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The Great Depression as a Savings Glut

By Victor Degorce and Eric Monnet*

Recent models have shown how banking crises may lead to a "paradox of thrift" driven by the savings of unconstrained consumers. We provide the first evidence of this mechanism by investigating the 1930s Great Depression. Interwar banking crises are ideal to test theories of precautionary savings because of the absence of macroeconomic insurance. Data covering 22 countries reveal a large increase in savings institutions' deposits. Panel estimations exhibit a negative correlation between real GDP and precautionary savings when a banking crisis hit. Additional tests confirm that this effect is not driven by a reallocation of savings from banks and stocks.

JEL: B22, E21, E51, G01, G21, N1, N2
Keywords: banking crisis, precautionary savings, Great Depression, paradox of thrift, savings institutions

"There are today many well-wishers of their country who believe that the most useful thing which they and their neighbours can do to mend the situation is to save more than usual. [. . .] It is utterly harmful and misguided – the very opposite of the truth."

J.M. Keynes (1931, II.6 p.151).

How do economic agents react to the tightening of the credit constraint following a financial crisis? The theoretical literature distinguishes between two different reactions (Guerrieri and Lorenzoni, 2017): constrained consumers cut spending to pay-off existing debt - they deleverage - (Fisher, 1933; Aghion et al., 1999; Eggertsson and Krugman, 2012; Fornaro and Romei, 2019), while uncon-

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strained consumers accumulate precautionary savings to stay away from the borrowing limit (Keynes, 1931, 1936).[1] In both cases, aggregate demand is pushed downwards and output declines. The first channel (the "consumer balance sheet" channel) has been widely documented in the context of the Great Depression (Mishkin, 1978; Olney, 1999; Hausman et al., 2019) and Great Recession (Mian and Sufi, 2010, 2011; Mian et al., 2013). The second channel (the "paradox of thrift" channel), however, has received much less attention, although it was notoriously put forward by Keynes as a cause of the Great Depression.[2]

The lack of studies on precautionary savings following the banking crises of the 1930s is especially surprising given that the Great Depression remains the building block of macroeconomic theory (Bernanke, 1995; Eichengreen, 2014). Besides, interwar economies offer an ideal context to test theories of precautionary savings given the magnitude of the financial shocks and the lack of public insurance during this period (either on unemployment or on bank deposits).

The lack of comprehensive and detailed data on consumption or saving flows prevents the computation of a personal saving rate for the interwar period. To circumvent this problem, our empirical strategy uses a particular feature of interwar banking systems. The existence of state-sponsored savings institutions, designed to make safe and interest-bearing deposits accessible to all savers, (Vogler, 1991; Mura, 1996) allows us to track precautionary savings during banking crises. We

[1] In other papers, the increase in precautionary savings is modeled as a response to expectations of unemployment, without a financial crisis, e.g. Chamley (2012); Challe et al. (2017); Challe (2020); Geerolf (2019).

[2] The paradox of thrift asserts that an increase in savings does not naturally lead to an increase in investment. On the contrary, it is detrimental to growth because it crowds out consumption.Temin (1976) and Romer (1990) provide indirect evidence on the "paradox of thrift" by looking at the consumption pattern of several goods following the 1929 stock market crash in the US. They do not study data on savings. Moreover, as reminded by Grossman and Meissner (2010), banking crises were much more important than stock market crashes for financial instability in other countries in the interwar. Mody et al. (2012) and Carroll et al. (2019) study the relationship between the rise of savings rates and credit availability in the recent decades, but they do not attempt to estimate the impact of a shock to precautionary savings on GDP and, most important, they do not directly investigate the effect of banking crises. Carroll et al. (2019) provides a comprehensive survey on the theory of precautionary savings.

then exploit the difference in the timing of banking crises across countries - another key feature of the Great Depression (Bernanke and James, 1991; Grossman and Meissner, 2010) - to estimate how these sudden shocks impacted growth through an increase in precautionary savings.[3]

Relying on a new dataset of savings institutions' deposits in 22 countries covering the 1920-1936 period, we document a huge increase in precautionary savings during the Great Depression. In the 22 countries of our dataset, savings institutions' deposits increased on average by 114% between 1928 and 1933. This increase was higher during years of banking crisis. Contrary to common wisdom, we do not find that cash was the primary vehicle of precautionary savings.

Dynamic panel analysis reveals a negative conditional correlation between savings deposits and real GDP when banking crises hit (consistent with the "paradox of thrift" hypothesis, and with the model of Guerrieri and Lorenzoni 2017). Specifically, a 10% increase in savings deposits led to a 0.2% fall in real GDP. A back-of-the-envelope calculation suggests that the negative effect of precautionary savings on growth was at least as large as the direct effect of the decline in banking activity. This correlation is robust to estimations with Generalized method of moments (GMM) and to the inclusion of a series of controls. Local projections show that the effect starts to dissipate only three years after the crisis. Our results are particularly striking because endogeneity between income and savings should lead to a positive correlation between the two. The correlation is indeed positive in normal times, outside banking crises.

To make sure that the increase in savings institutions' deposits is not merely the counterpart to the liquidation of other forms of savings (i.e. a portfolio

[3]As Grossman and Meissner (2010) write in a recent comparative survey : "although a number of stock-market crashes took place during the Great Depression, the scholarly consensus is that, with the possible exception of the October 1929 crash on Wall Street, crises in securities markets were not important in bringing it about, but were most often a consequence of the collapse of the banking and non-financial sectors of the economy",p.320.

reallocation effect), we show that our results hold if we control for life insurance policies, cash, commercial bank deposits, and equity prices in our estimations. We also document a negative correlation between our measure of precautionary savings and interest rates, consistent with theoretical models of the "paradox of thrift", but not with a reallocation of savings within households' portfolio. In an additional robustness check, we include the credit-to-GDP ratio to control for the consumer balance sheet channel. We then use the institutional diversity among savings institutions to control for a potential drop in the credit multiplier, and confirm that our main effect is really driven by a surge in precautionary savings rather than by a reallocation of savings towards institutions that lent less to the economy.[4] Last, we show that banking crises could not be predicted by the evolution of savings in the preceding years.

The main contribution of this paper is to provide a landmark evidence on the "paradox of thrift" channel of credit crises, consistent with theoretical models (Eggertsson and Krugman, 2012; Guerrieri and Lorenzoni, 2017). It offers new insights to the empirical literature on the macroeconomic effects of banking crises (Bordo et al., 2001; Jordà et al., 2016; Romer and Romer, 2017), and to the existing literature on money and credit during the Great Depression (Friedman and Schwartz, 1963; Temin, 1976; Bernanke, 1983; Romer, 1990; Eichengreen, 1992, 2014). Both have left aside precautionary savings.

I. Savings institutions and banking crises during the interwar

Savings institutions first appeared in the mid-to-late 19th century. They were typically set-up by local or central governments to encourage thrift among lower social classes. Yet, they soon started attracting funds from higher social classes

[4]This procedure only aims at isolating the effect of increased precautionary savings. It does not imply that the drop in the credit multiplier was not an important driver of the Great Depression (Bernanke, 1983; Baubeau et al., 2020).

and even from small businesses (Vogler, 1991; Brück, 1995; Mura, 1996). Savings institutions' deposits indeed had three main advantages: they were safe (due to state guarantee), they were widely accessible (unlike most commercial banks, savings institutions established branches in rural and sparsely populated areas), and they earned an interest (unlike cash and other hoarded funds). The special status of savings institutions progressively disappeared after the Second World War, as deposit insurance was extended to commercial banks. Then, starting in the late 1970s and early 1980s, most savings institutions were privatized or merged with commercial banks. In the 1920s and 1930s however, financial systems were essentially unregulated (US banking regulation being an exception), and savings institutions' deposits were a unique haven for precautionary savings.

To explore the fate of precautionary savings during the Great Depression, we build a new international database of savings institutions' deposits in 22 countries, covering the 1920-1936 period. We collected the data from national statistical yearbooks and from the League of Nations statistical yearbooks.[5] Whenever possible, we corrected and improved these series with more recent estimates (see online Appendix). Both the League of Nations and national yearbooks clearly distinguished commercial banks from savings institutions. We relied on these original categories, rather than on our own assessment, to construct our database (see online Appendix for a country-by-country list of savings institutions).

A first glance at the data confirms our intuition. On average, in each country of our sample, the growth rate of savings deposits was 7.6 percentage points higher during banking crisis years. Although not recorded in international accounts of the Great Depression (Kindleberger, 1973; Bernanke and James, 1991; Eichen-

[5]Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Japan, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, United Kingdom, United States and Yugoslavia.

green, 1992), the increase in savings institutions' deposits during banking crises is not surprising given the lack of financial insurance in the interwar period. The absence of public unemployment insurance and (more importantly) of financial insurance meant that consumers had to self-insure against risk. When credit dried-up, unconstrained consumers had a strong incentive to accumulate savings as a buffer against future shocks.[6]

To be sure, part of the increase in savings deposits during a banking crisis was driven by portfolio reallocation, rather than by an increase in precautionary savings (i.e. by the transfer of funds from stocks and commercial bank deposits to safe savings institutions).[7] Portfolio reallocation was, however, only attractive for relatively illiquid funds since savings institutions' deposits were mostly time deposits.[8] In addition, interwar banking crises were often independent from stock market crises (see Grossman and Meissner (2010) for a recent survey). In our sample, banking crises and stock market crashes occurred simultaneously in only 30.3% of cases, so that portfolio reallocation from stocks or bonds cannot be taken for granted.[9] Aggregate capital stock data such as those compiled in Piketty and Zucman (2014) are not well suited to address these issues because most of the changes in financial wealth may be driven by a price effect rather than by savings flows. To rule out any portfolio reallocation effects, we will control for other forms of savings (bank deposits, cash, life insurance policies) and for equity prices in our econometric estimations.

Looking at the year-by-year evolution of savings reveals a remarkable increase of savings institutions' deposits during the Great Depression (1929-1933), when

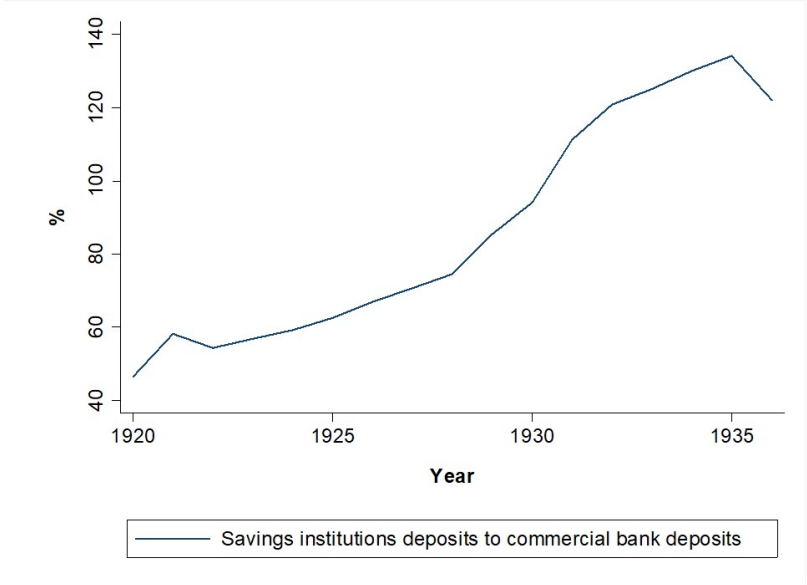
[6]Models of precautionary savings generally feature "incomplete insurance" economies (see Challe et al. 2017 for a review).

[7]Focusing on the case of France, Baubeau et al. (2020) show that both effects (portfolio reallocation and increase in precautionary savings) were at work.

[8]The notice of withdrawal required by savings banks for their time deposits ranged from one month to more than one semester in some countries Lepelletier (1911).

[9]Reinhart and Rogoff (2009).

Figure 1. : Ratio of deposits in savings institutions to deposits in commercial banks, 1920-1936

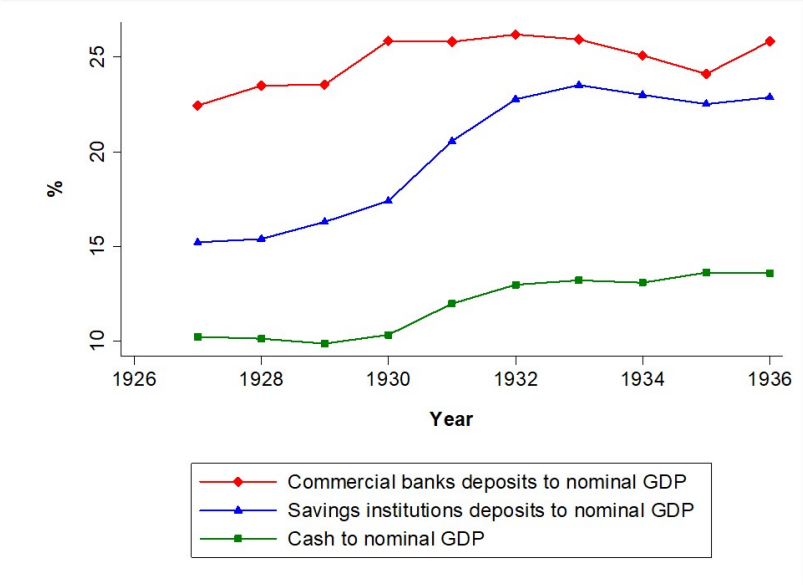


Note: Unweighted average of the data for the 22 countries in our sample.
Source: See online Appendix.

virtually every industrialized country suffered from a banking crisis (Bernanke and James, 1991; Eichengreen, 1992; Grossman, 1994; Jonker and Van Zanden, 1995). Figure 1 plots the average ratio between savings institutions' deposits and commercial bank deposits, over the 1920-1936 period. The average ratio increases from 71.3% in 1928 to 115.8% in 1932. Figure 1 also suggests that the increase in the ratio started before the Great Depression, as soon as 1926. This increase is driven by a few countries (notably Japan and Scandinavian countries) which experienced banking instability in the mid-to-late 1920s. Excluding these countries, we find that the ratio was stable around 35% from 1925 to 1928, and then increased to 45% in 1929 and reached 84% in 1932 and 95% in 1935.

The 1928-1933 increase in the ratio is not only due to a fall in bank deposits, but also to a sharp increase in savings deposits. On average, bank deposits

Figure 2. : Ratio of bank deposits, savings institutions deposits, and cash in circulation to nominal GDP, 1926-1936



Note: Unweighted average of the data for the 17 countries for which we have nominal GDP data.
Source: See online Appendix.

decreased by 14.4% between 1928 and 1933, while savings institutions' deposits increased by 114%. In terms of GDP, the figures are equally striking: deposits in savings institutions increased from 16% to 24% of nominal GDP, while the share of commercial bank deposits remained constant (Figure 2). The cash to GDP ratio increased more modestly (the increase is mostly driven by the drop in GDP). Clearly, cash hoarding seemed to have played a minor role as a vehicle for precautionary savings (contrary to the widely held belief that precautionary savings were put "under the mattress" Fisher 1932). As can be seen from the data appendix (which provides country-by-country graphs), the increase in savings institutions deposits was a general feature of the Great Depression, although its extent varied from country to country. By contrast, the nominal quantity of cash

increased in only 6 countries out of 22.[10]

Overall, these first results suggest that savings institutions' deposits strongly reacted to the uncertainty surrounding banking crises. To investigate further the relations between banking crises, precautionary savings, and real GDP we now turn to simple regressions.

II. Panel data econometrics

The Great Depression banking crises shifted the world economy from a regime of easy credit (i.e.: credit boom) to one of tight credit (Eichengreen, 1992; Eichengreen and Mitchener, 2004; Schularick and Taylor, 2012), thus providing an ideal testing ground to study the dynamics of savings (and spending) following a credit crisis. In this section, we look for evidence that banking crises had a negative impact on growth, through an increase in precautionary savings. We rely on the following dynamic panel specification:[11]

$$
\begin{aligned}
(1) \qquad GDP_{i,t} = \beta_0 + \beta_1 GDP_{i,t-1} + \beta_2 Savings_{i,t} + \beta_3 BankCrisis_{i,t} \\
+ \beta_4 BankCrisis_{i,t} * Savings_{i,t} + \mathbf{X}_{it} + y_t + d_i + \varepsilon_{i,t}
\end{aligned}
$$

We use real GDP on the left-hand side and nominal variables together with the price level on the right-hand side. As in standard growth regressions, lagged real GDP appears on the right-hand side to control for path dependency of GDP. All variables are in logarithms. We control for bank deposits (which proxies for the direct effect of banking crises on growth.[12]), cash in circulation, and for country

[10] Overall, central banks did not respond to the Great Depression by increasing base money (at least before they exited the gold standard).

[11] This specification was first used by Bernanke and James (1991) and Bernanke (1995) in their study of the Great Depression. More recent investigations of the macroeconomic effects of banking crises used similar linear specifications where a banking crisis dummy is used as an impulse (Romer and Romer, 2017; Schularick and Taylor, 2012)

[12] Friedman and Schwartz (1963) and Bernanke and James (1991) Since bank deposits do not proxy for the non-monetary effect of financial crises (Bernanke, 1983), we run the same tests using credit rather

and year-fixed effects. Hence, for a given country, we compare the conditional correlation between real GDP and precautionary savings in years with banking crisis ($\beta 4$), and in years without banking crisis ($\beta 2$). It should be noted that, since income and savings are positively related through the accounting identity, $\beta 4$ only provides a lower-bound estimate of the "paradox of thrift". For the same reason, we expect $\beta 2$ to be positive.

Although we are using a dynamic panel with lagged GDP, we expect the Nickel bias to be a minor issue since T is not so larger than N in our sample. Yet, we show the robustness of our results by using the Generalized Method of Moments (GMM) with available lagged values (2 in this case) as instruments (Arellano and Bond, 1991). When GMM is used, we check that we reject "no autocorrelation of order 1" and that we cannot reject "no autocorrelation of order 2" in the residuals of the first-difference equations.

Each specification is estimated over two samples: a sub-sample covering only the Great Depression years (1929-1936), and the full interwar sample (1920-1936). Banking crises indeed occurred all throughout the 1920s (Bernanke and James, 1991), unlike the Great Depression crises which were mostly clustered around three crisis years (1929, 1930 and 1931). Checking our results on the 1920-1936 sample is therefore a way to control that the increase in precautionary savings is caused by local banking crises, rather than by worldwide macroeconomic uncertainty. Results are reported in Table 1.

In column (1) and (4) we first estimate our basic OLS equation without the interaction term, for the Great Depression and for the full interwar sample respectively. The relationship between savings and GDP is either positive (1) or not significant (4). This is consistent with the reverse causality between income and

than bank deposits as control variable (albeit for 17 countries only) and find similar results.

Table 1: Banking crisis, precautionary savings and growth

	1929-1936			1920-1936			1929-1936
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Banking crisis*Savings		-0.021	-0.021		-0.021	-0.022	
		(0.009)	(0.009)		(0.009)	(0.011)	
Savings	0.021	0.025	0.020	-0.008	-0.008	-0.008	0.021
	(0.012)	(0.011)	(0.011)	(0.008)	(0.007)	(0.008)	(0.014)
Banking crisis	0.008	0.182	0.178	-0.005	0.170	0.179	0.011
	(0.018)	(0.066)	(0.067)	(0.016)	(0.068)	(0.078)	(0.019)
Lagged GDP	0.609	0.622	0.646	0.700	0.703	0.661	0.610
	(0.052)	(0.045)	(0.045)	(0.072)	(0.068)	(0.078)	(0.054)
Bank deposits	0.067	0.066	0.047	0.041	0.040	0.043	0.066
	(0.035)	(0.032)	(0.030)	(0.019)	(0.018)	(0.014)	(0.036)
Cash	0.002	-0.014	-0.020	0.002	0.003	-0.030	0.003
	(0.029)	(0.032)	(0.034)	(0.022)	(0.022)	(0.029)	(0.030)
Prices	0.007	0.006	0.031	-0.093	-0.096	-0.079	0.002
	(0.046)	(0.043)	(0.041)	(0.030)	(0.029)	(0.023)	(0.047)
1929*Savings							0.005
							(0.009)
1930*Savings							-0.006
							(0.008)
1931*Savings							-0.004
							(0.008)
Constant	3.622	3.583		3.395	3.370		3.604
	(0.563)	(0.486)		(0.805)	(0.755)		(0.553)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	161	161	152	283	283	254	161
R-squared	0.676	0.696		0.885	0.891		0.679
No. of countries	22	22	22	22	22	22	22

Robust standard errors in parenthesis

Note: The dependent variable is the logarithm of real GDP. Columns (1) and (4) are OLS estimations, without interaction terms. Other columns include interaction terms between a banking crisis dummy and deposits in savings institutions: (2) and (5) are estimated with OLS and (3) and (6) with GMM. In columns (1) to (3), the sample is the Great Depression (1929-1936) whereas columns (4) to (6) use similar specification on a larger interwar sample. Column (7) is estimated with OLS and include interaction terms between deposits in savings institutions and each of the three crisis years: 1929, 1930, 1931. All standard-errors are clustered at the country level and estimations include country-fixed and year-fixed effects.

savings. Bank deposits are also unsurprisingly positively correlated with GDP. In columns (2) and (5), we introduce the interaction term. The relationship between

savings and GDP turns negative when a country experiences a banking crisis.[13] The coefficient on bank deposits remains significant and positive. Based on these coefficients, a simple back-of-the-envelope calculation suggests that the increase in precautionary savings accounted for nearly 15% of the decline in real GDP between 1930 and 1932 (at least as much as the direct effect of banking crises on output).[14] When we move to GMM in columns (3) and (6), our coefficient of interest is unchanged

Column (7) provides a further check against potential confounding effects of our banking crisis dummy. We interact savings deposits with year dummies for 1929, 1930 and 1931 (that is, the years when most banking and financial crises occurred [15]). None of these interaction terms is significant[16]. The increase in precautionary savings is therefore specific to banking crises.

III. Robustness Checks

What could prevent $\beta 4$ from being interpreted as the effect of increased precautionary savings (i.e. lower consumption) on output? We consider four potential issues of our empirical strategy, and address each of them in turn: endogeneity of banking crises, portfolio reallocation, credit multiplier and constrained consumers. For each of these tests, we present the results for the 1920-1936 sample only (Table 2). Results obtained with other specifications are reported in the

[13] Our definition of a banking crisis is a slightly updated version of the one introduced in Bernanke and James (1991). Using instead the coding of Reinhart and Rogoff (2009) does not change the main conclusions (see Appendix).

[14] The coefficient associated with the interaction term implies that when deposits in savings institutions increase by 1%, GDP falls by 0.02%. The average annual growth rate of savings deposits in 1930, 1931 and 1932 (that is the years when most banking crises occurred) was 14%. Between 1930 and 1932, the annual increase in savings is therefore associated with a drop in output equal to 0.28%; while the annual average decrease in bank deposits (5%) is associated with a drop in output equal to 0.33%. In our sample, the average growth rate of real GDP during 1930-1932 was – 2%. Thus, a back-of-the-envelope calculation implies that the increase in savings explains 14% of the decrease in real GDP in 1930-1932, while the decrease in bank deposits explains 16%.

[15] All countries experienced a stock-market crash in 1929.

[16] We present the results for the 1929-1936 sample, but they are similar for the full sample.

online Appendix, and do not differ significantly. Last, we use local projections to show that the effect of a crisis-driven surge in precautionary savings was long lasting.

A. Endogeneity of banking crises

We first consider the potential endogeneity of banking crises. Temin (1976) famously argued that the Great Depression banking crises were the consequence of an autonomous aggregate demand shock (i.e. of an autonomous increase in savings). In this perspective, the "paradox of thrift" is also at work, but it is the cause (rather than the consequence) of banking crisis[17]. Our effect ($\beta 4$) might thus capture the fact that banking crises had a stronger effect on growth when they followed a negative aggregate demand shock.

To account for this potential problem, we run a regression with a banking crisis dummy as independent variable and lagged savings deposits as explanatory variable. If Temin's argument were valid, a banking crisis at date T could be accurately predicted by the increase in savings at date T-1. The results, presented in column (1) of Table 2, confirm our hypothesis, and invalidate Temin's. The coefficient on lagged savings deposits is not significant and, interestingly, the only significant coefficient is the one on lagged commercial bank deposits (positive). This result is consistent with the "credit boom gone wrong" view of interwar banking crises (Eichengreen and Mitchener, 2004; Schularick and Taylor, 2012).

B. Portfolio reallocation effect

Our second robustness check addresses the portfolio reallocation issue. If the increase in savings institutions' deposits during banking crises were mostly driven

[17]Romer (1990) does not argue that US financial turmoils were preceded by a rise in precautionary savings, but she documents a fall in consumption after the 1929 market crash, before the banking crises of 1930-1931. Temin (1994) disputes the role of the 1929 crash in causing the banking crises. Outside the US, the origin of banking crises is not attributed to the stock market crash (Bernanke and James (1991); Grossman (1994); Grossman and Meissner (2010).

by the liquidation of "unsafe" assets, there should be no Keynesian effect. In our baseline tests, we control for cash and commercial bank deposits to rule out any portfolio reallocation effect. Here, we consider two additional forms of savings. During the interwar, the two other major forms of savings (along with savings institutions' deposits) were life insurance policies, and bonds and stocks (Radice, 1939; Goldsmith, 1955). Bonds and stocks, however, were often held by individual savers through life insurance companies, rather than directly. To control for transfers away from life insurance policies, we collected life insurance policy data for 15 countries in our sample (see online Appendix for a list of the sources used). From 1928 to 1933, life insurance policies increased by 39% on average. This increase is remarkable because the nominal stock of life insurance policies should have fallen along with the price of life insurance companies' assets.

Column (2) estimates our baseline GMM model with an interaction between the sum of savings deposits and life insurance policies and our banking crisis dummy as independent variable. The number of observations falls by one third, yet the coefficient of interest increases slightly, and all other results are in line with previous ones[18].

Since adding stockholding to our measure of savings is not possible due to data limitations, we offer an alternative way to control for a flight-to-safety away from stocks. In column (3), we replicate our baseline test with equity prices on the right hand side. As expected, controlling for equity prices does not change the coefficient on the interaction term (unsurprisingly so since, as explained earlier, stock market crises and banking crises often occurred independently).

A final evidence against portfolio reallocation is given in column (4). Using GMM, we show that during banking crises, a 1% increase in savings institutions'

[18]Using the sum of savings deposits, life insurance policies, cash and commercial bank deposits as independent variable yields similar results.

deposits is associated with a 104 basis points decrease in the real long-term interest rate[19] (as predicted by models of precautionary savings: Chamley 2012; Guerrieri and Lorenzoni 2017; Benigno and Fornaro 2018). This fall in long-term interest rates is consistent with an increase in the savings rate (i.e. "paradox of thrift"), but not with a portfolio reallocation. In the first case, the supply of loanable funds increases so that the interest rate has to fall in equilibrium[20]. In the second case, the supply of loanable funds stays constant and long-term rates are not affected.

C. Drop in the credit multiplier

Another concern of our empirical strategy could be that we confound an aggregate demand effect and a credit multiplier effect (as the lending policy of savings institutions differed from that of commercial banks). To address this issue, we use the institutional diversity among savings institutions. Starting in the late 19th century, two distinct groups of savings institutions progressively emerged: savings institutions with state-restricted lending policies, and savings institutions with (quasi) independent lending policies. In the first group, funds were systematically placed in government bonds or lent to public administrations. In the second group however, savings were used to grant mortgages, agricultural credit, or loans to small businesses (Proettel, 2016). Despite looser state supervision, institutions in the second group also benefited from state protection. Their deposits were generally guaranteed by public or semi-public institutions and exempted from taxes (Mura, 1996; Andersson and Rodriguez, 2013).

[19]To consider the real long-term rate as a safe rate, we exclude observations in years when countries experienced a public debt crisis. Results are similar with the long-term nominal rate, or when we do not exclude public debt crises, although the coefficient are smaller in both cases.

[20]The supply of loanable funds should not be confused with the amount of credit that is actually lent. As noted by (Bernanke, 1983), the latter can fall significantly below the former due to financial frictions. Some savings institutions lent exclusively to the public sector. Still, an increase in the supply of loanable funds to the public sector should, all other things being equal, lead to a fall in interest rates.

Table 2: Robustness checks

	Endogeneity	Portfolio reallocation			Credit multiplier	Constrained consumers
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Bank Deposits	0.211					
	(0.091)					
Lagged Savings	-0.076					
	(0.056)					
BankingCrisis*TotalSavings		-0.029				
		(0.010)				
Equity prices			0.009			
			(0.018)			
BankingCrisis*Savings			-0.021	-0.989		-0.018
			(0.011)	(0.409)		(0.011)
BankingCrisis*Savings1					-0.009	
					(0.004)	
BankingCrisis*Savings2					-0.007	
					(0.004)	
Credit to GDP						-0.107
						(0.068)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	278	178	192	182	254	192
R-squared	0.242					
No. of countries	22	15	15	20	22	15

Robust standard errors in parenthesis

Note: All specifications include a set of control variables (not reported here). Column (1) is estimated with OLS, while columns (2) to (6) are GMM estimations. In column (1), the dependent variable is our banking crisis dummy. In columns (2), (3), (5), and (6) it is the log of real GDP, and in column (4) it is the real long-term interest rate. Columns (2) to (6) include interaction terms. *Total Savings* is the sum of savings institutions deposits and life insurance policies. *Savings1* and *Savings2* are respectively savings deposited in institutions that lend to private businesses, and in institutions that only held public debt. All standard-errors are clustered at the country level and estimations include country-fixed and year-fixed effects.

This diversity allows us to control for a potential credit multiplier effect. Following Proettel (2016), we assign each savings institution in our sample to one of the two groups, depending on the characteristic of the asset side: business loans vs. public debt. We interact each type of savings deposits (business loans vs. public debt) with our banking crisis dummy, and we run our baseline GMM model with the two interaction terms on the right-hand side. These two groups

are named Savings1 and Savings2 respectively in Table 2. Results are presented in column (5). The coefficient is negative and significant for both type of savings deposits. The coefficient is slightly larger for deposits that served to finance business loans: exactly the opposite of what we would have observed if a credit multiplier effect were at work.

D. Consumer balance sheet channel

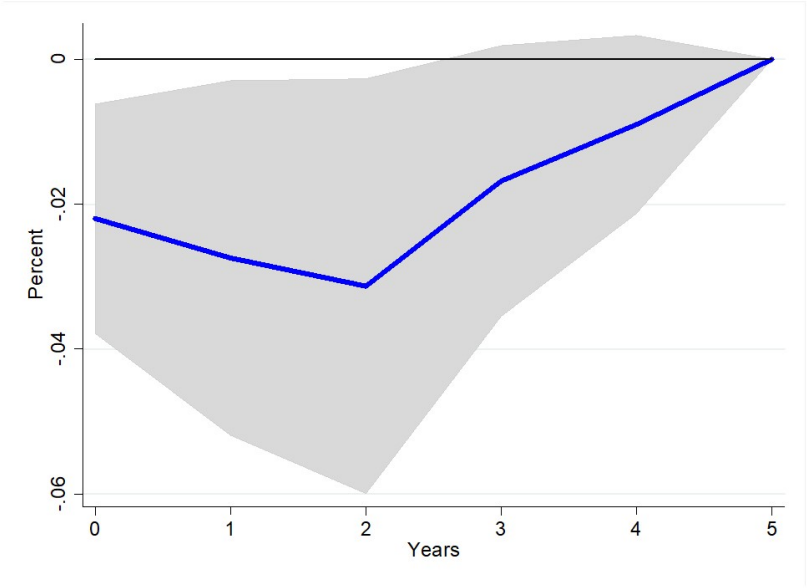
Following a negative credit shock, consumers can react by saving more (unconstrained consumers) or by allocating a larger share of their income to paying-off their debt (constrained consumers). Both reactions depress spending and aggregate demand. In this paper, we focus on the reaction of unconstrained consumers. To make sure that we do not mix-up the two effects, we control by the credit to GDP ratio on the right-hand side (column (6)). The effect of the "consumer balance sheet" channel (or "debt-deflation" channel) on GDP should be strongly correlated with the credit to GDP ratio (Mian et al., 2017). When hit by a credit crunch, countries with high leverage should experience a larger demand shock than countries with low leverage, as more households and firms are forced to cut spending. We replicate our baseline regression with the credit to GDP ratio on the right hand side. The number of observations falls by one fifth but our coefficient of interest is essentially unchanged, although the standard errors slightly increase.

E. A dynamic perspective

The persistent effect of banking crises on the economy is one of the main puzzles of the Great Depression. In his 1983 article, Ben Bernanke argued that financial frictions could account, at least in part, for this *protracted* non-neutrality of money. Our paper points at a second explanation. As can be seen from Figure

3, the response of real GDP to a shock on savings during banking crises was long-lasting. The effect of increased precautionary savings on growth starts to dissipate only 3 years after the crisis.

Figure 3. : Response of real GDP to a shock to precautionary savings during a banking crisis



Note: We simulate this Impulse Response Function using local projections (LP), following Jordà (2009). We include two lags of the real GDP, and the same set of controls as in equation (1). The LPs are estimated on the full sample (1920-1936). Changing the number of lags or restricting the sample to the Great Depression years does not change the main finding. We report 90% confidence intervals. The banking crisis occurs in period 0.

IV. Conclusion

The Great Depression provides an ideal setting to analyze the behavior of precautionary savings following a credit crunch. The 1920s and 1930s witnessed an unprecedented series of banking crises, and the first (and arguably largest) episode of credit boom-bust in modern history. Despite widespread instability, states' efforts to tame the crisis stayed at a minimum. Accumulating precautionary sav-

ings was, for consumers, the only line of defense against financial uncertainty. However, the menu of available safe assets was considerably more restricted than today. Safe savings institutions deposits were, by far, the best option: they were supplied in large (almost unlimited) quantities, they earned an interest, and they were backed by the state. Our analysis reveals that, during banking crises, a 10% increase in savings deposits led to a 0.2% fall in real GDP. Overall, the "paradox of thrift" accounted for (at least) 15% of the decline in real GDP between 1930 and 1932.

That some people were able to increase their savings during the most dramatic economic crisis of all times supports the need to study macroeconomic fluctuations through an approach that takes into account sufficient household heterogeneity (i.e. inequality) in wealth and access to credit and financial insurance (Guerrieri and Lorenzoni, 2017; Mian et al., 2020).

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V. APPENDIX

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A. Data sources for banks, savings institutions, and life insurance companies

For deposit data, our main sources are national statistical yearbooks (produced by central banks or national statistical agencies). When these sources are not available, we turn to the League of Nations *Statistical Yearbook*(s). By tapping directly into the original publications, we avoid transcription errors which are frequent in secondary sources (Mitchell 2013 uses similar sources, but we noticed several occasions where he had misreported the data). Whenever possible, we improve and correct these series with recent estimations. For life insurance policy data, we also use national statistical yearbooks (except for France, where we rely on a secondary source). The sections below give a country-by-country overview of the sources used for commercial banks and savings institutions deposits, and for life insurance policies.

Commercial bank deposits

- Austria: *Statistische Handbuch für die Republik Osterreich* (various years). We add up savings account and current account deposits in the Aktienbanken (commercial banks) and the Landeshypothekenanstalten (public mortgage banks). Data for years 1920, 1921, 1922 and 1931 are not available. Million schillings.
- Belgium: LoN *Statistical Yearbook*(s) (various years). All deposits of less than one-month notice in commercial banks. Starting in 1935, banks operating mainly in the Belgian Congo are included. Data for years 1930 and

1934 are not available. Million francs.

- Bulgaria: LoN *Statistical Yearbook*(s) (various years). All deposits in popular banks, commercial banks and in the agricultural bank and central cooperative bank (state banks). Data before 1923 are not available. Million leva.
- Denmark: *Statistisk Ärbog* (various years). Sum of current account and folio account deposits in commercial banks. Data for year 1920 is not available. Million kroner.
- Finland: *Suomen Tilastollinen Vuosikirja* (various years). All deposits in commercial banks. Million markkaa.
- France: Baubeau et al. (2020). Million francs.
- Germany: *Statistisches Jahrbuch für das Deutsche Reich* (various years). All deposits in commercial banks. Data before 1924 are not available. Million marks.
- Greece: Lazaretou (2014). Million drachmas.
- Hungary: Macher (2019). We add up deposit accounts in the issue banks and in the "other banks". Million pengos.
- Italy: Natoli et al. (2016). We add up deposits in the following banks: Societa ordinare di credito (SOC), Istituto di credito di diritto pubblico (ICDP), Istituto di credito di categoria (ICC), altre istituzione finanziarie (OUT), and altre banche (AB). Data for year 1926 is not available. Million liras.
- Japan: *Hundred Years of Statistics of the Japanese Economy* (1966). Current deposits in private ordinary banks. Million yen.
- Netherlands: LoN *Statistical Yearbook*(s) (various years). All deposits in the six main banks (including agencies and branches overseas). Million guilders.

- Norway: Eitrheim et al. (2004). Million kroner.
- Poland: LoN *Statistical Yearbook*(s) (various years). Deposits in joint-stock banks, Polish branches of foreign joint-stock banks, Bank of the National Economy (excluding deposits of the government), Agricultural State Bank and two communal banks. Data before 1924 are not available. Million zlotys.
- Portugal: LoN *Statistical Yearbook*(s) (various years). All deposits in commercial banks and special credit institutions. Data before 1924 are not available. Million escudos.
- Romania: LoN *Statistical Yearbook*(s) (various years). All deposits in commercial banks. Million lei.
- Spain: Aceña and Pons (2005). Current account deposits in private banks. Data for year 1936 is not available. Million pesetas.
- Sweden: *Statistisk Arsbok* (various years). Deposits by the public in private banks. Million kroner.
- Switzerland: *Historische Zeitreihen die Banken in der Schweiz* (2007). Deposits in cantonal banks and big banks (excluding interbank deposits). Million francs.
- United Kingdom: Cappie and Webber (1985). Current accounts deposits in clearing-banks, non-clearing banks, Irish banks, and Scottish banks. Data before 1922 are not available. Million pounds.
- United States: Friedman and Schwartz (1963). Demand deposits in commercial banks (seasonally adjusted). Data or year 1936 is not available. Million dollars.
- Yugoslavia: *Statisticki Godisnjak* (various years). All deposits in commercial banks. Million dinari.

Savings institutions deposits

- Austria: *Statistische Handbuch für die Republik Osterreich* (various years). Deposits in the postal savings bank and in the public savings banks. Data before 1925 are not available. Million schillings.
- Belgium: *Annuaire Statistique de la Belgique et du Congo Belge* (various years). Deposits at the Caisse Générale d'Epargne et de Retraite (CGER). Million francs.
- Bulgaria: *Statističeski godišnik na Narodna republika Bălgarija* (various years). Deposits at the postal savings bank. Million leva.
- Denmark: *Statistisk Ärbog* (various years). Deposits in the private savings banks. Million kroner.
- Finland: *Suomen Tilastollinen Vuosikirja* (various years). Deposits in the postal savings bank and in the private savings banks. Data for years 1935 and 1936 are not available. Million markkaa.
- France: *Annuaire Statistique de la France* (various years). Deposits in the Caisse Nationale d'Epargne (CNE) and in the Caisses d'Epargne Ordinaires (CEO). Million francs.
- Germany: *Statistisches Jahrbuch für das Deutsche Reich* (various years). Deposits in the public savings banks. Data before 1924 are not available. Million marks.
- Greece: *Statistical Yearbook of Greece* (various years). Deposits at the postal savings bank. Million drachmas.
- Hungary: *Magyar Statistikai Evkonvy* (various years). Deposits in the postal savings banks and in the private savings banks. Data are only available for year 1930 and between 1932 and 1934 (included). Million pengos.
- Italy: *Annuario Statistico Italiano* (various years). Deposits in the postal

savings bank and in the casse di risparmio ordinarie (saving banks). Million liras.

- Japan: *Hundred Years of Statistics of the Japanese Economy* (1966). Deposits in the postal savings banks and in the savings banks. Million yen.
- Netherlands: *Nederlandse financiële instellingen in de twintigste eeuw: balansreeksen en naamlijst van handelsbanken* (2000). Deposits in the postal savings bank and in the algemene spaarbanken (general savings banks). Million guilders.
- Norway: Eitrheim et al (2004). Deposits in the public savings banks. Million kroner.
- Poland: LoN *Statistical Yearbook*(s) (various years). Deposits in the postal savings bank and in the communal savings banks. Data before 1928 and after 1935 are not available. Million zlotys.
- Portugal: LoN *Statistical Yearbook*(s) (various years). Deposits at the Caixa Geral de Depositos (national savings bank), excluding mandatory deposits. Data before 1926 are not available. Million escudos.
- Romania: *Anuarul Statistic al Romanei* (various years). Deposits at the Cassa de Depuneri, Consemnatiuni si Economie (national savings bank). Million lei.
- Spain: we follow Martínez (2008) by using the data from Aceña (1985). Deposits in the postal savings bank and in the cajas de ahorro (savings banks). Million pesetas.
- Sweden: *Statistisk Arsbok* (various years). Deposits in the postal savings bank and in the private savings banks. Million kroner.
- Switzerland: *Statistisches Jahrbuch der Schweiz* (various years). Deposits in the private savings banks (Raiffeisen banks are not included). Data before 1928 and for year 1929 are not available. Million francs.

- United Kingdom: Horne (1947). Deposits in the postal savings bank and in the Trustees Savings Banks (TSB). Data before 1923 are not available. Million pounds.
- United States: Friedman and Schwartz (1963). Deposits in the postal savings bank and in the mutual savings banks. Data for year 1936 is not available. Million dollars.
- Yugoslavia: *Statisticki Godisnjak* (various years). Deposits at the postal savings bank. Data before 1924 are not available. Million dinari.

Life insurance policies

- Belgium: *Annuaire Statistique de la Belgique et du Congo Belge* (various years). Life insurance policies at the CGER. Million francs.
- Denmark: *Statistisk Ärbog* (various years). Life insurance policies in danish life insurance companies (includes public, joint-stock and mutual life insurance companies). Data for year 1920 is not available. Million kroner.
- Finland: *Suomen Tilastollinen Vuosikirja* (various years). Life insurance policies in Finland. Million markkaa.
- France: Hautcoeur (2004). Life insurance policies in french life insurance companies (reinsurance included). Million francs.
- Germany: *Statistisches Jahrbuch für das Deutsche Reich* (various years). Life insurance policies in public life insurance companies. Data before 1924 are not available. Million marks.
- Italy: *Annuario Statistico Italiano* (various years). Insurance policies at the National Insurance Institute (Istituto Nazionale delle Azicurazioni). Data for years 1920, 1921 and 1936 are missing. Million liras.
- Japan: *Financial and Economic Annual of Japan* (various years). Life insurance policies at the post office and in private life insurance companies.

Data for year 1936 is missing. Million yen.

- Netherlands: *Jaarcijfers voor Nederland* (various years). Life insurance policies in Dutch life insurance companies (reinsurance included). Data between 1922 and 1924 (included) and for year 1936 are not available. Million guilders.

- Norway: *Statistisk Ärbok* (various years). Life insurance policies in Norwegian life insurance companies. Data for year 1920, 1935 and 1936 are missing. Million kroner.

- Spain: *Anuario Estadístico de España* (various years). Life insurance policies in Spanish life insurance companies. Data for year 1934 to 1936 (included) are missing. Million pesetas.

- Sweden: *Statistisk Arsbok* (various years). Life insurance policies in Swedish life insurance companies (only includes policies subscribed in Sweden). Million kroner.

- Switzerland: *Statistisches Jahrbuch der Schweiz* (various years). Data for year 1936 is missing. Life insurance policies in Swiss life insurance companies. Million francs.

- United Kingdom: *Statistical Abstract of the Bank of England* (various years). Data on life insurance policies were collected by the Board of Trade and published in yearly reports. Unfortunately, access to these reports is restricted. We therefore proxy life insurance policies by the total assets of life insurance companies. Data for year 1920 to 1923 (included) are missing. Million pounds.

- United States: *Statistical Abstract of the US* (various years). Policies in force in all life insurance companies. Million dollars.

B. Data sources for other macroeconomic variables

Banknote circulation

Mitchell (2013). Mitchell uses the *Statistical Yearbook*(s) of the League of Nations or national statistical yearbooks. We checked and corrected Mitchell's data by going back to the original sources.

Banking crisis dummy

Bernanke and James (1991). For France, we coded the year 1932 as "non-crisis year", based on recent research by Baubeau et al. (2020). For Spain, we coded the year 1931 as "crisis year" based on the work of Jorge-Sotelo (2020). Portugal and Bulgaria are not covered by Bernanke and James, so we instead rely on Reinhart and Rogoff (2009) for Portugal, and on Kossev (2008) for Bulgaria.

Real GDP

Inklaar et al. (2018).

Nominal GDP

Bordo et al. (2001).

Wholesale prices

Mitchell (2013).

Long-term interest rates

Jordà et al. (2019). For Austria, Greece, Hungary, Poland, Portugal, Romania, and Yugoslavia, data are taken from the League of Nations *Statistical Yearbook*(s).

C. Primary Sources

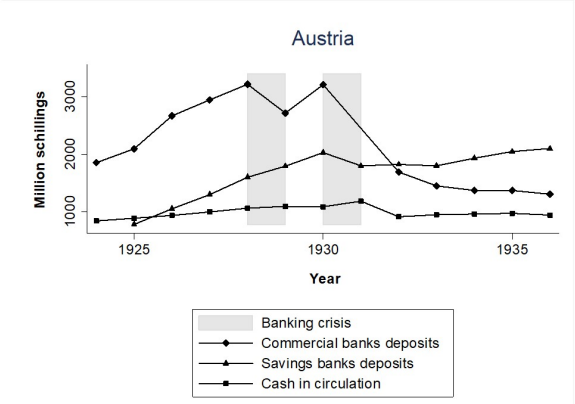
- *League of Nations Statistical Yearbook* (various years).
- *Statistische Handbuch für die Republik Osterreich* (various years).
- *Annuaire Statistique de la Belgique et du Congo Belge* (various years).
- *Statističeski godišnik na Narodna republika Bălgarija* (various years).

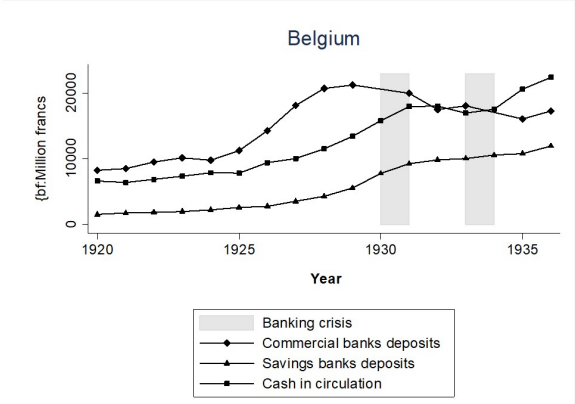
- *Statistisk Ärbog* (various years).
- *Suomen Tilastollinen Vuosikirja* (various years).
- *Statistisches Jahrbuch für das Deutsche Reich* (various years).
- *Statistical Yearbook of Greece* (various years).
- *Magyar Statistikai Evkonyv* (various years).
- *Annuario Statistico Italiano* (various years).
- *Hundred Years of Statistics of the Japanese Economy* (1966).
- *Financial and Economic Annual of Japan* (various years).
- *Nederlandse financiële instellingen in de twintigste eeuw: balansreeksen en naamlijstnaamlijst van handelsbanken* (2000).
- *Jaarcijfers voor Nederland* (various years).
- *Anuarul Statistic al Romanei* (various years).
- *Statistisk Arsbok* (various years).
- *Statistisk Ärbok* (various years).
- *Anuario Estadístico de España* (various years).
- *Historische Zeitreihen die Banken in der Schweiz* (2007).
- *Statistisches Jahrbuch der Schweiz* (various years).
- *Statisticki Godisnjak* (various years).
- *Statistical Abstract of the Bank of England* (various years).
- *Statistical Abstract of the US* (various years).
- *Annuaire Statistique de la France* (various years).

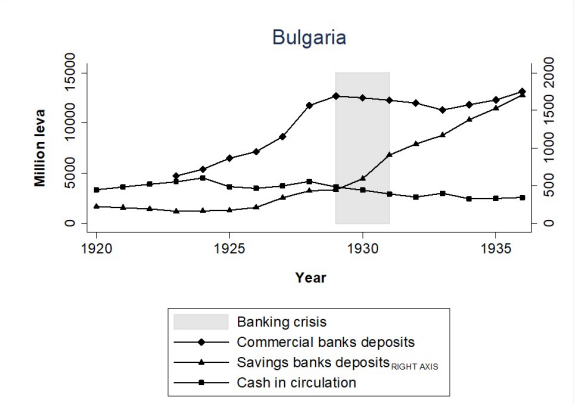
VI. Supplementary graphs

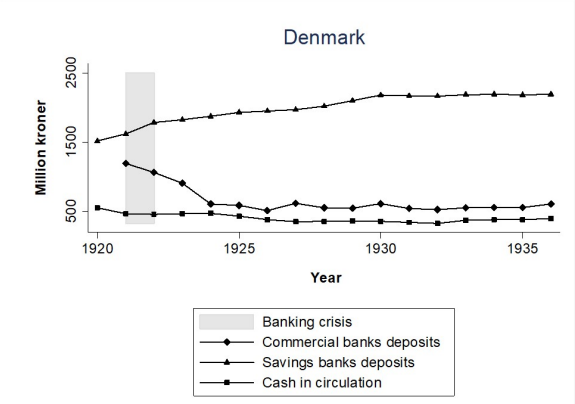
A. Country graphs

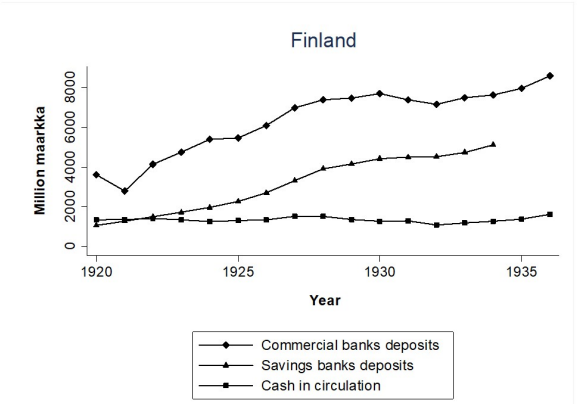
The following graphs plot the evolution of savings institutions deposits, commercial banks deposits and cash in circulation, between 1920 and 1936, for each of the 22 countries in our sample. The shaded areas represent banking crisis periods, based on Bernanke and James (1991). For a crisis occurring in year Y, the shaded area starts in December of year Y-1 and ends in December of year Y (to show the evolution of the variables during year Y).

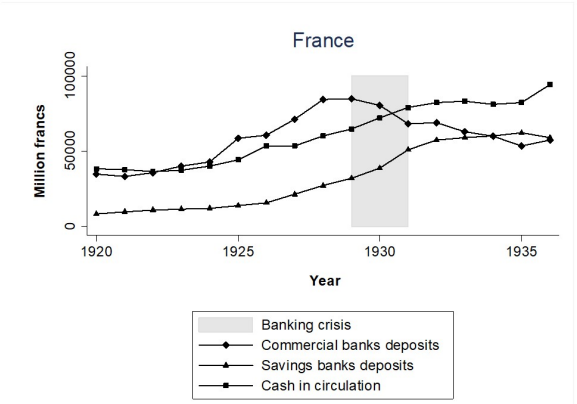


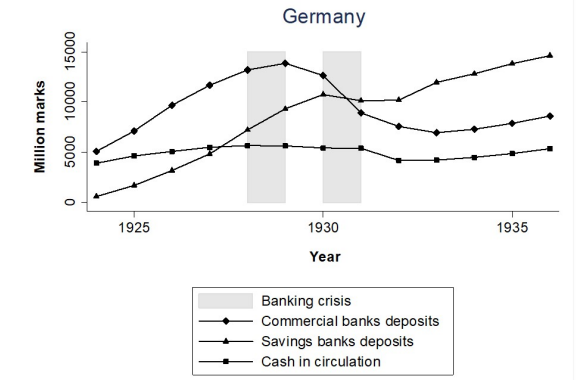


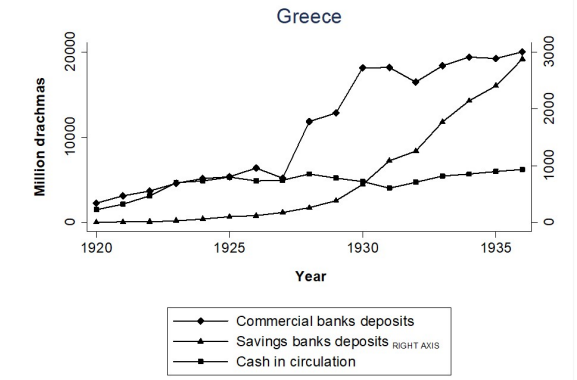


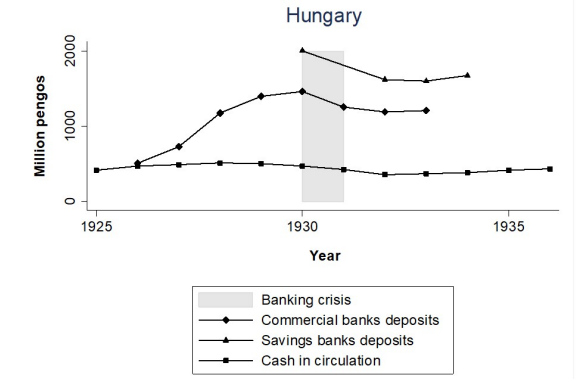


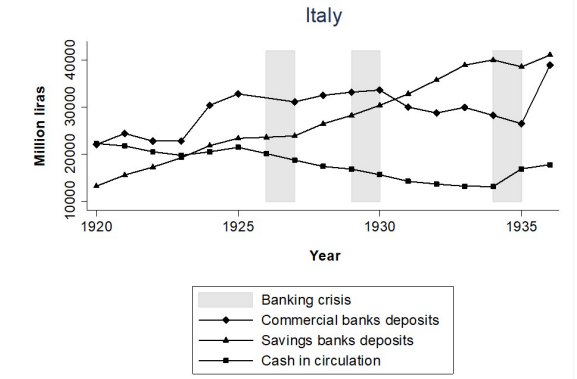

Finland
Million maarkka
0
2000
4000
6000
8000
1920
1925
1930
1935
Year
Commercial banks deposits
Savings banks deposits
Cash in circulation

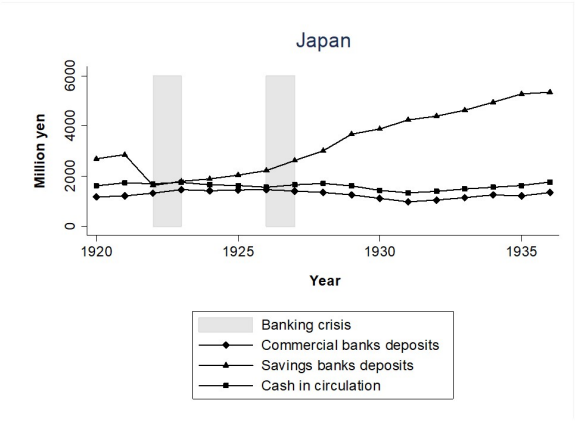

France
Million francs
0
50000
100000
1920
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

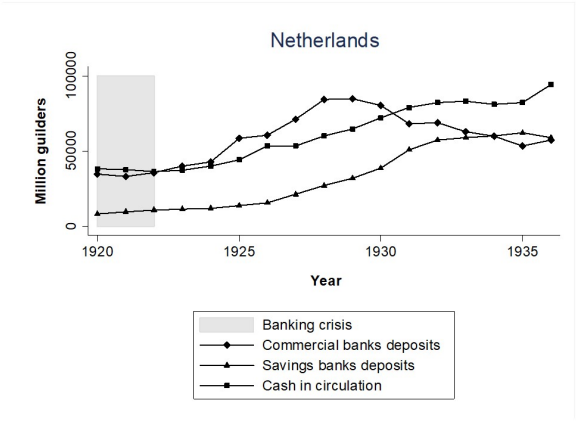

Germany
Million marks
0
5000
10000
15000
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

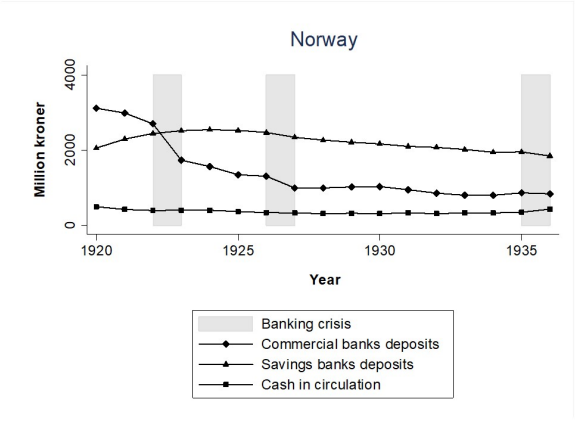

Greece
Million drachmas
0
10000
20000
0
1000
2000
3000
1920
1925
1930
1935
Year
Commercial banks deposits
Savings banks deposits RIGHT AXIS
Cash in circulation

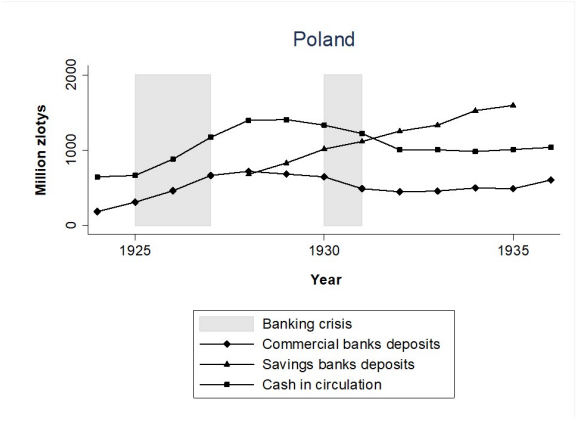

Hungary
Million pengos
0
1000
2000
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

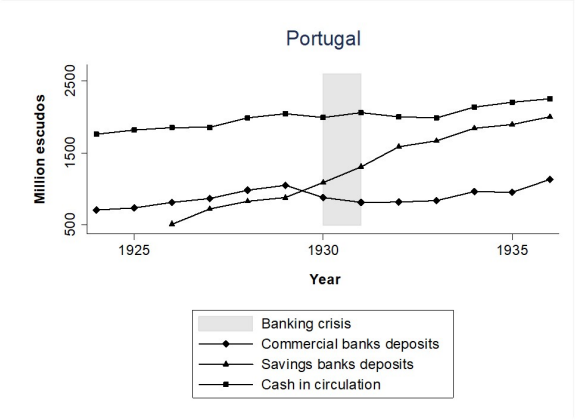

Italy
Million liras
10000
20000
30000
40000
1920
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

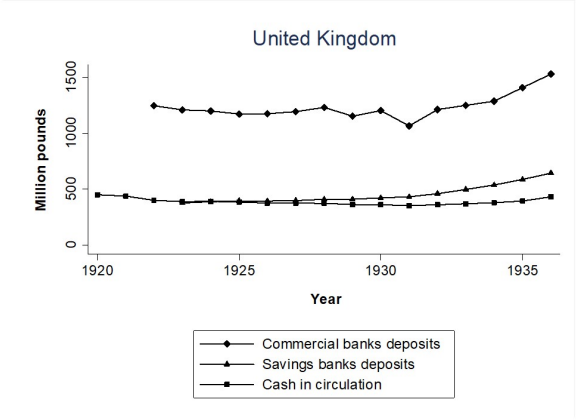

Japan
Million yen
0
2000
4000
6000
1920
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

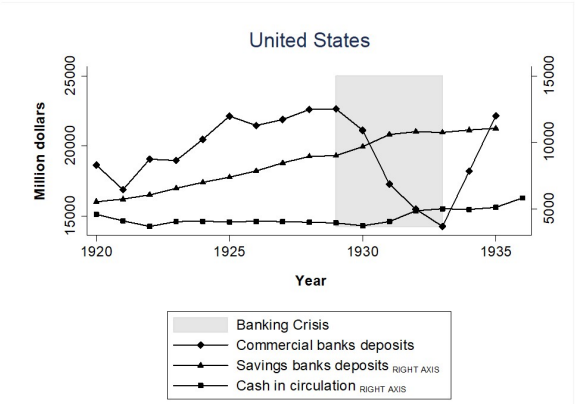

Netherlands
Million guilders
0
50000
100000
1920
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

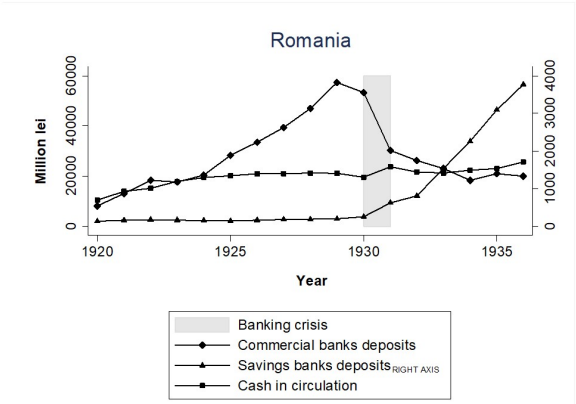

Norway
Million kroner
0
2000
4000
1920
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

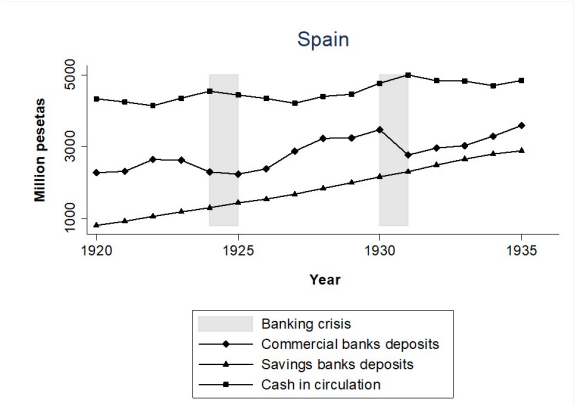

Poland
Million zlotys
0
1000
2000
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

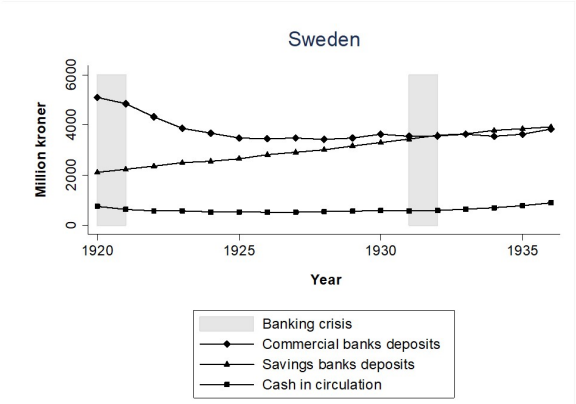

Portugal
Million escudos
500
1500
2500
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

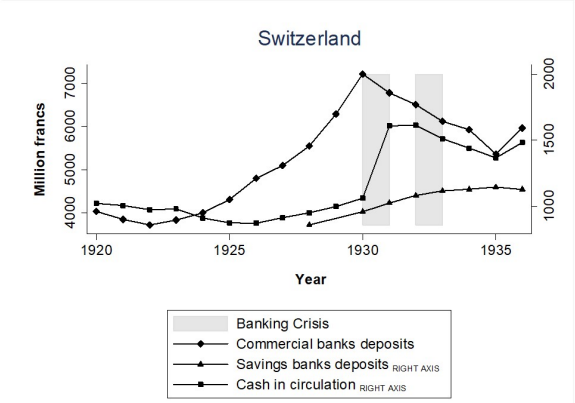

United Kingdom
Million pounds
0
500
1000
1500
1920
1925
1930
1935
Year
Commercial banks deposits
Savings banks deposits
Cash in circulation

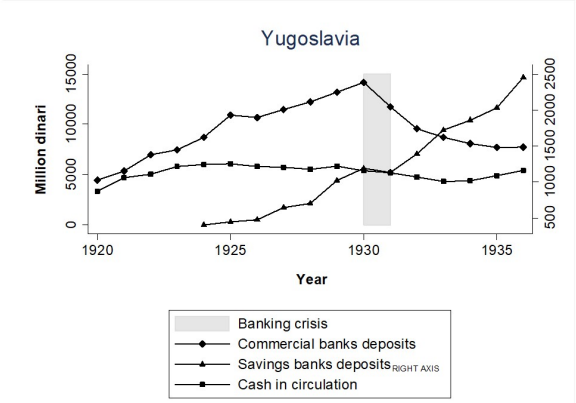

United States
Million dollars
15000
20000
25000
5000
10000
15000
1920
1925
1930
1935
Year
Banking Crisis
Commercial banks deposits
Savings banks deposits RIGHT AXIS
Cash in circulation RIGHT AXIS


Romania
Million lei
0
20000
40000
60000
0
1000
2000
3000
4000
1920
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits RIGHT AXIS
Cash in circulation


Spain
Million pesetas
1000
3000
5000
1920
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation

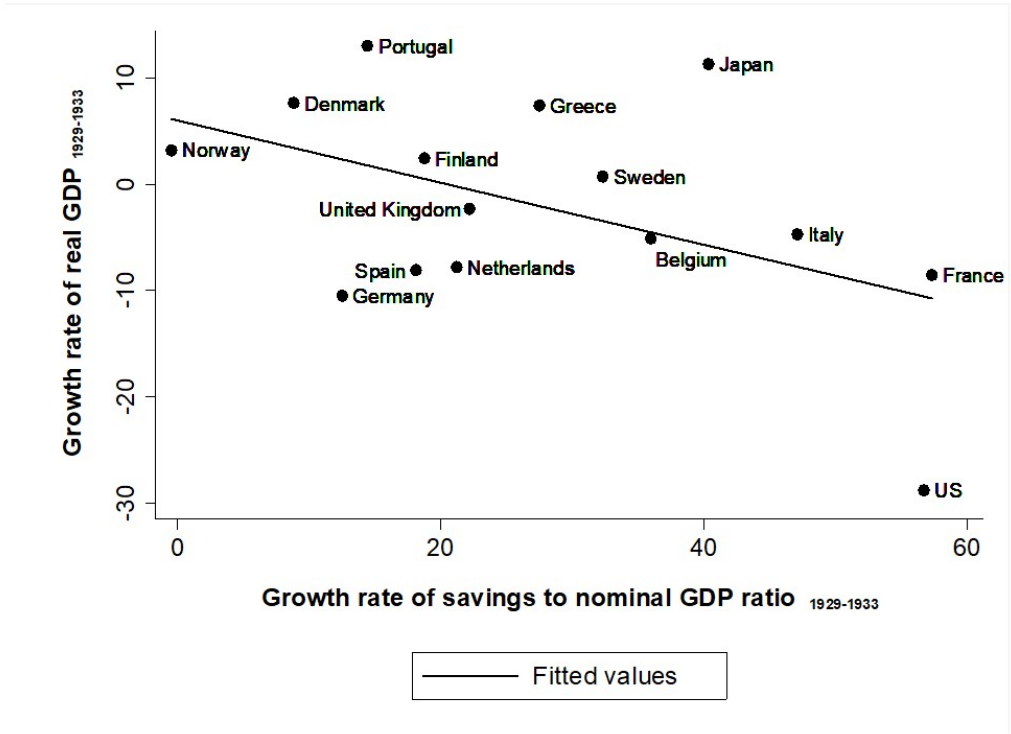

Sweden
Million kroner
0
2000
4000
6000
1920
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits
Cash in circulation


Switzerland
Million francs
4000
5000
6000
7000
1000
1500
2000
1920
1925
1930
1935
Year
Banking Crisis
Commercial banks deposits
Savings banks deposits RIGHT AXIS
Cash in circulation RIGHT AXIS


Yugoslavia
Million dinari
0
5000
10000
15000
500
1000
1500
2000
2500
1920
1925
1930
1935
Year
Banking crisis
Commercial banks deposits
Savings banks deposits RIGHT AXIS
Cash in circulation

B. Summary scatterplot

Cross-country correlation between the increase in saving rate and real GDP growth during the Great Depression (1929-1933)



Note: R-squared=0.23 Coef=-0.29. Savings is measured as deposits in savings institutions.

VII. Robustness checks

Table 3 presents two additional robustness checks. We first show that our results are not sensible to the definition of banking crisis. Column (1) replicates our baseline OLS model, using Reinhart and Rogoff's (2009) definition of banking crisis. The coefficient on the interaction term is slightly lower, but all results are in line with previous ones. In column (2), we show the robustness of our results using credit, rather than bank deposits, to control for a potential non-monetary effect of banking crises (Bernanke, 1983). The sample is reduced to 15 countries, but the coefficient of interest increases slightly (0.22).

Table 3: More robustness checks

	(1)	(2)
BankingCrisisRR*Savings	-0.016	
	(0.007)	
Savings	-0.006	-0.022
	(0.006)	(0.024)
Banking crisis RR	0.124	
	(0.058)	
BankingCrisis*Savings		-0.022
		(0.010)
Banking crisis		0.168
		(0.077)
Lagged GDP	0.730	0.781
	(0.064)	(0.051)
Credit		0.004
		(0.029)
Country FE	Yes	Yes
Year FE	Yes	Yes
Observations	255	214
R-squared	0.906	0.912
No. of countries	19	15

Robust standard errors in parenthesis

Note: Columns (1) and (2) are estimated with OLS on the full sample, and include Lagged prices and Cash (not reported here). Both include an interaction term. *BankingCrisisRR*Savings* is the interaction term between savings and Reinhart and Rogoff's banking crisis dummy. All standard-errors are clustered at the country level and estimations include country-fixed and year-fixed effects.

Table 4 replicates Table 2 (from the main text), using alternative specifications. All the coefficients of interest are unchanged (in column (1) Lagged Bank Deposits are, unsurprisingly, no longer significant since we estimate the model on the 1929-1936 sample).

Table 4: Alternative specifications

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Bank Deposits	0.184					
	(0.281)					
Lagged Savings	-0.013					
	(0.091)					
BankingCrisis*TotalSavings		-0.028				
		(0.010)				
Equity prices			0.011			
			(0.018)			
BankingCrisis*Savings			-0.021	-1.034		-0.019
			(0.011)	(0.305)		(0.010)
BankingCrisis*Savings1					-0.009	
					(0.003)	
BankingCrisis*Savings2					-0.007	
					(0.003)	
Credit to GDP						-0.119
						(0.061)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	163	198	211	208	283	211
R-squared	0.307	0.913	0.913	0.540	0.894	0.917
No. of countries	22	15	15	21	22	15

Robust standard errors in parenthesis

Note: All specifications include a set of control variables (not reported here). All columns are estimated with OLS. Column (1) is estimated on the 1929-1936 sample. Columns (2) to (6) are estimated on the full sample. In column (1), the dependent variable is our banking crisis dummy. In columns (2), (3), (5), and (6) it is the log of real GDP, and in column (4) it is the real long-term interest rate. Columns (2) to (6) include interaction terms.

textitSavings1 and *Savings2* are respectively savings deposited in institutions that lend to private businesses, and in institutions that only held public debt. All standard-errors are clustered at the country level and estimations include country-fixed and year-fixed effects.

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