

Aggregate and Distributional Dynamics of Consumer Credit in the U.S.

Carlos Garriga, FRB of St. Louis Bryan Noeth, FRB of St.
Louis Don E. Schlagenhauf, FRB of St. Louis

Conference on The Balance Sheets of Younger Americans
May, 2014

The views expressed herein do not necessarily reflect those of the
FRB of St. Louis or the Federal Reserve System.

Purpose of Today's Talk

- ▶ Report on an Ongoing Project to Develop a Set of “Facts” on Household/Individual Holding of Debt
- ▶ Examine Developments as they Relate to Youngest Individuals
- ▶ Emphasis will be on unsecured credit, but other forms of credit cannot be ignored (all liabilities are important)
 - ▶ Document the behavior pre and post Great Recession
 - ▶ Identify changes in behavior from changes in participation

Why do we care?

- ▶ Hoping to Identify facts that may have predictive content for changes in the business cycle
- ▶ Evaluation of the Performance of New Quantitative Heterogenous Models

Summary of Key Findings: Credit in General

- ▶ The distribution of unsecured debt holding is “hump-shaped” by age with a peak around age 48-55.
- ▶ The distribution of mortgage debt and auto debt peak earlier.
- ▶ Since 1999, the number of individuals with unsecured debt only and their balances have been decreasing.
- ▶ Individuals that also hold mortgage debt have much larger balances of unsecured credit.

Summary of Key Findings: Great Recession

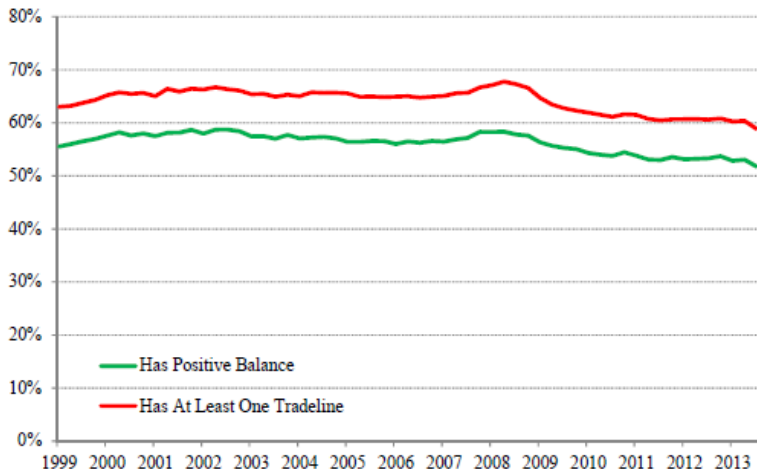
- ▶ The Great Recession significantly reduced consumer debt balances for all age cohorts but increased holdings of student debt
- ▶ For individuals of age 20 and 31, the Great Recession triggers an increase in foreclosure rates as a vehicle to discharge unsecured debt.
- ▶ The bankruptcy option is not used as frequently as foreclosure because of the smaller size of unsecured debt relative to mortgage debt.
- ▶ Unlike other periods, young individuals tried to decrease unsecured debt levels but fail and use the bankruptcy option.

An Overview of Debt Levels Since 1999

- ▶ Analysis based on FRBNY's Consumer Credit Sample (% sample of Equifax Data)
- ▶ Allows us to study the behavior of individual with respect of unsecured and secured debt holding starting 1999:1.
- ▶ Today, we focus on the 1999:1, 2005:1, 2008:1, 2010:1, and 2013:4 panels.
- ▶ All data will be inflation adjusted

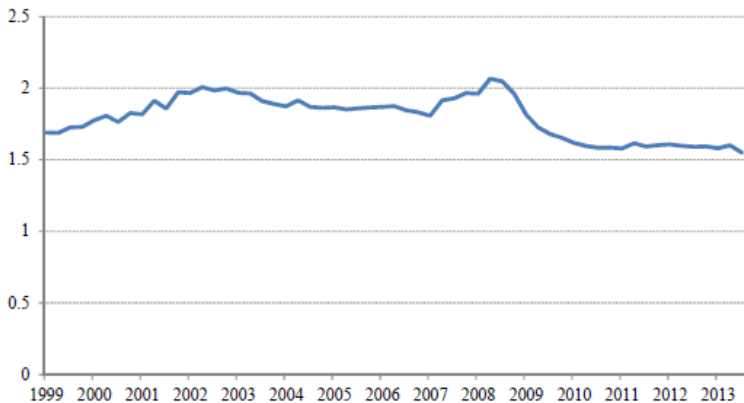
I) Aggregate Dynamics

Percentage of Consumers with Positive Credit Card Balances or Tradelines



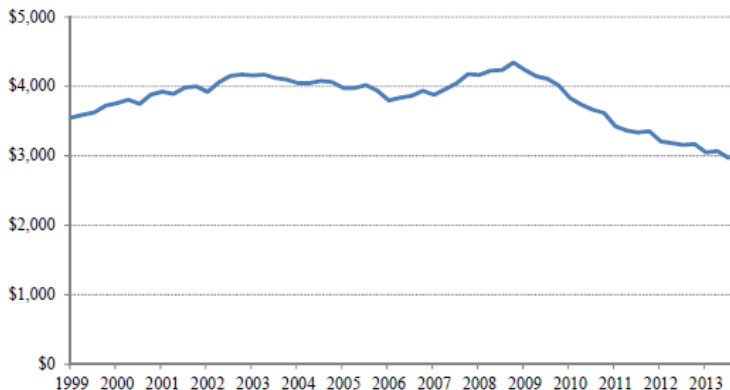
Source: FRBNY Credit Panel / Equifax Based on Authors' Calculations

Average Number of Credit Card Tradelines



Source: FRBNY Credit Panel / Equifax Based on Authors' Calculations

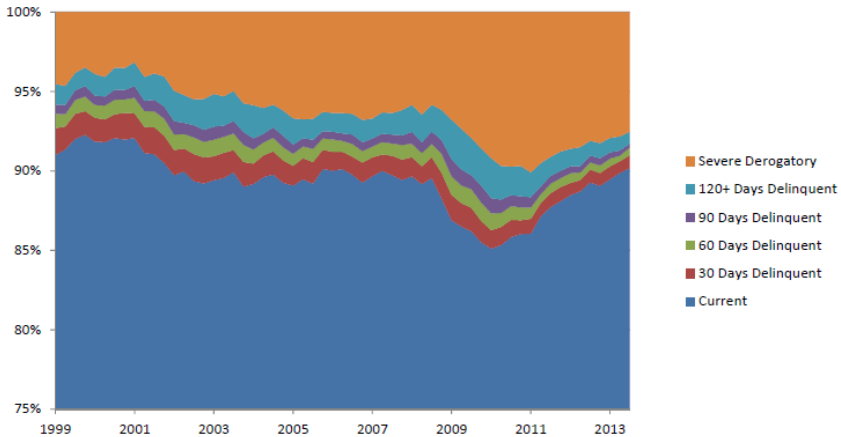
Average Real Per-Capita Credit Card Balances



Source: FRBNY Credit Panel / Equifax Based on Authors' Calculations

Notes: PCE adjusted to 2014. Joint accounts left as is

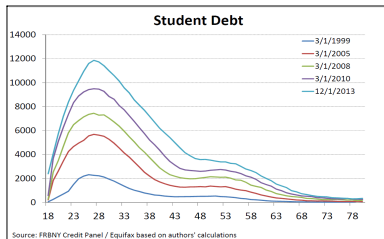
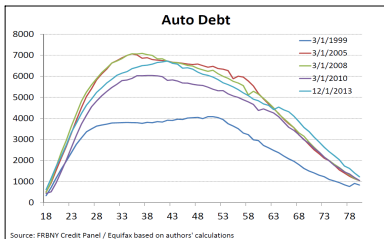
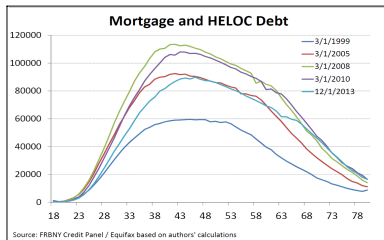
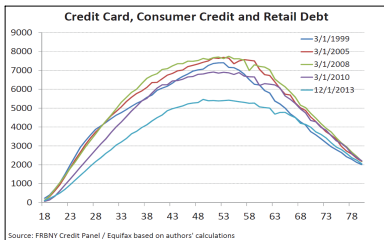
Percent of Credit Card Balances in Delinquency



Source: FRBNY Credit Panel / Equifax Based on Authors' Calculations

II) Life-Cycle Dynamics

Figure 7: An Overview of Debt Level Changes by Age



III) Distributional Facts for Consumer Debt

Distributional Facts Consumer Debt

- ▶ Differentiate the debt dynamics before and after the financial crisis.
- ▶ Focus on individuals with unsecured and mortgage debt.
- ▶ Individuals are segmented by whether mortgage debt is present.

Period 1999Q1-2008Q1

Individuals without Mortgage Debt

Fraction of Individuals with Positive Balances Unsecured Debt (No Mortgage Debt)

Age	1999	2005	2008
21-30	59.1	50.0	50.2
31-40	59.4	51.2	47.2
41-55	64.2	56.5	51.8
56-65	67.1	61.1	56.9
66-75	63.4	58.6	56.5

Source: FRBNY Credit Panel/Equifax Based on Authors' Calculations

Level of Unsecured Debt Balances (No Mortgage Debt)

Age	1999		2005		2008	
	Avg Debt	Bank. (%)	Avg Debt	Bank. (%)	Avg Debt	Bank (%)
21-30	3,636	3.93	3,020	3.01	2,703	1.94
31-40	5,863	9.31	5,146	11.26	5,166	9.62
41-55	6,972	8.69	6,513	11.80	6,308	11.03
56-65	6,400	5.07	6,547	8.22	6,229	7.59
56-65	4,120	2.52	4,359	4.41	4,625	4.09

Source: FRBNY Credit Panel/Equifax Based on Authors' Calculations

Individuals with Mortgage Debt

Fraction of Individuals with Positive Balances of Unsecured Debt

Age	1999	2005	2008
21-30	79.5	78.3	77.3
31-40	85.9	82.8	81.7
41-55	87.3	86.4	89.4
56-65	85.6	85.8	85.2
66-75	81.9	83.9	82.9

Source: FRBNY Credit Panel/Equifax Based on Authors' Calculations

Level of Unsecured Debt and Mortgage Balances

Age	1999		2005				2008			
	Ave. Debt	Ave. Mort.	Ave. Debt	Ave. Mort.	Bank. %	Fore. %	Ave. Debt	Ave. Mort.	Bank. %	Fore. %
21-30	6,027	112,353	5,907	168,284	2.37	1.28	6,025	198,456	1.60	2.41
31-40	7,620	146,191	4,643	208,985	4.36	1.18	8,756	243,851	2.82	2.28
41-55	9,307	139,597	5,927	189,505	3.25	0.99	9,769	226,315	2.30	1.51
56-65	9,449	117,874	5,707	158,310	2.40	0.66	9,816	188,152	1.87	0.89
66-75	7,368	89,214	4,351	123,081	2.60	0.65	8,271	153,384	2.15	0.69

Source: FRBNY Credit Panel/Equifax Based on Authors' Calculations

Period 2008Q1-2013Q4

Individuals without Mortgage Debt

Fraction of Individuals with Positive Balances Unsecured Debt (No Mortgage Debt)

Age	2008	2010	2013
21-30	50.2	46.5	44.9
31-40	47.2	43.2	42.3
41-55	51.8	47.7	45.4
56-65	56.7	54.2	51.8
66-75	56.5	54.7	53.5

Source: FRBNY Credit Panel/Equifax Based on Authors' Calculations

Level of Unsecured Debt and Mortgage Balances

Age	2008		2010		2013	
	Avg Debt	Bank. (%)	Avg Debt	Bank. (%)	Avg Debt	Bank. (%)
21-30	2,703	1.94	2,349	1.39	1,936	1.34
31-40	5,166	9.62	4,643	8.39	3,602	7.39
41-55	6,308	11.03	5,927	9.84	4,949	9.93
56-65	6,229	7.59	5,707	6.68	4,689	6.21
66-75	4,625	4.09	4,351	3.84	4,127	2.36

Source: FRBNY Credit Panel/Equifax Based on Authors' Calculations

Individuals with Mortgage Debt

Fraction of Individuals with Positive Balances Unsecured Debt

Age	2008	2010	2013
21-30	77.3	74.9	75.4
31-40	81.7	79.3	78.6
41-55	84.9	82.8	81.7
56-65	85.2	83.5	83.0
66-75	82.9	82.0	82.9

Source: FRBNY Credit Panel/Equifax Based on Authors' Calculations

Level of Unsecured Debt and Mortgage Balances

Age	2008		2010				2013			
	Ave.	Ave.	Ave.	Ave.	Bank.	Fore.	Ave.	Ave.	Bank.	Fore.
	Debt	Mort.	Debt	Mort.	%	%	Debt	Mort.	%	%
21-30	6,025	198,456	4,714	179,581	0.96	3.68	3,553	165,560	0.53	1.67
31-40	8,756	243,851	8,041	234,736	2.85	3.91	5,875	215,335	1.90	2.71
41-55	9,769	226,315	9,454	227,249	1.89	2.97	8,299	211,309	1.27	2.91
56-65	9,816	188,152	9,373	188,448	1.44	1.86	7,891	168,962	0.85	2.25
66-75	8,271	153,384	8,297	158,496	2.06	1.18	7,385	151,087	1.23	1.99

Source: FRBNY Credit Panel/Equifax Based on Authors' Calculations

IV) Accounting for Deleveraging
(Individuals without Mortgage in 1991Q1)

Participation Decision

	Debt	Mortg.	Fore	Bank.	Percent Choosing			
					from '99 to '05	from '05 to '08	from '08 to '10	from '10 to '13
	↓	↑	No	No	57.2	59.6	64.1	60.1
	↓	↑	No	Yes	4.5	1.8	1.0	1.9
	↓	↑	Yes	No	1.1	0.8	0.5	0.5
	↓	↑	Yes	Yes	0.4	0.2	0.1	0.2
	↑	↑	No	No	35.2	36.9	34.1	37.1
	↑	↑	No	Yes	1.2	0.5	0.2	0.3
	↑	↑	Yes	No	0.3	0.3	0.1	0.1
	↑	↑	Yes	Yes	0.9	0.1	0.1	0.1

Source: FRBNY Credit Panel/ Equifax based on authors' calculations

How Much Do Individuals Liabilities Adjust?

D	M	Fore	Bank.	Period (Average)							
				From '99 to '05		From '05 to '08		From '08 to '10		From '10 to	
				Δ Mort	Δ Debt	Δ Mort	Δ Debt	Δ Mort	Δ Debt	Δ Mort	Δ
↓	↑	No	No	24,230	-2,793	16,345	-2,713	8,274	-2,542	12,633	-3
↓	↑	No	Yes	8,100	-6,111	3,889	-9,283	1,885	-11,064	1,632	-11
↓	↑	Yes	No	14,036	-2,320	47,063	-2,121	19,506	-4,852	15,572	-6
↓	↑	Yes	Yes	20,424	3,039	26,052	-2,967	10,622	-2,832	2,667	-6
↑	↑	No	No	55,959	5,727	37,940	4,604	17,203	2,922	30,114	3
↑	↑	No	Yes	17,803	4,291	11,800	3,138	5,156	2,485	6,072	2
↑	↑	Yes	No	53,210	6,319	250,605	7,694	126,012	5,783	36,339	3
↑	↑	Yes	Yes	38,892	3,691	51,022	11,199	17,943	3232	42,401	7

Source: FRBNY Credit Panel/ Equifax based on authors' calculations

IV) Accounting for Deleveraging (Individuals with Mortgage in 1991Q1)

Participation Decision

Debt	Mortg.	Fore	Bank.	Percent Choosing			
				from '99 to '05	from '05 to '08	from '08 to '10	from '10 to '13
↓	↓	No	No	31.7	36.7	42.8	38.6
↓	↓	No	Yes	4.1	1.2	1.2	2.5
↓	↓	Yes	No	3.3	2.0	5.2	4.8
↓	↓	Yes	Yes	1.7	0.5	0.7	1.2
↓	↑	No	No	15.5	11.8	7.3	5.9
↓	↑	No	Yes	0.5	0.1	0.1	0.1
↓	↑	Yes	No	0.2	0.4	0.6	0.4
↓	↑	Yes	Yes	0.1	0.1	0.1	0.1
↑	↓	No	No	22.5	32.1	33.2	37.7
↑	↑	No	No	18.2	13.5	6.1	7.0

Source: FRBNY Credit Panel/ Equifax based on authors' calculations

Quantity Decision

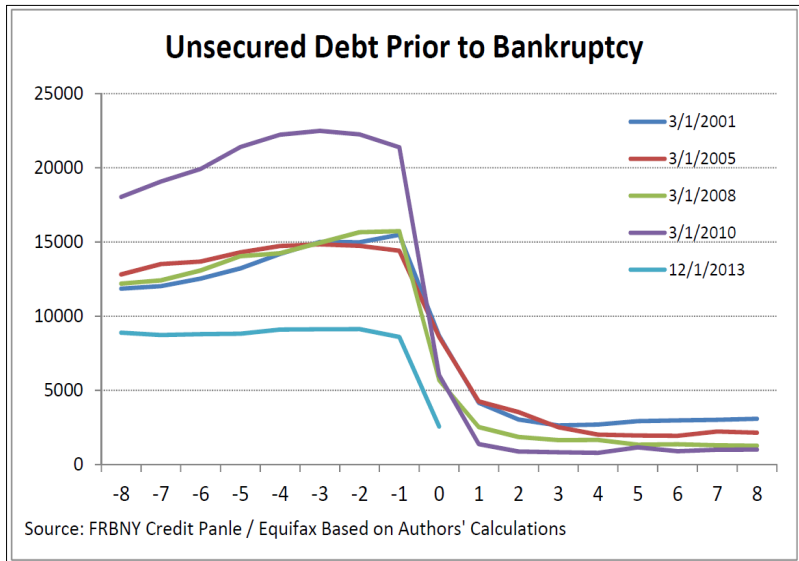
How Much Do Individuals Liabilities Adjust?

D	M.	F	B	Period							
				From '99-'05		From '05-'08		From '08-'10		From '10-'13	
				Δ Mort	Δ Debt	Δ Mort	Δ Debt	Δ Mort	Δ Debt	Δ Mort	Δ Debt
↓	↓			-79,251	-4,075	-70,098	-3,983	-49,533	-3,779	-82,745	-4,075
↓	↓		✓	-68,007	-9,350	-81,150	-14,441	-164,938	-18,148	-194,623	-17,148
↓	↓	✓		-83,142	-4,729	-114,607	-4,797	-210,898	-6,547	-195,130	-7,547
↓	↓	✓	✓	-90,799	-7428	-145,411	-9,864	-381,351	-16,805	-317,196	-16,805
↓	↑			145,386	-4,550	156,451	-6,168	107,054	-6,354	144,820	-7,354
↓	↑		✓	66,710	-9,871	53,700	-16,511	26,794	-6,430	76,360	-14,430
↓	↑	✓		89,390	-5,301	155,171	-5,496	41,982	-5,732	55,601	-7,732
↓	↑	✓	✓	44,535	-7,811	55,153	-4,711	80,574	-7,036	61,226	-8,036
↑	↓			-75,393	7,548	-65,600	5,923	-44,656	4,558	-84,157	4,558
↑	↓	✓	✓	-67,882	5,634	-64,818	3,766	-75,003	3,562	-146,096	2,562
↑	↓	✓		-79,221	5,460	-120,633	6,046	-199,003	8,652	-201,308	7,652
↑	↓	✓	✓	-114,116	3,156	-110,688	2,287	-250,877	14,612	-264,885	8,612
↑	↑			140,293	8,378	177,398	8,425	116,902	5,121	173,588	5,121
↑	↑		✓	87,613	7,595	89,833	7,741	49,556	7,904	27,780	7,904
↑	↑	✓		69,917	9,041	314,506	12,128	88,029	7,631	71,027	3,631

Source: FRBNY Credit Panel/ Equifax based on authors' calculations

VI) Dynamics of Unsecured Debt Prior to Bankruptcy

Figure 8: Unsecured Debt Adjustments Prior to Bankruptcy



Conclusions: Great Recession

- ▶ The Great Recession significantly reduced consumer debt balances for all age cohorts but increased holdings of student debt
- ▶ For individuals of age 20 and 31, the Great Recession triggers an increase in foreclosure rates as a vehicle to discharge unsecured debt.
- ▶ The bankruptcy option is not used as frequently as foreclosure because of the smaller size of unsecured debt relative to mortgage debt.
- ▶ Unlike other periods, young individuals tried to decrease unsecured debt levels but fail and use the bankruptcy option.