Roadmap for Today’s Presentation

- Overview of Household Debt
- Recent Trends in Student Loan Borrowing, Delinquency and Repayment
- Relationship between Homeownership, Student Debt and Educational Attainment
Overview of Household Debt
Total Household Debt Expected to Pass 2008Q3 Peak this Year but Composition Has Changed

Total Debt Balance and its Composition

Source: New York Fed Consumer Credit Panel/Equifax
Housing Debt is $1T Below Previous Peak; Student and Auto Debt up $700B and $350B

Total Debt by Type

<table>
<thead>
<tr>
<th>Year</th>
<th>Housing</th>
<th>Auto Loan</th>
<th>Student Loan</th>
<th>Credit Card</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>5.6%</td>
<td>8.7%</td>
<td>3.1%</td>
<td>8.7%</td>
<td>73.9%</td>
</tr>
<tr>
<td>2008</td>
<td>3.3%</td>
<td>6.8%</td>
<td>5.0%</td>
<td>6.2%</td>
<td>78.6%</td>
</tr>
<tr>
<td>2016</td>
<td>3.0%</td>
<td>6.2%</td>
<td>10.4%</td>
<td>9.2%</td>
<td>71.2%</td>
</tr>
</tbody>
</table>

*data for 4th quarter of each year

Source: New York Fed Consumer Credit Panel/Equifax
Mortgage Underwriting Remains Tight, Though Auto Loans See Looser Standards

Source: New York Fed Consumer Credit Panel/Equifax
* Credit Score is Equifax Riskscore 3.0; mortgages include first-liens only.
Older Borrowers (Age 60+) Take Greater Share of Debt

Total Debt by Age of Borrower

Source: New York Fed Consumer Credit Panel/Equifax

*data for 4th quarter of each year
All Debt Grew for Oldest Borrowers, Only Student and Auto Debt for Younger Borrowers

Balances Relative to 2008 Peak, by Age

Source: New York Fed Consumer Credit Panel/Equifax

*data for 4th quarter of each year
Slight Increase in Debt Share of Borrowers from Higher-Income Areas

Total Balances by Average Local Income (Segmented by 2012 Average Income in Zipcode)*

<table>
<thead>
<tr>
<th>Average Income in Zipcode</th>
<th>2003</th>
<th>2008</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$40k</td>
<td>12.3%</td>
<td>11.6%</td>
<td>10.9%</td>
</tr>
<tr>
<td>$40k-$48k</td>
<td>14.5%</td>
<td>14.5%</td>
<td>14.4%</td>
</tr>
<tr>
<td>$48k-$58k</td>
<td>17.7%</td>
<td>17.3%</td>
<td>17.6%</td>
</tr>
<tr>
<td>$58k-$77k</td>
<td>22.4%</td>
<td>23.0%</td>
<td>23.0%</td>
</tr>
<tr>
<td>&gt;$77k</td>
<td>32.4%</td>
<td>33.7%</td>
<td>34.0%</td>
</tr>
</tbody>
</table>

*data for 4th quarter of each year

Source: New York Fed Consumer Credit Panel/Equifax; Internal Revenue Service
Underlying Shifts from Mortgages and Credit Cards to Student Loans for Borrowers from Lower-Income Areas

Balances Relative to 2008 Peak, by Average Local Income

- **Mortgage**
- **Credit Card**
- **Auto**
- **Student Loan**

Source: New York Fed Consumer Credit Panel/Equifax

*data for 4th quarter of each year*
Super-Prime Borrowers Increase Share as Subprime Tally Eases

Total Balances by Credit Score

Source: New York Fed Consumer Credit Panel/Equifax

*data for 4th quarter of each year; credit scores are Equifax Riskscore 3.0
As Credit Quality Improves, Certain Delinquency Rates Fall

Percent of Balance 90+ Days Delinquent

Source: New York Fed Consumer Credit Panel/Equifax
Most Transition Rates to Delinquency Falling to Levels of Early 2000s or Below

Fraction newly 90+ days delinquent (annual rate)

Source: New York Fed Consumer Credit Panel/Equifax
Bankruptcies and Foreclosures Reach Historical Lows

Number of Consumers with New Foreclosures and Bankruptcies

Thousands

Source: New York Fed Consumer Credit Panel/Equifax
Summary

- Total household debt is just within $100B of its 2008 peak
  - Mortgage balance growth remains sluggish, while non-housing balances have increased sharply (esp. student and auto loans)

- Significant shift in who holds debt to older (ages 60 and older), more creditworthy borrowers
  - Attributable to both changing demographics and a real shift in borrowing

- Delinquencies are generally improving; bankruptcies and foreclosures are declining

- These trends reflect improved stability and resiliency of household sector overall
  ... but important shift in borrowing by youngest towards student debt, with high delinquency rate
Recent Trends in Student Loan Borrowing, Delinquency and Repayment
Questions

- Overall student debt in the US:
  - Who is borrowing and how much?
  - Are recent graduates leaving school with more debt?
- Updates on student loan defaults:
  - Who has a bigger risk?
  - Does student loan default have a consequence on home borrowing?
- How much payment progress do borrowers make? Who pays down more?
Student Debt Totaled $1.3 Trillion in 2016, Up 170% from 2006

Total student debt by age group

Billions of Dollars

Source: New York Fed Consumer Credit Panel/Equifax
5% of Borrowers Have More Than $100,000 Debt in 2016, But Account For About 30% of Total Debt

**Borrower Distribution by Outstanding Balance**
out of 44 million borrowers in 2016

- >$100k: 5%
- 20k-50k: 20%
- 10k-25k: 17%
- 5k-10k: 15%
- 1k-5k: 19%
- less than 5k: 19%

**Debt Distribution by Outstanding Balance**
out of $1.3 trillion in 2016

- >$100k: 30%
- 200k+: 23%
- 100k-200k: 16%
- 75k-100k: 15%
- 50k-75k: 11%
- 25k-50k: 10%
- 10k-25k: 19%
- 5k-10k: 4%
- less than 5k: 2%

Source: New York Fed Consumer Credit Panel/Equifax
More Borrowers and Larger Balances

Borrower Cohorts and Balances at School Leaving

- **Millions of Borrowers**
- **Balance**

Source: New York Fed Consumer Credit Panel/Equifax
Student Debt Overview

- Student debt was $1.3 trillion at the end of 2016, an increase of about 170% from 2006.
- Aggregate student debt is increasing because:
  - More students are taking out loans
  - Loans are for larger amounts
  - Repayment rates have slowed down
- About 5% of the borrowers have more than $100,000 debt in 2016, but they account for about 30% of the total debt.
- Recent graduates with student loans leave school with about $34,000, up nearly 70% from 10 years ago.
Student Loan Defaults
Student Loan Defaults Peaked in 2011-2012

Source: New York Fed Consumer Credit Panel/Equifax
Highest Default Rate from 2011 Cohort; 2013 Cohort Shows Improvement

* Borrowers are assigned to cohorts based on the last academic year of borrowing.

Source: New York Fed Consumer Credit Panel/Equifax
Higher Default Rates Among Borrowers from Lower Income Areas

5 year default rate by income area (2006-2011 cohorts)

- Less than $40k: 35%
- $40k-$60k: 24%
- $60k-$80k: 18%
- $80k+: 13%

Source: New York Fed Consumer Credit Panel/Equifax, Internal Revenue Service
Higher Default Rates Among Lower-Balance Borrowers

5-year default rate by borrowing amount (2006-2011 cohort)

<table>
<thead>
<tr>
<th>Borrowing Amount</th>
<th>Default Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 5k</td>
<td>31.1%</td>
</tr>
<tr>
<td>5k-10k</td>
<td>29.7%</td>
</tr>
<tr>
<td>10k-25k</td>
<td>21.0%</td>
</tr>
<tr>
<td>25k-50k</td>
<td>20.4%</td>
</tr>
<tr>
<td>50k-75k</td>
<td>21.5%</td>
</tr>
<tr>
<td>75k-100k</td>
<td>22.7%</td>
</tr>
<tr>
<td>100k+</td>
<td>17.2%</td>
</tr>
</tbody>
</table>

Source: New York Fed Consumer Credit Panel/Equifax
Increasing Default Rate for Higher Balance Borrowers in Recent Cohorts

5-year default rate of high-balance borrowers by school-leaving cohort

- **$100k+ borrowers**
- **all borrowers**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$100k+ borrowers</td>
<td>19%</td>
<td>17%</td>
<td>21%</td>
</tr>
<tr>
<td>all borrowers</td>
<td>6%</td>
<td>23%</td>
<td>28%</td>
</tr>
</tbody>
</table>

Source: New York Fed Consumer Credit Panel/Equifax
Delinquency and Default Associated with Lower Credit Scores and Homeownership Rates at Age 30

* Among borrowers who were age 30 in 2016 and left school between 2006-2011.

Source: New York Fed Consumer Credit Panel/Equifax
Student Debt Defaults

- Student loan default rates increased until 2012 and have stabilized since 2013.
- About 30% of the borrowers have defaulted among 2009-2011 graduates, but more recent cohorts have performed better so far.
- Those with higher student debt are now much more likely to default than in the past.
- Borrowers from lower income areas default more.
Student Loan Repayment Success
Lower Repayment Rates for Recent Cohorts
5 Years After Leaving School

5-year payment progress by school-leaving cohort

Source: New York Fed Consumer Credit Panel/Equifax
Slower Repayment Rates Among Higher-Balance Borrowers

Source: New York Fed Consumer Credit Panel/Equifax
Payment progress

- Payment progress is slower among those who borrowed more.
- Payment progress is slower for more recent graduates due to higher borrowing amounts and higher default rates. Participation in new accommodative payment plans such as Income Based Repayment might account for the slow progress as well.
- High rates of student loan defaults and delinquencies are associated with slower payment progress as well.
Summary

- Three factors pushing up aggregate student loan balances are higher borrowing amounts, increasing participation among students, and slower repayment.
- Defaults peaked among those who left school in 2011 and appear to have improved for later cohorts, but the longer-term performance remains to be seen.
- Payment progress continues to decline due to higher burden of student debt.
Homeownership, Student Debt and Educational Attainment
Outline

- Large increase in student debt in past two decades
- Critical to understand whether student debt holdings have affected young Americans’ later life outcomes
- Deviate from previous research by analyzing homeownership by (rich measures of) educational attainment and student debt
- Leverage a unique merger of two datasets
  - New York Fed Consumer Credit Panel and National Student Clearinghouse
  - Track student debt holdings and educational attainment measures over time
  - Focus on 1980-86 birth cohorts
Questions We Ask

- Is homeownership related to college attendance and student debt?
- Does college type and degree matter for the relationship between student debt and homeownership?
- Does graduation matter?
- Is the amount of student debt holding associated with the propensity to own a home?
  - Homeownership defined as ever having a mortgage by that age
  - Reliable proxy as all-cash purchases rare among young homebuyers
- Does the association between homeownership and education vary with family background?
  - Family background proxied by 2010 zipcode level mean income associated with youngest age at which we observe an individual
- Relationships are descriptive and suggestive, but not causal
College Attendance Associated With Markedly Higher Homeownership

Homeownership Rate By College Attendance, Student Debt Status And Age

Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
Bachelor’s Students Have Higher Homeownership Rates Than Associates, Regardless Of Debt Status

Bachelor’s+ includes bachelor’s and higher-level degrees. Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
Graduates Have Higher Homeownership Rates, Regardless Of Debt Status

Homeownership Rate By College Attendance, Graduation Status, Student Debt Status And Age

Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
Homeownership Rates Of Associates’ Non-graduates With Debt Similar To Those Of Non-attendees

Homeownership Rate By College Attendance, Degree Type, Student Debt, Graduation Status, And Age

- Bachelor+, No Debt, Grad
- Associate, Debt, Non-grad
- No College

Bachelor’s+ includes bachelor’s and higher-level degrees. Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
Higher Student Debt Balance Associated With Lower Homeownership Rates

Homeownership Rate By College Attendance, Student Debt Balance, And Age

Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
College Attendance Appears To Mitigate The Importance Of Family Background

Family background proxied by 2010 zip code-level mean income where an individual resided at the youngest age we observe. Mean income is $55,000.

Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
Homeownership Gap Between Students With And Without Student Debt Widens Slightly Over Time

Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
Key Takeaways

- College education associated with markedly higher homeownership rate, regardless of debt status
  - Homeownership rates for Bachelors’ higher than Associates’ regardless of debt status
  - Lowest homeownership rates for those who do not go to college and gap widens over time
  - Graduates have significantly higher homeownership rates than non-graduates, regardless of debt status

- At each degree/completion level, students with debt have lower homeownership rates

- Higher debt balance associated with lower home ownership rates

- College education appears to mitigate importance of family background
Summary

- While the total level of household debt has nearly returned to the 2008 peak, debt types and borrower profiles have changed.
  - Debt growth is now driven by non-housing sectors, and debt is held by older, more creditworthy borrowers.
- Student debt has expanded significantly because of higher levels of borrowing and slower rates of repayment.
- Student debt defaults peaked with the 2011 cohort and have improved somewhat since. However, payment progress has declined.
- College attendance is associated with significantly higher homeownership rates regardless of debt status. Yet, student debt appears to dampen homeownership rates among those with the same level of education.
- College attendance appears to mitigate the impact of economic background on homeownership rates.
Appendix
Family background proxied by 2010 zip code-level mean income where an individual resided at the youngest age we observe. Mean income is $55,000.
Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
Higher Student Debt Balance Associated With Lower Homeownership

Homeownership Rate By College Attendance, Student Debt Balance, And Age

Median student debt balance for the student loan holding individuals in our sample is $20,400. Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
Graduates Have Highest Homeownership Over Time, Non-attendees The Lowest

Homeownership Rate By College Attendance, Graduation Status, And Age/Year

Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
**College Attendance Appears To Mitigate The Importance Of Family Background**

Homeownership Rate By College Attendance, Family Income, And Year

Family background proxied by 2010 zip code-level mean income where an individual resided at the youngest age we observe.

Sources: FRBNY Consumer Credit Panel/Equifax and National Student Clearinghouse
Share of College Attendees with Student Debt Remained Stable Over Time

Source: New York Fed Consumer Credit Panel/Equifax and National Student Clearinghouse
Homeownership Rate Has Declined Over Time

Homeownership Rate By Age 30 By Year

Source: New York Fed Consumer Credit Panel/Equifax
Variable Definitions

- Homeownership defined as ever having a mortgage by that age

- Student debt status based on whether an individual held student debt between ages 27 and 30 to capture recent exposure to debt

- We categorize as college attendees those who entered college by age 25.

- Degree program is based on the highest degree program entered by age 25

- College graduates are those who graduated at or before age 30