3.05	—	5.25	1.02	14.99	12.1	2.88
CHL	59.14	0.08	26.99	8.7	54.53	5.31	9.05	1.13	1.38	7.48	—	13.23	3.01	18.83	6.31	12.53
COL	26.1	0.23	49.26	4.45	46.98	1.94	17.42	0.91	1.93	5.73	0.69	8.91	3.97	5.19	1.92	3.27
CRI	27.14	0.31	40.72	1.82	42.72	32.19	17.28	—	0.69	2.43	—	14.88	1.13	8.37	—	—

Table 4: Credit Market Structure in 90 countries (continued)

Country	Private credit/GDP	Sector Concentration (HH)	Households & NFIH	Financial	Non-financial corporate	Agriculture	Industry	of which: Mining & Quarrying	Construction & real estate	of which: Real estate services	Commerce	Transport & Communication	Services	of which: Business services	of which: Other services	
CUW	68.6	0.2	37.69	—	—	—	4.02	—	2.08	3.49	—	28.98	4.44	—	—	—
CZE	44.67	0.11	33.62	7.26	59.12	2.23	18.85	0.97	3.55	10.59	8.63	10.31	2.55	6.42	5.65	0.75
DEU	59.42	0.3	53.04	1.37	39.39	2.89	13.52	1.83	2.61	10.89	8.82	8.59	2.99	15	—	—
DMA	63.17	0.2	45.65	2.31	52.05	1.72	5.83	1.67	4.41	5.09	—	17.52	2.54	—	4.32	—
DNK	43.66	0.31	57.28	12.66	31.58	3.91	5.57	0.04	0.65	10.13	8.05	6.75	2.14	5.23	3.12	1.64
DOM	18.7	0.1	25.23	—	—	5.03	10.63	0.4	1.66	6.5	—	22.44	1.37	9.73	3.73	6
EGY	43.63	0.64	20.72	—	—	—	—	—	—	—	—	—	—	—	—	—
ESP	81.26	0.18	43.62	3.31	51.1	2.03	9.52	0.59	2.59	17.51	10.05	7.99	3.35	7.71	—	—
EST	60.21	0.12	34.7	14.25	51.05	2.28	9.95	0.15	1.71	15.32	12.58	10.96	4.37	4.93	3.38	1.58
ETH	20.39	0.24	—	—	—	10.2	—	—	—	11.75	—	43.95	5.21	—	—	—
GBR	66.55	0.3	56.54	12.3	31.16	2.39	11.2	0.7	0.86	6.03	4.17	5.16	1.31	3.34	1.74	1.3
GEO	25.65	0.2	39.23	1.32	59.46	1.24	13.82	—	—	5.82	—	28.7	2.02	7.73	1.87	5.85
GHA	16.09	0.09	12.96	—	—	—	20.52	3.58	4.32	7.84	—	25.94	3.5	15.79	—	—
GRC	43.93	0.13	22.59	2.26	62.95	14.83	31.48	0.86	2.52	6.26	2.09	14.91	6.05	—	1.41	—
GRD	75.71	0.28	53.22	0.63	46.15	1.71	3.55	0.16	3.07	3.86	—	18.71	3.99	—	5.16	—
GTM	19.74	0.08	18.33	0.61	68.95	8.48	16.89	0.15	3.8	11.42	—	23.29	1.22	13.37	9.99	3.37

Table 4: Credit Market Structure in 90 countries (continued)

Country	Private credit/GDP	Sector Concentration (HH)	Households & NPIH	Financial	Non-financial corporate	Agriculture	Industry	of which: Mining & Quarrying	Construction & real estate	Commerce	Transport & Communication	Services	of which: Business services	of which: Other services	
HKG	104.64	0.1	28.2	9.58	62.21	0.1	9.23	0.06	0.93	17.64	—	18.22	7.43	—	—
IND	25.17	0.16	9.67	3.59	86.59	12.78	41.54	1.06	1.99	2.66	—	15.65	2.95	3.09	0.63
IRL	126.37	0.18	39.5	25.05	35.45	3.35	4.19	0.25	0.43	14.64	12.61	7.5	1.35	4.15	2.1
IRN	29.64	0.2	—	—	—	14.07	25.38	—	—	26.78	—	—	—	—	—
ISL	67.41	0.21	23.64	6.55	68.1	32.61	11.55	—	0.31	15.9	13.13	15.44	2.02	10.48	—
ISR	77.53	0.1	29.17	7.01	61.07	5.26	13.97	0.3	2.43	16.5	6.78	11.75	5.04	11.55	4.44
JAM	22.16	0.06	21.57	2.46	73.05	6.41	12.42	0.4	1.47	11.87	—	16.53	7.63	8.3	—
JOR	57.5	0.12	16	2.1	82.41	2.27	13.36	1.13	6.49	20.52	—	31.72	3.91	—	—
KAZ	27.67	0.09	21.92	5.46	72.63	6.45	10.53	3.26	—	10.8	—	24.53	4.68	—	—
KEN	24.31	0.09	11.14	4.24	84.61	12.79	18.95	1.02	0.25	13.3	7.97	21.05	4.51	17.24	14.75
KGZ	8.37	0.14	18.55	—	—	7.77	10.78	—	—	6	—	33.35	2.45	—	0.52
KNA	92.84	0.16	38.42	0.97	60.61	9.11	2.4	0.09	4.31	8.34	—	14.44	0.89	—	3.26
KOR	35.65	0.19	24.58	1.59	62.91	14.37	38.92	1.05	0.72	10.64	6.26	9.89	2.75	3.7	0.65
KWT	31.29	0.18	31.63	9.99	58.38	0.25	5.69	1.1	0.03	21.4	15.78	30.57	—	—	—
LCA	90.42	0.2	41.58	1.04	57.38	1.87	2.98	0.38	1.89	5.99	—	24.66	2.8	—	10.56
LKA	25.7	0.14	31.57	—	—	8.15	14.45	0.24	—	5.47	—	11.96	2.29	—	—

Table 4: Credit Market Structure in 90 countries (continued)

Country	Private credit/GDP	Sector Concentration (HH)	Households & NPIH	Financial	Non-financial corporate	Agriculture	Industry	of which: Mining & Quarrying	Construction & real estate	Commerce	Transport & Communication	Services	of which: Business services	of which: Other services		
LTU	33.11	0.13	26.56	5.37	68.07	1.69	15.29	0.3	5.03	22.35	13.64	18.84	3.87	8.21	6.95	1.26
LVA	63.71	0.15	37.27	9.32	50.97	3.36	9.19	0.13	3.19	21.25	16.57	11.03	4.76	4.55	2.76	1.82
MAR	66.24	0.12	35.76	12.02	50.53	4.7	13.49	1.32	2.89	8.8	—	8.58	3.39	—	—	—
MEX	18.65	0.14	34.36	5.11	61.89	6.88	20.11	0.71	2.77	9.67	2.15	15.81	2.66	8.49	4.7	3.79
MKD	65.2	0.1	25.48	24.06	50.46	1.37	14.62	0.53	1.76	6.23	1.4	14.75	3.02	2.77	1.65	1.11
MLT	68.65	0.09	17.19	9.68	73.13	0.53	16.19	—	5.81	16.03	7.81	26.56	5.65	—	—	—
MSR	37.41	0.47	69.93	1.06	31.65	0.53	2.26	1.04	0.38	4.89	—	13.85	1.18	—	3.07	—
MUS	39.83	0.12	15.73	1.31	82.96	17.38	26.16	—	1.77	8.14	—	24.52	2.86	—	6.86	—
MWI	9.32	0.08	12.08	4.71	87.51	18.23	20.8	1.42	1.65	4.96	1.32	20.7	6.24	—	—	9.4
MYS	89.42	0.13	36.83	4.42	47.73	4.29	14.42	0.99	0.78	11.21	4.57	13.27	2.04	4.73	2.66	2.07
NGA	11.37	0.1	6.18	3.9	—	8.82	28.03	5.48	1.1	11.83	—	21.47	6.78	—	—	—
NPL	22.95	0.15	—	1.09	—	5.34	29.57	0.4	—	8	—	31.91	4.57	7.54	—	—
NZL	116.6	0.25	52.35	6.89	38.32	12.58	4.77	0.24	1.45	1.11	—	4.41	1.86	10.81	8.4	2
OMN	37.55	0.13	37.46	4.65	57.89	0.61	10.26	3.19	2.22	8.67	—	17.74	2.34	6.39	—	—
PAK	21.75	0.15	9.67	1.93	88.25	9.83	39.05	0.78	1.72	2.27	0.4	18.7	2.15	3.59	2.78	1.55
PAN	71.67	0.16	40.81	4.56	—	5.51	4.32	0.12	2	5.41	—	18.41	1.47	7.88	—	—

Table 4: Credit Market Structure in 90 countries (continued)

Country	Private credit/GDP	Sector Concentration (HH)	Households & NFIH	Financial	Non-financial corporate	Industry	of which: Mining & Quarrying	Construction & real estate	Commerce	Transport & Communication	of which: Business services	of which: Other services				
PER	17.59	0.2	29.1	2.89	67.97	5.31	33.06	4.82	2.74	6.13	3.35	19.17	4.59	10.42	6.28	4.14
PHL	29.58	0.13	6.7	8.62	81.35	8.55	32.42	3.46	4.18	10.07	7.03	15.25	5.01	17.83	13.58	4.28
POL	37.08	0.2	47.76	3.61	48.63	1.19	12.37	0.47	2.17	7.95	4.5	9.53	2.49	6.91	6.12	0.78
PRT	86.73	0.16	40.64	4.31	55.06	1.76	17.86	0.37	3.43	11.72	4.22	12.15	4.31	3.82	2.89	0.93
QAT	31.35	0.24	41.01	1.53	98.47	0.23	3.66	—	—	8.89	—	33.53	2.07	—	—	—
ROU	35.75	0.2	20.59	2.01	77.41	2.89	30.2	—	—	8.5	—	—	—	—	—	4.46
SAU	21.42	0.13	29.96	0.34	69.85	1.17	10.6	0.86	2.2	14.1	—	26.83	4.24	4.27	—	—
SGP	189.86	0.11	25.35	19.1	55.55	1.04	—	—	—	10.29	—	13.5	9	—	1.64	—
SLE	4.49	0.14	—	5.31	—	4.05	11.15	1.34	1.3	16.09	—	36.86	7.04	16.64	—	—
SLV	41.23	0.21	47.24	2.32	49.11	3.89	9.99	0.1	1.43	5.96	—	16.06	1.91	8.71	—	—
SUR	29.94	0.14	33.93	—	—	8.74	9.22	2.36	5.78	2.24	—	20.72	1.82	—	—	—
SVK	45.55	0.08	25.99	4.45	69.58	3.24	19.23	0.51	5.87	10.44	7.09	14.12	3.42	5.2	3.63	1.57
SVN	66.97	0.07	24.01	4.31	71.68	1.01	19.71	0.21	3.56	11.03	4.58	15.54	7.41	9.26	7.93	1.09
SYC	16.68	0.33	26.63	8.28	65.09	1.81	1.37	—	—	18.4	10.01	47.71	4.7	9.58	0.83	8.75
THA	58.68	0.13	12.88	6.22	80.89	3.81	22.61	0.7	1.52	10.29	5.9	34.34	1.75	2.8	2.06	—
TUN	49.11	0.19	12.01	2.98	71.62	7.64	34.41	1.66	0.52	10.48	5.62	28.35	3.26	10.91	8.39	2.52

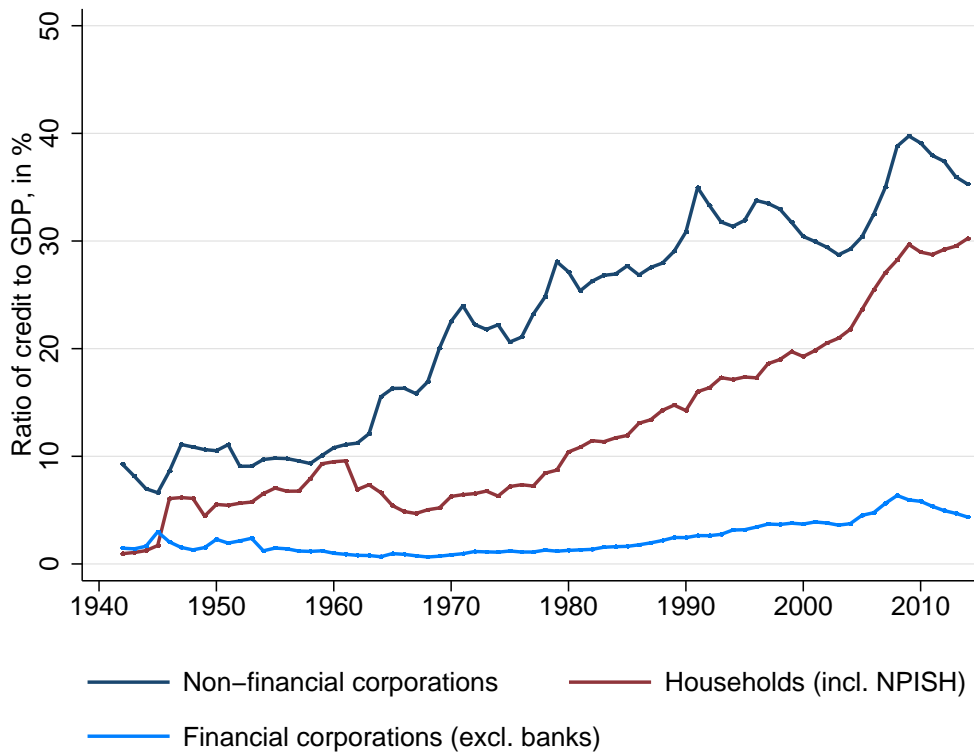
Table 4: Credit Market Structure in 90 countries (continued)

Country	Private credit/GDP	Sector Concentration (HHI)	Households & NPIsH	Financial	Non-financial corporate	Agriculture	Industry	of which: Mining & Quarrying	Construction & real estate	Commerce	Transport & Communication	Services	of which: Other services			
								of which: Real estate services					of which: Business services			
TUR	26.54	0.1	20.36	0.57	79.24	4.02	23.81	0.95	2.16	5.54	0.33	11.91	3.87	5.63	2.29	3.34
TWN	130.55	0.2	44.7	2.89	40.92	0.16	19.76	0.07	2.2	6.61	4.07	6.46	3.54	—	2.19	—
TZA	10.96	0.14	18.39	1.68	78.49	27.99	16.47	0.96	5.11	7.53	3.47	23.77	6.44	—	—	6.2
UGA	8.81	0.1	22.23	0.94	—	14.06	20.31	1.2	0.55	10.72	5.38	20.76	6.49	7.9	4.62	3.27
UKR	46.74	0.15	22.32	1.43	76.25	5.07	22.72	2.13	2.3	9.86	5.77	30.28	3.51	7.84	6.51	1.34
URY	29.84	0.14	36.68	4.03	52.98	15.26	18.72	0.12	0.5	2.84	0.65	13.04	3.26	4.7	1.13	3.57
VCT	58.14	0.26	51.25	1.39	47.36	3.04	4.82	0.1	0.85	3.98	—	15.26	3.01	—	4.87	—
VEN	20.67	0.12	29.25	—	—	14.37	11.49	1.4	0.45	7.15	—	23.01	2.15	—	—	7.63
ZAF	54.44	0.29	56.11	14.14	29.98	0.95	5.6	1.52	0.45	4.45	3.83	2.68	1.5	8.78	4.2	4.58
ZWE	9.56	0.1	10.32	9.47	80.21	21.28	23.08	4.39	—	2.38	—	18.99	3.51	13.13	—	—
Mean	47.91	0.17	31.91	5	60.69	6.52	14.92	1.12	2.33	9.55	6.36	18.72	3.5	8.38	4.89	3.47
W-Mean	64.66	1.24	39.24	6.33	53.14	4.52	17.88	1.12	1.98	9.38	6.53	10.8	3.04	8.16	3.36	3.14

Note: All values in percent except the aggregate loan concentration (HHI). Total private credit is in % of GDP, all sectors as % of total credit.

Mean is the simple average and W-Mean the constant GDP (in PPP USD) weighted average. The shares in total credit do not necessarily add up to 1 where a country's sector classification requires an approximation for the sake of this table. See text and the online appendix for more details on sectoral coverage and harmonization.

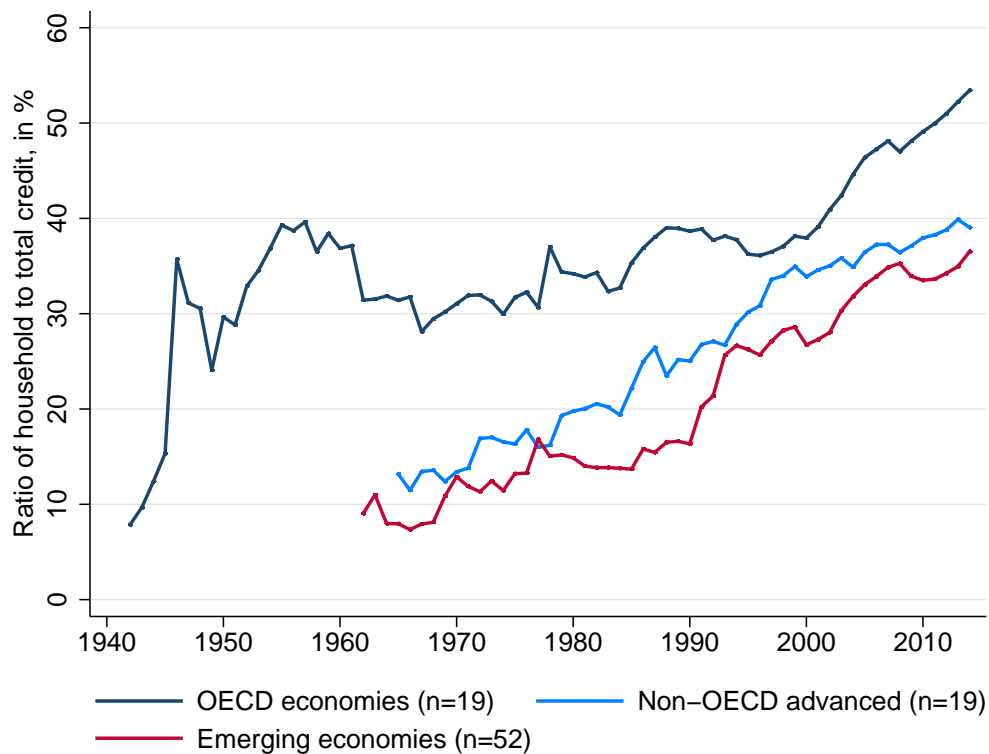
Figure 3: Developments in Sectoral Credit over GDP (n=90), 1940-2014



Note: Figure 3 shows the yearly average share of sectoral credit to non-financial corporations, financial corporations (excl. banks) and households (incl. non-profits and sole proprietorships) over time. See text for details.

Graph 3 visualizes the transformation of credit markets over the 70 year time span in the sample. The compositional changes over time are remarkable, even when aggregating up advanced and emerging economies. Financial institutions in the mid-1960s used to predominantly finance non-financial corporations. Starting in the mid-1980s, with the onset of considerable financial deepening (Schularick and Taylor, 2012), household credit has become increasingly prominent. In fact, the overwhelming bulk of credit growth relative to economic activity has been driven by households, especially since 1990. While credit to non-bank financial institutions has also increased, the developments here are surprisingly muted. An important caveat in the case of inter-financial lending, however, is the definition of what constitutes credit. While the data in many countries include all types of credit contracts – including repos and other often-used instruments of capital market lending – this may lead to important omissions because

Figure 4: The Rise Of Household Credit, 1940-2014



Note: Figure 4 shows the yearly average share of household credit in total credit, broken down by country group. Country classification according to the World Bank.

financial institutions are important beneficiaries of bond markets (see e.g. [Gilchrist and Mojon, 2014](#)). The surprisingly stable ratio of financial credit may also reflect that the underlying statistics do not cover cross-border credit. Taken at face value, the data nevertheless suggest that the financing of (non-bank) financial intermediaries in fact is not a major part of the *domestic* business model of credit institutions.

I next turn to the question whether these trends are common across all countries or reflect changes in the business model of banks once countries have reached a certain level of per capita income. To look into this, table 5 divides the data into decades according to their development status. “Advanced” economies are those classified as high income by the World Bank and “emerging” the middle and low income countries. Financial deepening has been more of an advanced than an emerging country phenomenon. Both in the 1950s and 2010s, the financial sec-

tors of advanced economies, as measured by private credit over GDP, were about twice as large as those of emerging economies. At the same time, the aggregate loan portfolio has become slightly more concentrated in advanced countries and more dispersed in emerging countries.

The underlying sectoral trends, however, are strikingly similar in many ways. The share of household credit has soared and non-financial credit declined in both country groups by almost the same factor. Lending to non-bank financial services has remained largely stable in all countries after a downward correction in advanced economies in the 1960s, which however is likely driven by the sample coverage. Agriculture and industry credit has crumbled, construction and real estate as well as services boomed. Commerce credit has crumbled significantly in emerging markets, with more muted developments in advanced economies.

But what has driven the boom in household credit? Much of the literature has focused on the role of mortgage credit, which has risen considerably in many advanced countries (Jordà et al., 2014, 2015). In graph 5, I break down all household lending into residential mortgages, credit cards, other consumer credit, and unclassified household credit by country groups and decades. Note that, due to data availability, unclassified household credit includes credit cards and other consumer credit before the 1980s.

The data reveals that residential mortgages are indeed the most important type of household credit in advanced economies today, but not in developing ones. Real estate appears to be only part of the story: while the share of mortgages has increased in advanced countries from the 1980s to the 2000s, it still appears to be below the shares of the 1960s. In emerging countries, mortgages have indeed slightly *decreased* as a share of total household credit, which instead has been driven by increasing consumer credit. While household finance has clearly boomed around the world, an exclusive focus on real estate lending does not always seem warranted.

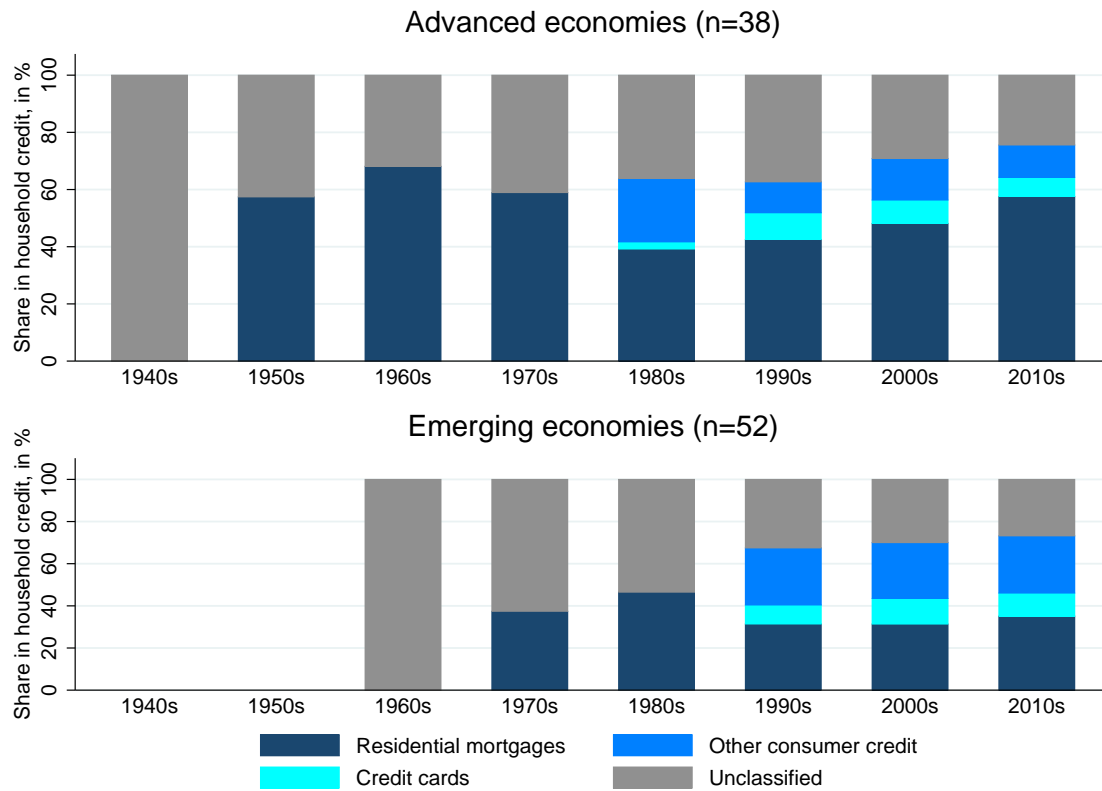
The next step is to narrow in on the composition of corporate credit markets. Structurally trends here are likely to be especially important in countries where access to credit is a large impediment to firm investment in the first place. In graphs 6, I thus break down corporate credit into its components, making use of the novel industrial data I collected. The data show that, on average, the role of agriculture and industry has declined sharply over the past 70 years. The big winners are the service sectors, construction and real estate (especially since around the late 1990s), as well as commerce (i.e. wholesale and retail trade, including hotels and restaurants). Pooling across advanced and emerging countries, commerce makes up the largest

Table 5: Credit Market Structure By Decade: Advanced versus Emerging Economies

Country	Private credit/GDP	Sector Concentration (HHI)	Households & NPISH	Financial	Non-financial corporate	Agriculture	Industry	of which: Mining & Quarrying	Electricity, Gas, & Water	Construction & real estate	of which: Real estate services	Commerce	Transport & Communication	Services	of which: Business services	of which: other services
All Economies																
1940s	15.13	1.02	24	12.55	62.42	13.47	20.02	1.14	0.85	7.95		10.84	1.38			0.62
1950s	15	1.39	35.25	8.76	52.58	16.22	23.57	1.59	1.9	3.7		12.16	1.44	3.24	1.3	2.13
1960s	23.56	1.25	22.37	3.84	69.8	19.12	22.03	1.08	1.26	5.91	2.01	25.33	2.45	4.73	4.15	2.3
1970s	31.8	1.11	19.65	3.96	73.48	11.52	22.39	1.49	2.84	8.59	2.83	25.51	3.19	3.86	5.46	3.92
1980s	39.37	1.16	23.21	3.79	71.22	10.87	23.17	1.93	2.72	9.41	3.94	21.17	3.73	5.32	5.36	3.52
1990s	47.46	1.14	30.4	4.57	63.4	7.8	17.11	1.11	1.67	7.55	5.11	19.04	3.37	6.95	5.52	3.35
2000s	54.18	1.09	36.22	5.99	56.86	4.48	13.74	0.97	2.15	8.09	6.99	16.76	3.56	8.99	5.2	3.82
2010s	65.86	1.12	39.97	5.28	53.42	4.19	10.91	1.33	2.54	10.34	8.21	15.31	3.75	8.9	4.62	3.25
Advanced Economies																
1940s	15.13	0.84	24	12.55	62.42	13.47	20.02	1.14	0.85	7.95		10.84	1.38			0.62
1950s	17.38	1.07	35.25	8.76	52.58	15.25	26.23	1.79	2.11	4.04		12.16	1.54	2.5	1.3	2.13
1960s	27.29	1.15	29.26	4.97	57.98	20.04	23.92	1.06	1.71	5.13	2.5	15.33	1.98	4.56	2.36	2.3
1970s	34.84	1.12	25.94	5.58	64.55	8.1	20.92	1.08	2.58	7.93	3.65	21.89	3.94	4.29	4.72	4.71
1980s	46.17	1.23	30.31	5.13	61.29	7.85	19.46	1.1	3	8.47	4.2	19.33	3.89	6	4.24	3.07
1990s	59.78	1.13	34.15	6.05	60.05	4.95	13.54	0.58	1.98	8.09	5.25	16.81	3.13	7.28	4.45	2.91
2000s	76.85	1.1	39.86	7.62	52.66	3.2	9.33	0.52	1.87	9.64	7.99	13.2	3.36	9.4	4.8	3.46
2010s	90.94	1.22	45.13	7.1	47.13	3.11	7.7	0.67	2.23	11.86	9.45	10.65	3.84	8.85	3.84	3.18
Emerging Economies																
1940s																
1950s	8.92	2.07				18.27	17.95	0.49	0.75	1.81			1.16	4.74		
1960s	19.25	1.36	8.04	2.75	89.5	18.14	20.04	1.09	0.58	6.73	1.94	40.21	3.01	5.12	12.21	
1970s	27.24	1.09	13.29	2.05	87.77	14.26	23.58	1.73	3.04	9.25	2.61	28.66	2.69	3.16	6.05	1.64
1980s	32.79	1.1	14.71	2.43	85.83	13.37	26.4	2.4	2.37	10.65	3.73	21.71	3.61	4.43	6.49	4.43
1990s	35.64	1.13	24.57	2.9	71.14	10.75	21.25	1.47	1.4	7.31	4.95	20.21	3.44	6.47	6.78	4.03
2000s	35.63	1.05	31.49	4.62	63.07	5.62	17.75	1.33	2.46	7.15	5.46	19.48	3.8	8.56	5.67	4.2
2010s	44.82	1.01	34.55	3.88	59.75	5.17	13.72	1.83	2.96	9.29	6.48	18.82	3.79	8.94	5.44	3.31

Note: All values in percent except the aggregate loan concentration (HHI). Private credit is shown as percent of GDP, all other sectors as percent of private credit. Sub-sectors may not add up where data availability differs. Note that for emerging economies, there is limited household credit data for the 1940s and 50s, and hence no estimate of corporate credit.

Figure 5: Not Only About Mortgages – Components of Household Credit by Decade



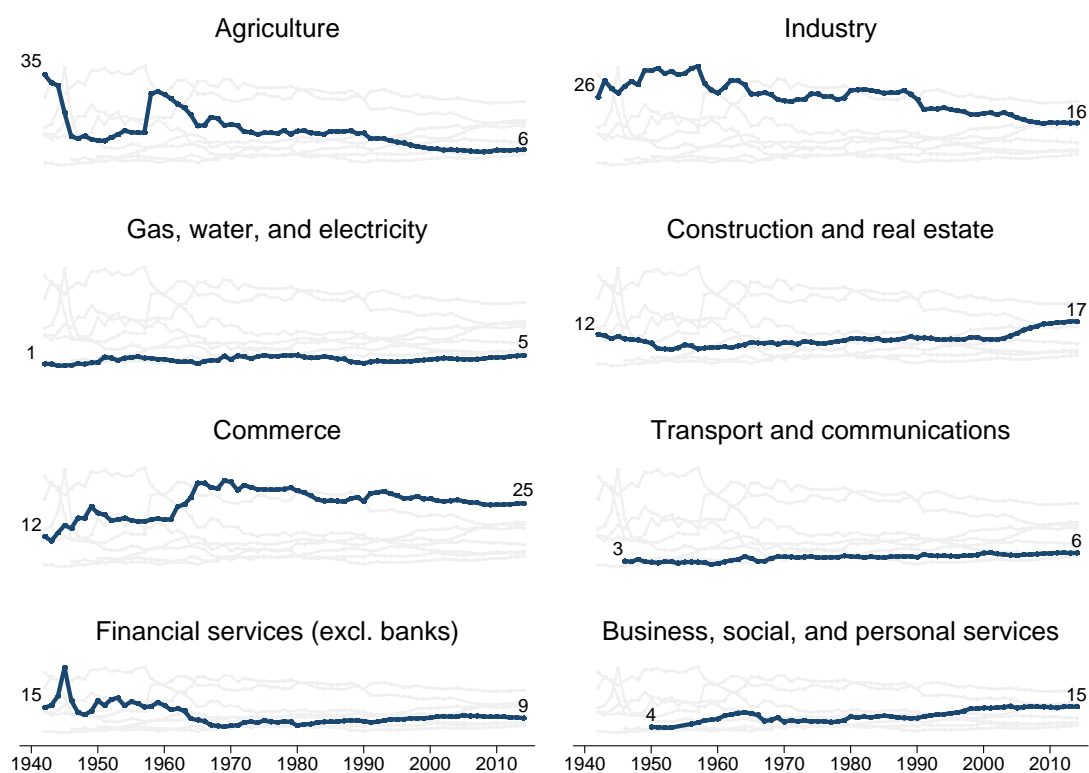
Note: Figure 5 shows the decennial average of credit to households, broken down by the type of loan. All values are in percent of household credit. 1940s refers to the period from 1940 to 1949 and so on. "Advanced economies" are OECD and non-OECD high income countries according to the World Bank classification.

share of corporate credit today, followed by construction and real estate and finally industry. The share of lending to the financial sector (excluding banks) has remained remarkably stable since the mid-1960s; a decline from 1940 through the 1960s is likely driven by the currently still small sample during that period (also see figure 10 in the appendix).

A different, more parsimonious lens for looking at changes in the corporate credit market is to cluster industries into the tradable and non-tradable sector. I use a simple "goods-producing sector" classification where agriculture and industry constitute tradables, and all other industries non-tradables (Mano and Castillo, 2015).¹¹ Note that this classification will largely capture

¹¹Other definitions of the tradable sector – e.g. including certain transportation sectors as well as financial and business services – yield a similar picture.

Figure 6: The Composition of Corporate Credit, 1940-2014

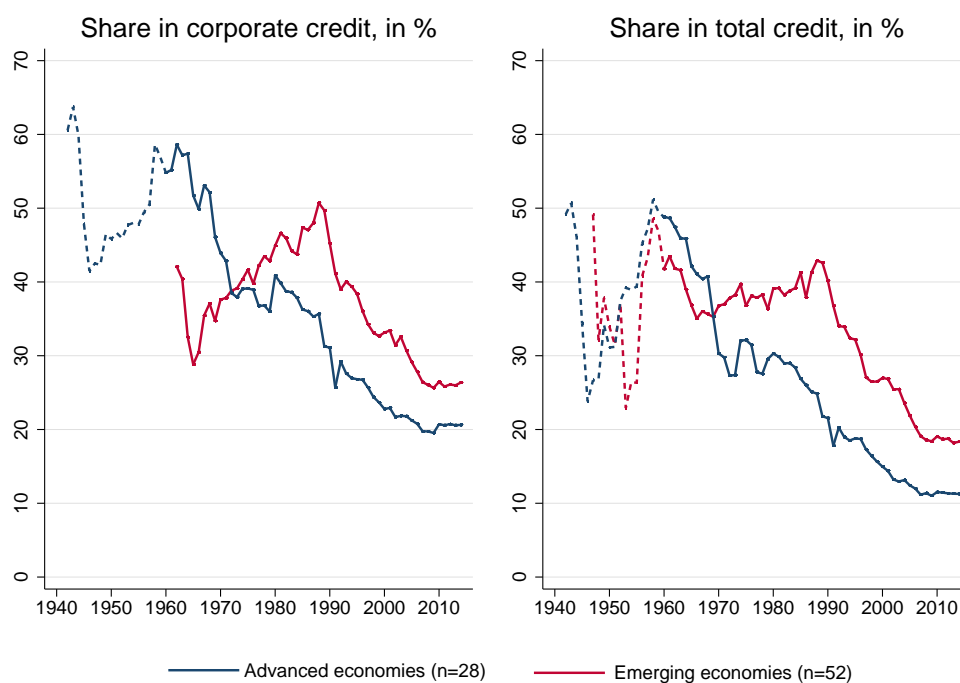


Note: Figure 6 shows the yearly average of corporate credit (including financial services), broken down by industries. All values are in percent of corporate credit.

changes in the manufacturing sector: we know from table 4 that industry lending makes up a much larger share in the exposures of financial systems around the world than agricultural lending. Mining and quarrying makes up only a negligible fraction of industry credit. Figure 7 shows the share of the tradable sector in corporate credit (left graph) and total credit (right graph) for both advanced and emerging economies. The changes over the last 70 years have been quite dramatic in all countries. In advanced economies, the share of tradables has declined steadily as percentage of corporate credit from 60% or more in the 1960s to around 20% in 2014. Due to the negligible share of household credit at the beginning of this period, the tradable share in total credit similarly decreased from around 50% to just above 10% in 2014.

Importantly, the development in emerging economies has mimicked the process starting

Figure 7: Credit to the Tradable Sector Has Decreased Considerably Over the Past 50 Years



Note: Figure 7 shows the yearly average of the share of credit to the tradable sector in corporate credit (left) and total credit (right) by development status. The dashed lines are for the period 1940 through 1960, where the sample size is still limited in this draft. The tradable sector is defined as agriculture plus industry (including mining and quarrying). Advanced economies are high income countries (OECD and non-OECD) as defined by the World Bank; emerging economies are low and middle income countries.

in the middle of the 1980s; a period when many emerging markets liberalized their financial systems. For the two decades starting in the early 1960s, the share of tradable sector credit actually *increased* as percent of both corporate and total credit in emerging economies. The reversal in the late 1980s came swift, leading to a substantial decline from more than 50% of the corporate credit market to little above 20%. Today, the tradable sector makes up significantly below 20% of the credit market in both country groups.

Overall, it is clear that the composition of credit to the private sector – arguably the most often used indicator of financial activity – has changed considerably over the last decades, with a striking similarity between the developments in emerging and advanced economies. An important implication of these trends is that assessing the effects of financial development using aggregate measures may be subject to an *aggregation bias* if not all types of credit similarly benefit growth. For example, one would expect different effects of credit card lending to households and long-term industry financing. It seems like a fair characterization that the traditional finance-growth view is largely based around the promising effects of easier access to finance for new and established enterprises. Given that the role of credit to the tradable sector (in particular manufacturing) has declined sharply, it appears like a potential culprit behind a vanishing or non-linear effect of finance on growth, as described in influential studies by [Arcand et al. \(2015\)](#) and [Cecchetti and Kharroubi \(2012\)](#).¹² I return to a more formal test of this hypothesis in section 5.

4 Which Factors Shape Credit Markets?

Up to this point, I have documented differences in credit market structure across countries and their evolution over time. But which political, legal, and institutional factors shape them? An influential empirical literature suggests that there are a number of structural determinants of financial development, ranging from legal frameworks (e.g. [La Porta et al., 1997, 1998](#); [Demirgüç-Kunt and Maksimovic, 1998](#); [Levine, 1999](#); [Djankov et al., 2008](#)); financial liberalization and deregulation (e.g. [Jappelli and Pagano, 1994](#); [Henry, 2000](#); [Bekaert et al., 2005](#)); to political clout (e.g. [Kroszner and Strahan, 1999](#); [La Porta et al., 2002](#); [Rajan and Zingales, 2003](#); [Sapienza, 2004](#); [Rajan and Ramcharan, 2011](#)). In this section, I provide some evidence that determinants also

¹²An early study on this vanishing effect is [Rousseau and Wachtel \(2011\)](#).

have an impact on *who* receives credit.

4.1 Political and Legal Correlates

I start by picking a range of political and legal determinants and dividing the sample countries into groups (usually terciles). The results are plotted in table 6. The data suggest that politics play a crucial role in the design and functioning of financial systems, as highlighted in important work by, among others, [Kroszner and Strahan \(1999\)](#); [Sapienza \(2004\)](#); [Rajan and Zingales \(2003\)](#); [Rajan and Ramcharan \(2011\)](#); [Calomiris and Haber \(2014\)](#). In particular, debt markets are less developed and have lower shares of household and financial credit in countries with autocratic governments and have lower shares of household and financial credit. The ideology of governing parties in democratic states also has an important influence. In countries with more right-wing governments, substantially more credit is allocated towards households and less to industry. This finding may be counter-intuitive at first glance, given that populist socialist parties would be obvious candidates for promoting access to household credit. It is, however, consistent with the move towards broad-scale economic liberalization in many countries over the last three decades, which were often devised by liberal governments.¹³ The positive correlation between right-wing governments and household credit is also consistent with the recent experience in many advanced economies, where rising income inequality and household debt have moved hand in hand. [Rajan \(2010\)](#) and [Kumhof et al. \(2015\)](#), for example, make the case that the unwillingness of governments to deal with increasing levels of income inequality may have been one of the key drivers behind easy access to household credit. Dividing countries across levels of corruption paints an inverse picture to development levels: more corrupt countries have less household and financial credit and more for industry. Similarly, countries with higher political freedom and civil liberties allocate more credit to households and much less to commerce. Commodity exporters are another special case. Unsurprisingly, they allocate more credit towards industry sectors, in particular mining and quarrying, and considerably less to households.

The legal framework is also a crucial determinant for credit market structure. In financial

¹³[Rajan and Zingales \(2003\)](#) are somewhat critical of this view, citing France as an example for the fact that liberalization and privatization efforts were not in all countries initiated by liberal governments. Rajan himself, however, also stresses the link between liberalization, inequality, and household credit in a more recent book ([Rajan, 2010](#)).

Table 6: Political and Legal Correlates of Credit Market Structure

	Private credit/GDP	Sector Concentration (HHI)	Households & NPISH	Financial	Non-financial corporate	Agriculture	Industry	of which: Mining & Quarrying	Electricity, Gas, & Water	Construction & real estate	of which: Real estate services	Commerce	Transport & Communication	Services	of which: Business services	of which: other services
Political System																
Autocracy	38.87	0.18	27.91	4.69	65.14	6.6	17.34	1.49	2.13	10.87	5.73	21.39	3.76	8.7	5.18	4.29
Democracy	50.7	0.17	33.61	5.29	57.89	7.93	15.45	0.91	2.12	8.52	6.16	15.45	3.03	8.49	4.78	3.38
<i>Equal means?</i>	-12.05	1.33	-12.63	-3.74	12.83	-5.92	6.14	15.34	0.05	13.39	-2.12	21.32	12.93	1.25	2.57	8.12
Government Party																
Left	37.96	0.14	27.33	4.2	65.82	8.09	19.66	0.99	2.52	9.78	5.91	19.12	3.81	8.08	5.03	3.27
Center	49.52	0.17	33.92	9.75	54.84	4.43	15.25	1	2.43	10.5	9.23	13.89	3.23	7.89	4.45	3.46
Right	50.03	0.18	34.23	4.99	55.78	7.28	14.8	1.18	1.9	8.21	5.45	15.66	3.09	8.24	4.49	3.79
<i>Equal means?</i>	-15.3	-18.98	-16.46	-5.67	19.97	3.5	17.75	-5.5	14.18	10.03	2.85	14.58	13.71	-1.17	4.82	-5.01
Corruption																
Bottom 33%	78.05	0.19	39.64	6.29	53.72	4.25	9.33	0.61	2.02	9.57	6.89	14.52	3.34	8.74	5.38	2.85
Middle 33%	41.01	0.17	30.72	4.43	61.69	6.16	17.19	1.3	2.57	10.16	6.67	19.24	3.22	7.17	3.82	3.32
Top 33%	25.12	0.15	22.56	4.22	72.09	9.46	19	1.49	2.54	9.32	5.11	22.49	3.99	9.4	5.78	4.13
<i>Equal means?</i>	62.29	13.21	49.07	12.34	-39.46	-27.73	-42.55	-24.4	-8.55	1.5	8.49	-3	4.37	-10.11	-3.72	-2.57
Political Freedom and Civil Liberties																
Not free	44	0.2	29.67	3.51	68.32	5.63	12.15	1.71	2.3	11.22	5.5	25.55	4.3	8.52	5.58	2.9
Partly free	39.89	0.15	27.77	5.38	63.64	6.23	18.43	1.4	2.43	9.15	5.45	20.21	3.53	9.29	4.82	4.29
Free	58.01	0.18	36.75	5.2	55.57	7.18	12.56	0.65	2.26	9.21	7.35	14.57	3.12	7.48	4.85	2.66
<i>Equal means?</i>	-13.8	7.9	-15.14	-9.92	22.68	-5.79	-1.39	31.57	0.61	10.3	-5.15	45.29	18.58	5.62	3.71	1.49
Commodity Exporter																
Non-exporter	60.66	0.18	36.33	5.37	57.31	4.58	12.9	0.71	2.62	9.26	6.47	17.33	3.38	7.41	4.51	2.58
Exporter	31.98	0.16	25.89	4.47	66.24	8.97	17.52	1.61	1.96	9.92	6.19	20.56	3.66	9.42	5.57	4.58
<i>Equal means?</i>	38.99	12.29	32.46	7.05	-21.68	-27.11	-20.73	-31.84	14.09	-4.84	1.75	-14.71	-5.89	-16.05	-9.54	-24.25
Legal Origin																
British	53.67	0.17	32.8	5.03	59.02	6.73	13.21	1.13	1.86	8.39	4.88	18.46	3.72	8.16	5.03	3.19
French	37.24	0.17	28.55	4.78	65.3	6.85	16.61	1.36	2.89	10.34	6.22	21.06	3.38	8.75	5.04	4.19
German	62.36	0.17	37.53	4.74	55.14	2.94	16.68	0.62	2.55	10.37	7.83	13.07	3.37	8.15	4.52	2.7
Scandinavian	55.53	0.26	40.46	9.61	49.84	18.26	8.56	0.04	0.48	13.02	10.59	11.1	2.08	7.85	3.12	1.64
<i>Equal means?</i>	-19.26	-0.34	-11.3	-1.77	13.73	0.66	13.44	6.56	20.01	12.93	7.04	10.9	-6.49	3.86	0.1	9.65
Creditor Rights																
Bottom 33%	44.28	0.16	29.43	5.08	62.27	6.34	19.27	1.49	2.56	9.21	4.59	16.52	3.13	8.99	5.44	3.18
Middle 33%	36.13	0.16	27.82	3.64	65.77	7.66	17.72	0.87	2.69	10.1	6.04	19.55	4.04	7.92	3.68	4.76
Top 33%	54.76	0.16	32.96	7.5	54.84	5.81	13.89	1.22	1.52	10.19	7.18	16.79	3.77	8.26	5.42	2.41
<i>Equal means?</i>	-8.55	-0.47	-7.46	-12.6	13.91	2.59	18.01	5.63	21.7	-5.8	-14.1	-0.92	10.14	4.4	0.11	9.5
Contract Enforcement																
Bottom 33%	40.22	0.18	31.35	3.12	62.73	7.29	16.01	0.86	2.63	8.1	4.62	19.28	3.41	7.96	5.55	3.02
Middle 33%	45.06	0.15	29.51	6.38	61.43	6.1	15.02	1.43	2.21	11.7	6.88	19.86	3.48	7.99	3.9	3.87
Top 33%	52.89	0.17	32.13	5.98	60.37	6.84	14.88	1.16	2.27	9.3	7.33	16.84	3.65	9.12	5.14	3.47
<i>Equal means?</i>	12.85	-3.92	1.84	24.79	-4.86	-2.03	-3.77	8.08	-5.97	7.65	14.99	-9.57	4.15	7.48	-2.89	3.97

Note: All values in percent except the aggregate loan concentration (HHI). Private credit is shown as percent of GDP, all other sectors as percent of private credit. The row *Equal means?* reports the *t*-statistic of a two-sided equality of means test for the bottom and top terciles (British versus French for legal origin).

markets of British and Scandinavian origin; industrial lending is most prominent in countries of French and German origin. Interestingly, both household and financial credit have the largest role in countries with Scandinavian legal origin. Creditor rights also play a crucial role. Countries with stronger creditor rights have more credit for financial and real estate purposes at the expense of industry credit. The pattern is much less clear for contract enforcement, which shows only slightly larger shares of households, financial, and real estate services credit.

4.2 Financial Development Correlates

Legal, political, and institutional factors appear crucial for understanding the structure of credit markets. But does financial development itself also have an impact on the composition of credit? The simple correlations in table 7 suggest that the size, efficiency, and regulation of the financial sector are strongly correlated with the sectoral allocation of credit.

In larger financial sectors, household and non-bank financial credit plays a much more significant role, as does lending to real estate companies. Increases in these sectors come only partially at the expense of services; the main losers are industry, agriculture, and commerce. These effects are largely consistent across different measures of debt and equity markets. Only correlations with the development of bond markets appear more muted.

Turning next to measures of banking efficiency and stability gives a complimentary picture. Taking the spread between deposit and lending rate as a proxy for financial development attracts the opposite sign of the size measures above as expected, as does the ratio of non-performing to total loans. An interesting finding is also that countries with better capitalised and more profitable banks have considerably less concentrated aggregate portfolios and more non-financial corporate credit.

A look at some of the potential underlying factors is instructive. Larger financial sectors are associated with financial openness and deregulation, which are both associated with more household, financial, and construction and real estate credit. Again, the lower shares of agriculture and especially industry can explain the bulk of this effect. Some of the relationships here are striking in magnitude: the IMF financial deregulation index has a correlation of 0.47 with the share of real estate services and -0.56 with industrial lending. Interestingly, trade openness – as measured by the sum of imports and exports over GDP – is associated with largely the same sectors, but not with household credit. While tight restrictions on the activities of the financial

sector may come at a cost, they are also usually aimed at channelling funds to industries that are deemed important for development. Absent such restrictions, banks may have strong incentives to expand into household credit and industry sectors with more pledgeable assets. This may be a consequence of competition that incumbent banks face after allowing investments from abroad but also the entry of foreign banks (Rajan and Zingales, 2003).

Bank ownership also plays an important role. Countries with more government-owned banks in 1995 have less concentrated portfolios, which especially benefits agriculture and industry at the cost of households, construction and real estate, as well as business services. In contrast, foreign bank ownership is positively correlated with household and financial lending. Bank concentration also plays a role, which is important because of its correlation with financial development. Countries with less banking competition lend much more to financial firms as well as construction and real estate, but also transport and communication. Industry and to a lesser extent agriculture again lose out.

How does the sharing of borrower information tie in here? In an important paper, Djankov et al. (2007) show that information-sharing institutions are associated with higher levels of credit to GDP. Building on their work, I look at the depth of credit information from the World Bank and two dummy variables indicating whether a country has a private credit bureau or public registry from Djankov et al. (2007).¹⁴ Better access to information may enable creditors to extend credit to borrowers who are more opaque or have fewer pledgeable assets. Higher information sharing may, however, also facilitate transaction-based lending, for example through credit cards. Interestingly, the data suggests a strong divide between private bureaus and public registries. Private bureaus indeed appear to ease financing constraints for many corporate sectors, in particular commerce, transport and communication, but also industry. Public registries, on the other hand, are positively correlated with household and financial credit, which comes at the expense of almost all other corporate sectors except real estate and commerce. These results again underscore political economy explanations of financial development, suggesting that politicians employ credit markets as power tools.

In the last panel, I look at two important contract features: collateralization and loan-to-value (LTV) ratios. Higher collateral requirements are especially correlated with agriculture,

¹⁴As explained above, the data is time-averaged, yielding an estimate of the average number of years a country has had one of the two institutions.

Table 7: Financial Development and the Composition of Private Credit

	Private credit/GDP	Sector Concentration (HHI)	Households & NPISH	Financial	Non-financial corporate	Agriculture	Industry	of which: Mining & Quarrying	Electricity, Gas, & Water	Construction & real estate	of which: Real estate services	Commerce	Transport & Communication	Services	of which: Business services	of which: other services
Size of the Financial Sector																
Private credit/GDP	—	0.12*	0.36*	0.37*	-0.42*	-0.32*	-0.38*	-0.44*	-0.13*	0.02	0.23*	-0.35*	-0.03*	-0.09*	-0.02	-0.30*
MFI assets/GDP	0.74*	0.21*	0.37*	0.24*	-0.34*	-0.32*	-0.30*	-0.34*	-0.14*	0.14*	0.17*	-0.31*	-0.11*	-0.10*	-0.09*	-0.31*
Stock market cap./GDP	0.37*	0.03	0.08*	0.28*	-0.08*	-0.05*	-0.19*	0.10*	-0.24*	-0.02	0.01	-0.13*	0.07*	0.18*	-0.03	0.01
Listed comp./Pop.	0.47*	0.04*	0.19*	0.12*	-0.12*	0.05*	-0.36*	-0.27*	-0.00	0.16*	0.30*	-0.11*	-0.06*	0.01	-0.12*	-0.17*
Broad issuance/GDP	0.28*	-0.05*	0.14*	0.05*	-0.09*	-0.10*	-0.16*	-0.18*	-0.13*	-0.05*	-0.03	0.00	0.05*	0.04	-0.10*	0.08*
Efficiency and Stability																
Int. rate spread	-0.37*	-0.14*	-0.20*	-0.23*	0.21*	0.21*	0.21*	0.23*	0.12*	-0.10*	-0.08*	0.23*	0.13*	0.08*	-0.01	0.14*
ROA (before tax)	-0.37*	-0.11*	-0.12*	-0.07*	0.16*	-0.00	-0.10*	0.27*	0.05*	-0.12*	-0.17*	0.38*	0.18*	0.23*	-0.01	0.47*
Bank capital/Assets	-0.40*	-0.24*	-0.19*	-0.22*	0.28*	0.05*	-0.07*	0.24*	0.22*	-0.00	-0.00	0.51*	0.11*	0.15*	-0.00	0.13*
NPL ratio	-0.24*	-0.13*	-0.58*	-0.05*	0.45*	0.03	0.37*	0.34*	0.07*	0.12*	-0.12*	0.41*	0.26*	0.13*	0.11*	-0.20*
Openness, Regulation, and Supervision																
Trade openness	0.61*	-0.12*	0.04*	0.32*	-0.04*	-0.31*	-0.45*	-0.23*	0.14*	0.19*	0.43*	0.07*	0.24*	-0.15*	-0.00	-0.24*
Capital account openness	0.26*	0.15*	0.37*	0.09*	-0.36*	-0.09*	-0.37*	-0.13*	-0.18*	0.05*	0.25*	-0.19*	-0.04*	0.00	-0.05*	-0.08*
Fin. reform index	0.50*	0.04*	0.52*	0.47*	-0.50*	-0.48*	-0.55*	-0.23*	-0.08*	0.30*	0.46*	-0.42*	-0.07*	-0.07*	0.01	-0.21*
Credit market freedom	0.36*	0.01	0.44*	0.29*	-0.39*	-0.32*	-0.44*	-0.18*	-0.04*	0.00	0.24*	-0.25*	-0.21*	-0.22*	0.09*	-0.15*
Banking supervision	-0.00	-0.13*	-0.22*	-0.06*	0.30*	0.02	0.27*	0.00	-0.22*	0.19*	-0.04	-0.03*	0.22*	-0.11*	0.06*	-0.17*
Bank Ownership and Competition																
Government ownership	-0.35*	0.06*	-0.30*	-0.44*	0.37*	0.41*	0.38*	-0.12*	0.23*	-0.11*	-0.29*	0.11*	0.06*	-0.09*	-0.25*	0.12*
Foreign bank ownership	0.11*	-0.11*	0.08*	0.17*	-0.16*	-0.04*	-0.10*	-0.14*	0.05*	-0.14*	-0.07*	-0.12*	0.01	-0.05*	0.08*	-0.12*
Bank concentration	0.23*	-0.09*	-0.05*	0.18*	0.06*	-0.07*	-0.21*	-0.09*	0.08*	0.18*	0.16*	0.18*	0.12*	-0.03	-0.08*	0.01
Information Sharing																
Credit information depth	0.06*	0.05*	0.09*	0.23*	-0.21*	-0.06*	0.18*	0.02	-0.22*	0.05*	0.05*	-0.45*	-0.21*	-0.24*	-0.18*	-0.24*
Private bureau	-0.26*	-0.08*	-0.34*	-0.21*	0.47*	0.09*	0.07*	0.14*	0.31*	0.10*	0.13*	0.55*	0.25*	-0.17*	0.05*	-0.18*
Public registry	-0.00	-0.05*	0.09*	0.13*	-0.02	0.08*	-0.23*	-0.05*	-0.00	-0.17*	0.05*	0.12*	0.03*	-0.02	0.08*	-0.15*
Contract Features																
Loans requiring collateral	-0.09*	0.14*	-0.07*	-0.13*	0.13*	0.16*	-0.09*	0.02	0.10*	0.18*	0.33*	0.38*	0.12*	-0.11*	0.07*	-0.10*
Loan-to-value ratio	-0.16*	-0.05*	0.05*	-0.05*	-0.02	0.14*	-0.09*	0.07*	0.11*	-0.22*	0.07*	0.18*	-0.00	0.16*	0.13*	0.35*

Note: All values in percent except the aggregate loan concentration (HHI). Private credit is shown as percent of GDP, all other sectors as percent of total private credit. Correlations with a star * are significant at the 1% level.

commerce, and real estate. This is not surprising given that these sectors may hold a large share of their assets as land, which can easily be used as collateral. Higher LTVs are associated not only with slightly more household lending (Jappelli and Pagano, 1994) but also real estate and other services.

5 Sectoral Credit and Economic Growth

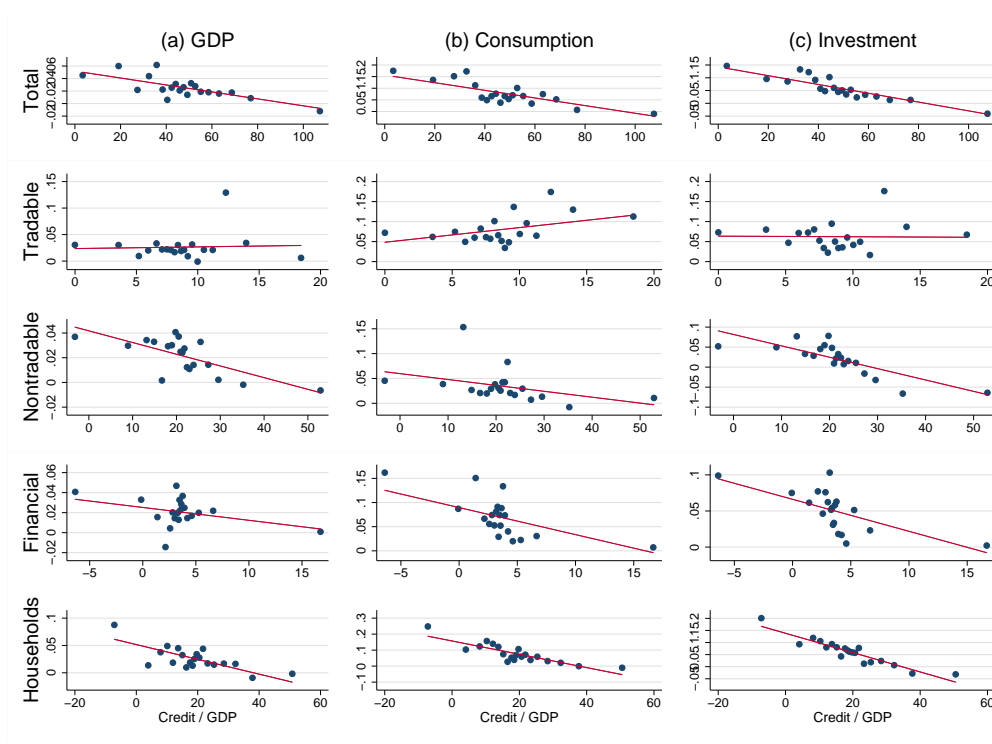
Up to this point, I have provided some evidence that behind the veil of financial deepening over the last 70 or so years lies a striking transformation of how credit is intermediated in both advanced and developing economies. But do these secular shifts have macroeconomic effects? In particular, what can we learn about the impact of finance on economic and productivity growth?

Attempting to answer these questions is not trivial, both from a conceptual and methodological standpoint. A main challenge is the identification of a causal effect going from the financial sector to the real economy, which the literature has addressed using quasi-natural experiments (e.g. Jayaratne and Strahan, 1996); plausibly exogenous industry characteristics (e.g. Rajan and Zingales, 1998); or instrumental variable strategies (e.g. Beck et al., 2000). In this paper, I am not attempting to give definitive answers, but instead provide a preliminary descriptive attempt to document some new stylized facts about the relevance of studying not only the size, but also the *structure* of credit market development. To my knowledge, only three studies have dissected heterogeneous effects of credit on macroeconomic outcomes. Beck et al. (2012) find that “enterprise credit” is positively associated with economic growth, but household credit is not, in a sample of 66 countries spanning from 1994 to 2005. The influential work of Jordà et al. (2014, 2015) finds that booms in mortgage credit are often followed by exceptionally deep recessions.

The novel sectoral data allow me to address these questions head-on with a significantly larger sample size and time span. To tease out real effects, I use simple binned scatter plots (or binscatters), which show the correlation between the share of credit to different sectors and macroeconomic variables without imposing a specific functional form on their relationship. This is particularly important in describing the finance-growth nexus, as recent studies suggest a non-linear effect of financial development on economic outcomes (Arcand et al., 2015; Cecchetti and Kharroubi, 2012). In particular, the bin scatters I construct show the average growth rates of

real GDP, investment, and consumption per capita at 20 quantiles of sectoral credit (scaled over GDP). Bin scatters further allow for conditioning the correlations in the data on country fixed effects and a time trend; I operationalize the latter by controlling for the average global growth rates of the dependent variables as in [Òscar Jordà et al. \(2016\)](#). I do not include additional conditioning variables because there are a myriad of potential predictors of economic growth, all of which likely have interactions with credit market development. The plots should instead be interpreted as conditional correlations in the raw data.

Figure 8: Credit / GDP and Economic Growth



Note: Figure 8 shows bin scatter plots of the macroeconomic variables real GDP per capita growth, real consumption per capita growth, and real investment per capita growth against 20 quantiles of sectoral credit / GDP for credit to tradable sector firms, nontradable sector firms, financial corporations, and households. The results are conditioned on country fixed effects and the global real GDP per capita growth rate.

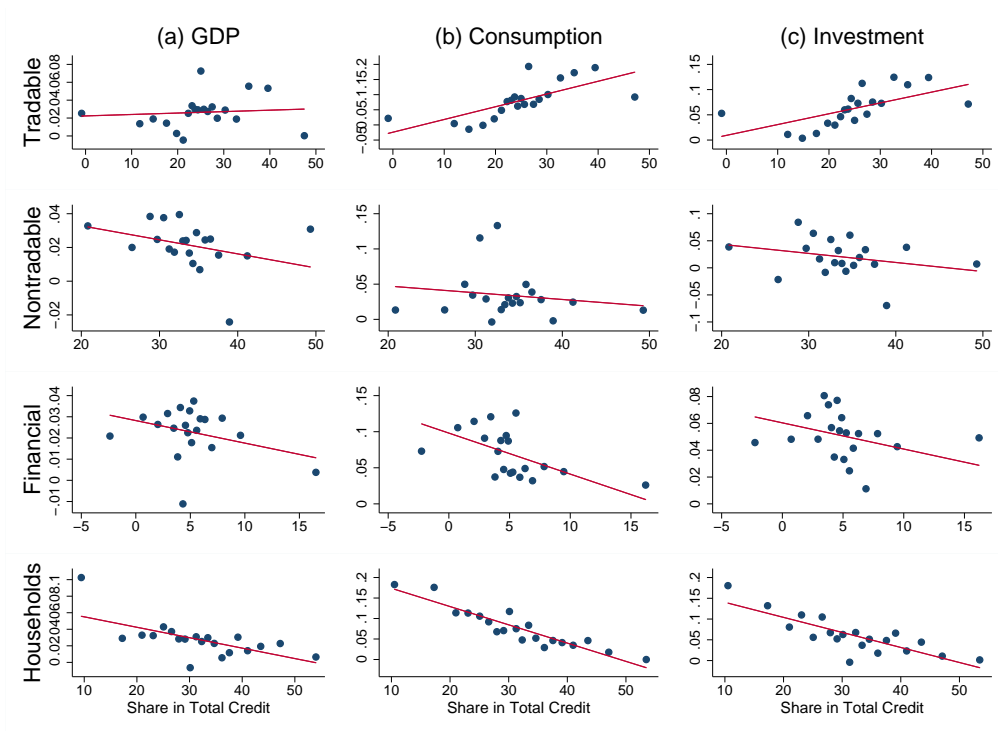
The results of the bin scatter exercise can be seen in figure 8. The plots are divided into three columns, each for one of the per capita macroeconomic variables (real GDP growth, real consumption growth, and real investment growth). The five rows are total credit and the four

broad sectoral credit measures tradable sector corporations, nontradable corporate corporations (excl. finance), financial corporations (excl. banks), and households. Figure 8 reveals a few noteworthy insights. First, independent of the macro variable, total credit is clearly associated with *lower* growth rates. Second, the strength of this negative relationship varies more across sectors than outcome variables. In particular, the dispersion of growth rates for credit to non-financial corporations paints a much more dispersed picture than for household or financial credit; as a result, the fitted lines are less downward sloping. Strikingly, only tradable sector credit is positively associated with higher growth rates, as suggested by the fitted values. For investment, the correlation between tradable corporate sector credit and the per capita growth rate appears to be close to zero. Third, household credit is unambiguously negatively correlated with the growth of the macroeconomy. For all variables, but in particular investment, the correlations diverge little from a downward sloping 45 degree line: financial deepening as measured by higher levels of household debt does not appear to have a positive effect on economic growth, consistent with the evidence in [Beck et al. \(2012\)](#).

To more directly address the question whether credit market structure matters for the macroeconomy, I next repeat the baseline exercise from figure 8 by looking at sectoral *shares* in total credit. The main benefit of this additional analysis is that the shares of credit over GDP are highly correlated: household credit over GDP, for example, has a correlation of 0.87 with total credit over GDP (see also the discussion in section 4.2). As a result, comparing the effects of sectoral credit on growth may be misleading. In figure 9, I thus look at the (conditional) correlations of the macro variables with different quantiles of the sectoral shares of tradable corporations, nontradable corporations, financial corporations, and households in total credit.

This exercise uncovers a striking pattern. Higher shares of tradable sector credit in the top row are strongly positively related to all macro growth rates, with limited evidence of a non-linear effect. For GDP, the positive link is only bounded by countries with very high shares of tradable sector credit. For the nontradable sector, the data are very dispersed with a slightly negative correlation: however, the correlation is close to zero. The link between the share of financial sector credit and macroeconomic outcomes appears to be clearly negative, albeit somewhat more noisy. Growth in GDP per capita in particular seems to have a somewhat tenuous link with financial sector credit, with much of the growth rates bunched together. A higher share of credit to financial corporations is clearly negatively associated with consumption.

Figure 9: Sectoral Credit Shares and Economic Growth



Note: Figure 9 shows bin scatter plots of the macroeconomic variables real GDP per capita growth, real consumption per capita growth, and real investment per capita growth against 20 quantiles of the shares of tradable sector firms, nontradable sector firms, financial corporations, and households in total credit. The results are conditioned on country fixed effects and the global real GDP per capita growth rate.

The most precisely “estimated” and clear pattern in the data is the negative correlation between the share of household credit and macroeconomic outcomes. The connection is particularly striking for consumption and investment, where higher shares of household debt translate almost perfectly into a decline of the per capita growth rate. While I reiterate that the correlations presented here may simply be driven by third factors (such as increases in living standards), they are consistent with [Beck et al. \(2012\)](#) and recent findings by [Mian et al. \(2015\)](#) that household credit expansions predict business cycle downturns. Further, the pattern here suggests that not only the growth but also accumulation (i.e. stock) of household debt may translate into suboptimal macroeconomic effects.

Overall, the results suggest that aggregate measures of financial development mask stark differences in the underlying structure of credit markets, and this has macroeconomic effects. Importantly, I find little evidence of a non-linearity between finance and growth, as suggested by [Arcand et al. \(2015\)](#); [Cecchetti and Kharroubi \(2012\)](#). Instead, breaking down their aggregate measures reveals that the effects of credit expansions may significantly depend on who receives it. The analysis presented here suggests that tradable sector corporate credit appears to be an unambiguously positive driver of economic growth, while I find a strong negative link for household credit. This somewhat contrasts with an additional result in [Arcand et al. \(2015\)](#) that household debt has a positive effect up to a point, while it meshes well with their finding of a positive effect of corporate credit.

6 Conclusion

Research on interactions between finance and the macroeconomy has long relied on aggregate measures such as private credit to GDP. Due to a lack of comparable cross-country sources, in-depth analyses have been restricted to the use of confidential credit registers or proprietary datasets. I present a new dataset on sectoral credit for a large cross-section of countries and sectors to remedy the problem.

The data shows that aggregate measures conceal considerable change in the composition of credit over time and across countries. Credit markets have transformed dramatically over the past 70 years, both in advanced and emerging economies. The bulk of credit growth has benefited households and non-tradable industries, while the tradable sector (and manufacturing

in particular) has lost significant market shares.

I also uncover some preliminary evidence on the determinants and effects of cross-country differences in credit market structure. Legal and institutional factors play a crucial role in shaping who receives credit, as do politics. Strikingly, indicators of financial development themselves are strongly associated with changes in credit allocation, maybe because larger financial sectors themselves alter the profitability of lending to different sectors. The exact mechanisms at work, however, are far less clear-cut.

An important regularity in the data is that the share of non-financial corporations (in particular of the tradable sector) in total credit is strongly positively correlated with economic growth, while financial corporations and household credit are clearly negatively correlated. These stark differences suggest that there may be important heterogeneities in which credit markets indeed have positive macroeconomic effects. Given the agnostic approach taken here, the causality and exact channels however are far from clear. The new data introduced here will hopefully enable researchers to evaluate these and other pressing questions on macro-financial linkages in future work.

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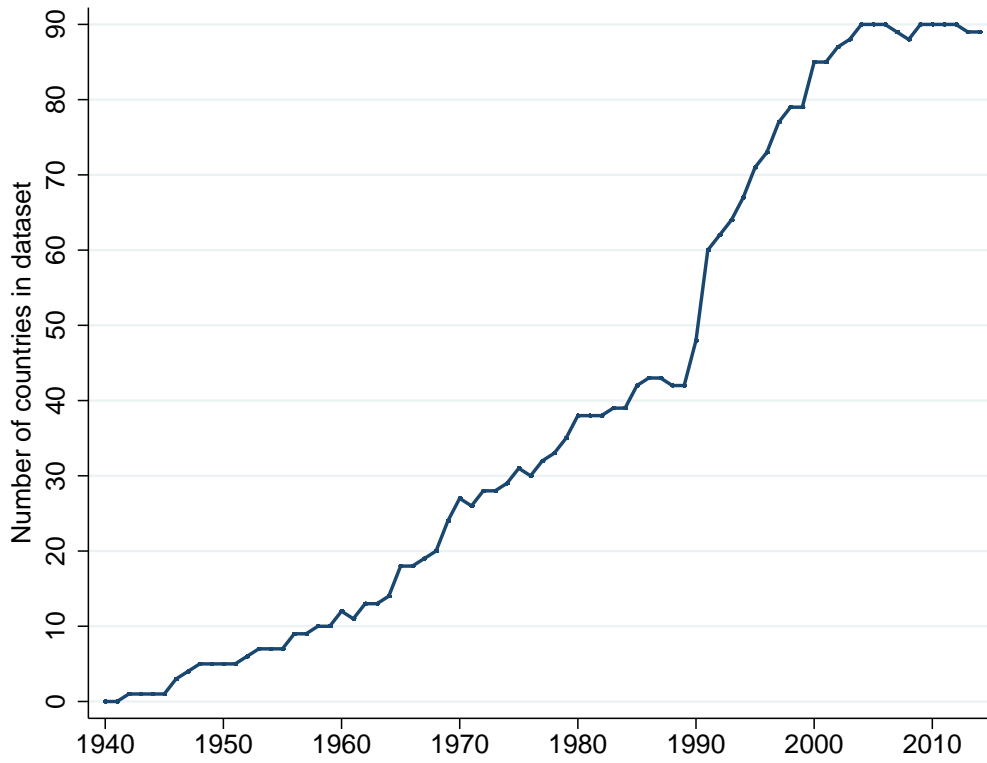
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Appendix

Figure 10: Number of Covered Countries in Dataset over Time



Note: The graph plots the number of countries with sectoral credit data over time, starting in 1940. Note that the coverage is based on the preliminary dataset used in this draft, not the entire database. The countries which are currently in progress all have data available from 1940.

Table 8: Descriptive Statistics

	Mean	N	SD	$\Delta \ln$ Mean	$\Delta \ln$ N	$\Delta \ln$ SD
Private credit/GDP	47.92	2951	38.10	0.03	2851	0.15
HHI	1.13	2874	0.48	-0.00	2775	0.12
Households	32.06	2483	17.75	0.03	2389	0.25
Financial	5.13	2130	5.97	0.02	2030	0.50
Non-financial corporate	60.48	1872	19.02	-0.01	1785	0.06
Agriculture	7.72	2664	9.92	-0.03	2561	0.36
Industry	16.57	2654	12.15	-0.02	2556	0.19
<i>of which: Mining & quarrying</i>	1.23	1995	1.99	-0.02	1896	0.52
Electricity, gas, & water	2.20	2088	2.66	0.02	1986	0.74
Construction & real estate	8.49	2582	6.65	0.02	2484	0.25
<i>of which: Real estate services</i>	6.30	833	5.33	0.04	787	0.25
Commerce	18.61	2623	10.98	-0.02	2525	0.16
Transport & communication	3.48	2282	2.43	0.00	2189	0.27
Services	7.66	1180.00	5.44	0.01	1119	0.22
<i>of which: Business services</i>	5.07	1063	4.62	0.01	1003	0.28
<i>of which: Other services</i>	3.51	910	3.60	0.00	852	0.36

Table 9: Data Sources and Variable Construction

Variable	Construction	Source
GDP at current prices	Measured in national currency.	World Bank WDI*
Contract enforcement		World Bank WDI
Corruption	Values reversed; raw values are for “control of corruption”.	World Bank WGI
Legal origins		Shleifer et al. (2008)
Creditor rights		Djankov et al. (2007)
Political system		Cheibub et al. (2009)
Freedom	Average of “political rights” and “civil liberties”. I use the Freedom House classification, which is “partly free” for countries where the average ratings of political rights and civil liberties fall between 3.0 and 5.0; “not free” for average values between 5 and 7.0; and “free” for the others.	Freedom House
Government party	Governments are coded as left, right or center when both the chief executive and largest party in parliament have the political affiliation.	Botero et al. (2004)
Commodity exporters	Countries are coded as commodity exporters if their commodity exports as a share of total exports were on average greater than 35% and net commodity exports as percentage of total trade greater than 5% between 1962 and 2014.	IMF WEO 10/2015 Ch. 2
Public registry	Equal to 1 for every year after the introduction of a public registry; 0 otherwise.	Djankov et al. (2007)
Private credit bureau	Equal to 1 for every year after the introduction of a private credit bureau; 0 otherwise.	Djankov et al. (2007)
Financial openness	Values of raw variable (<i>ka</i>) reversed; raw values measure capital account restrictiveness.	Fernández et al. (2015)
Credit market freedom	Raw variable is (<i>credit market regulations</i>).	Fraser Institute
Financial deregulation	Raw variable is (<i>reform index</i>).	Abiad et al. (2010)
Banking supervision	Average values for surveys conducted between 1999 and 2011. I create means for the scores for overall restrictions on banking activities; overall financial conglomerates restrictiveness; limitations on foreign bank entry or ownership; capital regulatory index; official supervisory power; private monitoring variables; and moral hazard.	Barth et al. (2013)
Government ownership	Government ownership of banks as measured in 1995.	La Porta et al. (2002)

Note: * Missing historical values were added from [Schularick and Taylor \(2012\)](#), the Penn World Table (version 9.0), and national statistical offices. GDP for Barbados spliced using GGDC GDP growth rate of Costa Rica 1946-1949 and electricity generation and consumption 1950-1959 from national statistical office.