The Great Depression as a Saving Glut

Victor Degorce[1] and Eric Monnet[2]

[1]EBS & EHESS

[2]Paris School of Economics, EHESS and CEPR

8th SUERF & UniCredit Foundation Research Prize and Workshop, April 2021

Banking crisis & the Paradox of Thrift

◇ How do consumers react to the tightening of the credit constraint following a financial crisis?

Banking crisis & the Paradox of Thrift

◇ How do consumers react to the tightening of the credit constraint following a financial crisis?

◇ Two types of consumers: Constrained VS Unconstrained (Guerrieri & Lorenzoni 2017).

Banking crisis & the Paradox of Thrift

◇ How do consumers react to the tightening of the credit constraint following a financial crisis?

◇ Two types of consumers: Constrained VS Unconstrained (Guerrieri & Lorenzoni 2017).

◇ Constrained consumers react by cutting their spending and paying-off their debt (i.e. they deleverage) (Fisher 1933, Eggertsson & Krugman 2012, Fornaro & Romei 2019). This is known as the *debt-deflation channel*.

Banking crisis & the Paradox of Thrift

⋄ How do consumers react to the tightening of the credit constraint following a financial crisis?

⋄ Two types of consumers: Constrained VS Unconstrained (Guerrieri & Lorenzoni 2017).

⋄ Constrained consumers react by cutting their spending and paying-off their debt (i.e. they deleverage) (Fisher 1933, Eggertsson & Krugman 2012, Fornaro & Romei 2019). This is known as the *debt-deflation channel*.

⋄ Unconstrained consumers accumulate precautionary savings to stay away from the borrowing limit (Keynes 1931 & 1936). This is known as the *paradox of thrift channel*.

Banking crisis & the Paradox of Thrift

◇ How do consumers react to the tightening of the credit constraint following a financial crisis?

◇ Two types of consumers: Constrained VS Unconstrained (Guerrieri & Lorenzoni 2017).

◇ Constrained consumers react by cutting their spending and paying-off their debt (i.e. they deleverage) (Fisher 1933, Eggertsson & Krugman 2012, Fornaro & Romei 2019). This is known as the *debt-deflation channel*.

◇ Unconstrained consumers accumulate precautionary savings to stay away from the borrowing limit (Keynes 1931 & 1936). This is known as the *paradox of thrift channel*.

◇ Both reactions depress aggregate demand (and output). In this paper, we focus on the reaction of Unconstrained consumers (i.e. *paradox of thrift channel*).

The Great Depression & the Paradox of Thrift

◇ The *debt-deflation channel* has been widely documented, both 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 Great Depression & the Paradox of Thrift

◇ The *debt-deflation channel* has been widely documented, both 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).

◇ Empirical evidence on the *paradox of thrift* channel, however, are virtually non-existent.

The Great Depression & the Paradox of Thrift

◇ The *debt-deflation channel* has been widely documented, both 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).

◇ Empirical evidence on the *paradox of thrift* channel, however, are virtually non-existent.

◇ The Great Depression provides an ideal setting to study the behaviour of precautionary savings following a credit crisis:

  – Almost every industrial country suffered from banking crisis.

  – Public insurance schemes (e.g. financial insurance, unemployment insurance) were absent. For Unconstrained consumers, accumulating precautionary savings was the only line of defense against financial uncertainty.

Data

◇ Data limitation prevents us from computing a personal savings rate. We use a particular feature of the interwar banking system to circumvent this problem.

Data

◇ Data limitation prevents us from computing a personal savings rate. We use a particular feature of the interwar banking system to circumvent this problem.

◇ The menu of safe assets was considerably more restricted than today (e.g. no banking regulation). Savings institutions' deposits were by far the best option for savers.

Data

◇ Data limitation prevents us from computing a personal savings rate. We use a particular feature of the interwar banking system to circumvent this problem.

◇ The menu of safe assets was considerably more restricted than today (e.g. no banking regulation). Savings institutions' deposits were by far the best option for savers.

◇ Savings institutions deposits indeed had three main advantages: they were safe (due to state protection), they were widely accessible (savings institutions set-up branches in rural areas), and they earned an interest (unlike cash and other hoarded funds).

Data

◇ Data limitation prevents us from computing a personal savings rate. We use a particular feature of the interwar banking system to circumvent this problem.

◇ The menu of safe assets was considerably more restricted than today (e.g. no banking regulation). Savings institutions' deposits were by far the best option for savers.

◇ Savings institutions deposits indeed had three main advantages: they were safe (due to state protection), they were widely accessible (savings institutions set-up branches in rural areas), and they earned an interest (unlike cash and other hoarded funds).

◇ To explore the fate of precautionary savings during the Great Depression, we build a new database of savings institutions deposits in 22 countries, covering the 1920-1936 period.

Key results

◇ On average precautionary savings increased by 114% between 1928 and 1933 (similar when adding life insurance policy data, for 15 countries).

Key results

$\diamond$ On average precautionary savings increased by 114% between 1928 and 1933 (similar when adding life insurance policy data, for 15 countries).

$\diamond$ Country-by-country chronology reveals that precautionary savings surged when banking crisis hit.

Key results

◇ On average precautionary savings increased by 114% between 1928 and 1933 (similar when adding life insurance policy data, for 15 countries).

◇ Country-by-country chronology reveals that precautionary savings surged when banking crisis hit.

◇ Dynamic panel estimations show a negative conditional correlation between real GDP and savings institutions deposits when banking crisis hit (i.e. interaction variable).

Key results

◇ On average precautionary savings increased by 114% between 1928 and 1933 (similar when adding life insurance policy data, for 15 countries).

◇ Country-by-country chronology reveals that precautionary savings surged when banking crisis hit.

◇ Dynamic panel estimations show a negative conditional correlation between real GDP and savings institutions deposits when banking crisis hit (i.e. interaction variable).

◇ 10% increase in savings $\rightarrow$ 0.2% fall of real GDP.
Back-of-the-envelope: increase in savings explains 14% of the decrease in real GDP in 1930-1932 (decrease in comm. bank deposits explains 16%).

Key results

⋄ On average precautionary savings increased by 114% between 1928 and 1933 (similar when adding life insurance policy data, for 15 countries).

⋄ Country-by-country chronology reveals that precautionary savings surged when banking crisis hit.

⋄ Dynamic panel estimations show a negative conditional correlation between real GDP and savings institutions deposits when banking crisis hit (i.e. interaction variable).

⋄ 10% increase in savings → 0.2% fall of real GDP. Back-of-the-envelope: increase in savings explains 14% of the decrease in real GDP in 1930-1932 (decrease in comm. bank deposits explains 16%).

⋄ As predicted by theory, negative conditional correlation between long-term interest rates and precautionary savings.
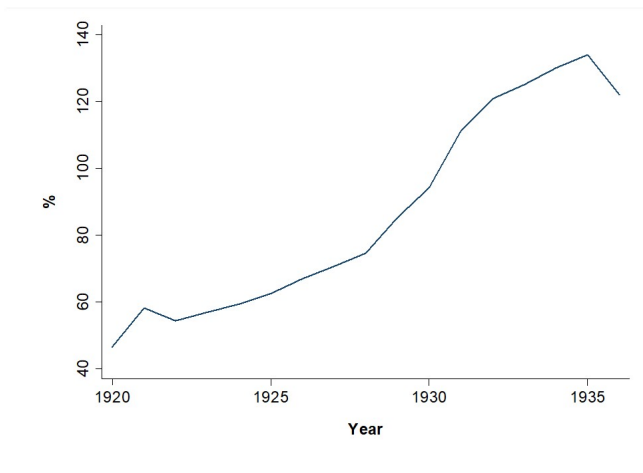
A quick look at the data 1#

Figure 1: Ratio of savings institutions deposits to commercial bank deposits, 1920-1936
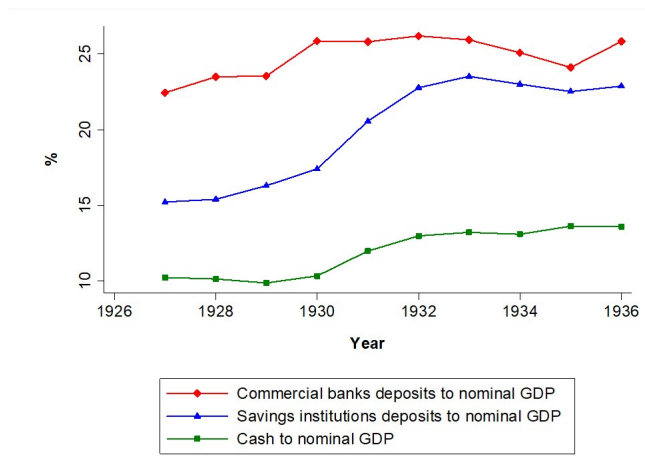
A quick look at the data 2#

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

Panel data econometrics

◇ Dynamic panel. OLS and GMM (Arrelano-Bond). Year and country-fixed effects.

Panel data econometrics

◇ Dynamic panel. OLS and GMM (Arrelano-Bond). Year and country-fixed effects.

$$Y_{i,t} = \alpha + d_t + c_i + \beta_1 Y_{i,t-1} + \beta_2 X_{i,t} \\ + \beta_3.Savings * BankCrisis_{i,t} + \epsilon_{i,t} \tag{1}$$

Panel data econometrics

◇ Dynamic panel. OLS and GMM (Arrelano-Bond). Year and country-fixed effects.

$$Y_{i,t} = \alpha + d_t + c_i + \beta_1 Y_{i,t-1} + \beta_2 X_{i,t} + \beta_3 . Savings * BankCrisis_{i,t} + \epsilon_{i,t} \tag{1}$$

◇ Y: log(GDP) or real interest rates

◇ X: Controls $=$ log of cash, bank deposits, prices, etc.

◇ Comparable to Bernanke - James (1991), Bernanke (1995).

Panel data econometrics

◇ Dynamic panel. OLS and GMM (Arrelano-Bond). Year and country-fixed effects.

$$Y_{i,t} = \alpha + d_t + c_i + \beta_1 Y_{i,t-1} + \beta_2 X_{i,t} \\ + \beta_3.Savings * BankCrisis_{i,t} + \epsilon_{i,t} \tag{1}$$

◇ Y: log(GDP) or real interest rates

◇ X: Controls $=$ log of cash, bank deposits, prices, etc.

◇ Comparable to Bernanke - James (1991), Bernanke (1995).

◇ *Savings*BankCrisis* $\rightarrow$ direct test of Guerrieri-Lorenzoni (2017)

Panel data econometrics

◇ Dynamic panel. OLS and GMM (Arrelano-Bond). Year and country-fixed effects.

$$Y_{i,t} = \alpha + d_t + c_i + \beta_1 Y_{i,t-1} + \beta_2 X_{i,t} \\ + \beta_3 . Savings * BankCrisis_{i,t} + \epsilon_{i,t} \tag{1}$$

◇ Y: log(GDP) or real interest rates

◇ X: Controls = log of cash, bank deposits, prices, etc.

◇ Comparable to Bernanke - James (1991), Bernanke (1995).

◇ *Savings*BankCrisis* → direct test of Guerrieri-Lorenzoni (2017)

◇ Endogeneity between savings and growth may bias coeff. ↑

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)
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)
1929*Savings							0.005
							(0.009)
1930*Savings							-0.006
							(0.008)
1931*Savings							-0.004
							(0.008)
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.

Robustness checks

Table 2: Banking crisis, precautionary savings and growth

	(1)	(2)	(3)	(4)	(5)	(6)
Lagged 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 (0.011)	-0.989 (0.409)		-0.018 (0.011)
BankingCrisis*UnsterilizedSavings					-0.009 (0.004)	
BankingCrisis*SterilizedSavings					-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
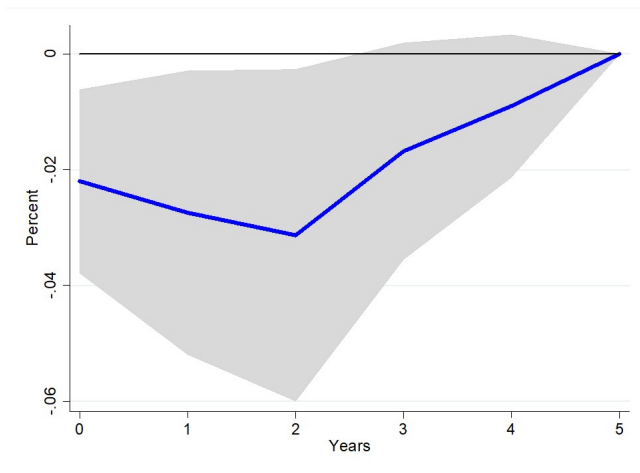
Persistency 1#

Figure 3: Response of real GDP to a shock to precautionary savings during banking crises.
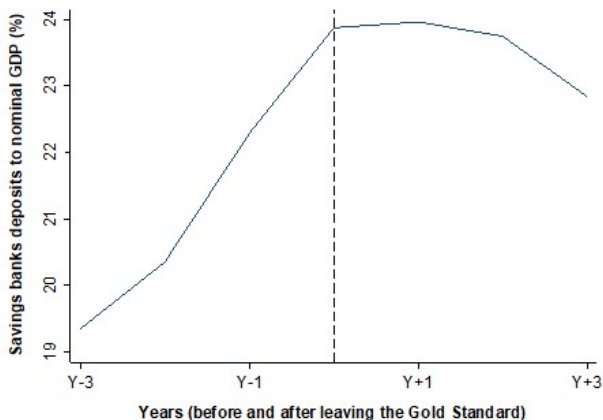
Persistency 2#

Figure 4: Ratio of savings institutions deposits to nominal GDP before and after leaving the Gold Standard.

Conclusion

◇ We present the first evidence of the paradox of thrift channel of credit crisis (Guerrieri and Lorenzoni 2017).

◇ Our results are also relevant for economists working on the macroeconomic impact of banking crisis (Bordo et al. 2001, Jorda et al. 2016, Romer & Romer 2017).

◇ And for the existing literature on money and credit during the Great Depression (Friedman & Schwartz 1963, Temin 1976, Bernanke 1983, Romer 1990, Eichengreen 1992, 2014).

◇ Implications for today: an increase in precautionary savings can have a strong and persistent negative effect on the economy. The effect is persistent because consumers' expectations are slow to adjust.

◇ A clear commitment to countercyclical policies is a sine qua non condition for stopping the detrimental accumulation of precautionary savings.