Financial Liquidity and Savings: Evidence from 401K Loans

John Beshears, David Laibson, James J. Choi, Brigitte Madrian
Motivation

- Previously illiquid assets becoming more liquid
  - Credit cards
    - 1970: 7% of U.S. households have a credit card
    - 2002: 90% of U.S. households have a credit card
    - ~60% of household do not repay in full each month
  - Home equity loans
  - Defined benefit pension lump-sum payouts
  - Defined contribution plan loans
Motivation

- Previously illiquid assets becoming more liquid
  - Credit cards
  - Home equity loans
    - 1977: 5% of homeowners had a home equity loan
    - 2004: 19% of homeowners had a home equity loan
  - Defined benefit pension lump-sum payouts
  - Defined contribution plan loans
Motivation

- Previously illiquid assets becoming more liquid
  - Credit cards
  - Home equity loans
  - Defined benefit pension lump-sum payouts
    - 1991: 14% of DB pension plans offer lump sum
    - 2005: 52% of DB pension plans offer lump sum
  - Defined contribution plan loans
Motivation

- Previously illiquid assets becoming more liquid
  - Credit cards
  - Home equity loans
  - Defined benefit pension lump-sum payouts
  - Defined contribution plan loans
    - 1993: 42% of DC participants in plans with a loan option
    - 2005: 85% of DC participants in plans with a loan option
Research Question

- How does asset liquidity impact savings outcomes and wealth accumulation?

- 401(k) loans
  - Data availability
  - Current relevance
    - 401(k) debit card
    - Senators Kohl and Shumer have recently proposed regulation to restrict 401(k) loan availability
Welcome to ReservePlus

ReservePlus is a convenient and flexible way to borrow money from your company-sponsored retirement plan account. With ReservePlus, you decide how much money you’d like to have available for loans. This amount then stays invested within your plan, in a dividend-earning money market fund, until it’s needed. To access your money, simply use the ReservePlus Loan Card, which is similar to a debit card, at thousands of ATMs and merchants across the country. You can also initiate a loan using ReservePlus checks. It is only when you initiate a transaction that a loan is created. This way you borrow only what you need, when you need it most. After taking a loan, you have a number of flexible options to repay the amount you borrowed.

Program Highlights and Benefits

No other loan program can provide you with the same level of convenience, security, and privacy during times of need, while never losing sight of your retirement goals. ReservePlus enables you to:

- Limit your loan amount to your exact need
- Accelerate repayment when you choose
- Help avoid taxes and penalties if you change jobs
- Increase contributions as a result of increased confidence to access

Forgot username or password? Enroll now
The Headlines…

Robbing Tomorrow to Pay for Today

Economically Squeezed Families Are Turning to Their 401(k)s to Make Ends Meet

The Headlines…

Warning: 401(k) loans are hazardous to your wealth
Borrowing from your 401(k) plan should be your last solution, not your first, when you need a loan fast. Here’s a look at the pros and cons.

http://moneycentral.msn.com/articles/retire/basics/4714.asp
Critical Assumptions

- What would individuals do **without** a 401(k) loan option?
  - What would happen to … participation?
  - What would happen to … contribution rates?
  - What would happen to … expenditures?
  - Would employees use other loans?
  - Would other financing sources be more/less costly?
    - Credit cards?
    - Hardship withdrawals?
    - Default?
  - Do participants maintain contributions after a loan?
Aims of this paper

- Explain how 401(k) loans are regulated
- Describe loan provisions offered by plans
- Calibrate impact on wealth accumulation
- Assess how savings plan participants utilize 401(k) loans
401(k) Loans: The Basics

- Plans permitted to offer loans, but not required
  - 50% of plan have a loan option (EBRI/ICI)
  - 85% of participants in a plan with a loan option (EBRI/ICI)

- Loans regulated by Treasury and DOL

- Terms of the loan set by the plan within certain regulatory bounds
401(k) Loan Availability by Plan Size: EBRI/ICI (2006)

Plan Size (number of participants)

Fraction of 401(k) Plans with a Loan Option

1 to 10 11 to 25 26 to 50 51 to 100 101 to 250 251 to 500 501 to 1000 1001 to 2500 2501 to 5000 5001 to 10000 >10000

27 43 54 64 70 80 83 86 87 90 93
Loan Terms: Purpose & Amount

- Loan purpose—most (82%) plans have no restrictions on loan use (PSCA, 1999)

- Loan size—lesser of:
  - 50% of vested account balance
  - $50,000
  - Plans can set lower maximums if desired

- Minimum loan amount usually $500-$1000
Loan Terms: Number and Repayment Period

- **Number of loans**—no regulatory restrictions
  - 1 loan 52% of plans
  - 2 loans 36% of plans
  - 3+ loans 12% of plans

- **Repayment period** (Hewitt plan descriptions)
  - General purpose loans—5 year maximum
  - Primary residence loans—longer term allowed
Loan Terms: Repayment

- Repayment
  - After-tax
  - Principal + “reasonable” interest (Hewitt)
    - Prime 27% of plans
    - >Prime to prime+1 59% of plans
    - >Prime+1 to prime+2 6.2% of plans
    - Other 5% of plans
    - Not specified 2%
  - Interest payments credited to participant accounts
Loan Terms: Default

- Default treated as a taxable distribution
  - Outstanding balance subject to:
    - Ordinary income taxes
    - 10 percentage point tax penalty
- Terminated employees must repay loans in full to avoid default (60-90 days)
- Default NOT REPORTED to credit agencies (default to self)
Economics:
Advantages of a 401(k) loan

- Cited advantages of 401(k) loans
  - Less paperwork than other forms of credit
  - Lower interest rates (e.g., vs. credit card)
  - Interest paid to self rather than third party
  - Interest earned may provide higher rate of return than other assets in the plan (e.g. money market fund)
Economics: Disadvantages of a 401(k) loan

Cited disadvantages of 401(k) loans

- “Easy money”  \(\rightarrow\) increased consumption
- Erodes retirement income security
- Borrowed money does not earn an investment return
- Repayments made with after-tax dollars
- Default  \(\rightarrow\) tax penalty
Economics—Question #1: 401(k) loan vs. other sources of credit

- Two period model
  - Denote $B$: 401(k) balances before loan
  - $L$: Loan amount
  - $r_P$: Rate of return on plan assets
  - $r_L$: 401(k) loan interest rate
  - $r_A$: Interest rate for other credit
  - $Y$: Second period income
  - $\tau$: Tax rate
Economics—Question #1: 401(k) loan vs. other sources of credit

- Second period consumption with 401(k) loan

\[ C_L = Y(1 - \tau) - L(1 + r_L) + [(B - L)(1 + r_p) + L(1 + r_L)](1 - \tau) \]

\[ = Y(1 - \tau) + (B - L)(1 + r_p)(1 - \tau) - L(1 + r_L)(\tau) \]
Economics—Question #1: 401(k) loan vs. other sources of credit

- Second period consumption with alternative loan

\[ C_A = Y(1 - \tau) - L(1 + r_A) + B(1 + r_P)(1 - \tau) \]
Economics—Question #1: 401(k) loan vs. other sources of credit

401(k) loan dominates alternative credit if equation (3) >0:

\[ C_L - C_A = (B - L)(1 + r_p)(1 - \tau) - L(1 + r_L)\tau + L(1 + r_A) - B(1 + r_p)(1 - \tau) \]
\[ = -(1 + r_p)(1 - \tau) - L(1 + r_L)\tau + L(1 + r_A) \]
\[ = L[1 + r_A - (1 + r_L)\tau - (1 + r_p)(1 - \tau)] \]
\[ = L[(r_A - r_p) + \tau(r_p - r_L)] \]
Economics—Question #1: 401(k) loan vs. other sources of credit

- 401(k) loan dominates alternative credit if

\[ L \left[ (r_A - r_p) + \tau (r_p - r_L) \right] > 0 \]

- Sign is ambiguous
  - \( \uparrow r_A \) makes 401(k) loan more attractive
  - \( \uparrow r_p \) makes 401(k) loan less attractive
  - \( \uparrow r_L \) makes 401(k) loan less attractive
  - \( \uparrow \tau \) ambiguous
Economics—Question #1: 401(k) loan vs. other sources of credit

- 401(k) loan dominates alternative credit if
  \[ L \left[ (r_A - r_p) + \tau (r_p - r_L) \right] > 0 \]

- Special cases
  - \( \tau = 0 \) \( \Rightarrow \) 401(k) loan preferred if \( r_A > r_p \)
  - \( r_p = r_L \) \( \Rightarrow \) 401(k) loan preferred if \( r_A > r_p \)

- In general, \( \tau (r_p - r_L) \) likely to be small relative to \( (r_A - r_p) \)
  - \( \tau \) small for many households (and <0)
  - \( r_p \) close to \( r_L \) after adjusting for risk
### Relative Advantage of 401(k) Loan to Alternative Sources of Credit

<table>
<thead>
<tr>
<th>Alternative Source of Credit</th>
<th>Home Equity Loan $r_A = 5% \times (1 - \tau)$</th>
<th>Personal Bank Loan $r_A = 7%$</th>
<th>Credit Card $r_A = 20%$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$\tau = 0$</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_P = 3%, \ r_L = 5%$</td>
<td>2.00%</td>
<td>4.00%</td>
<td>17.00%</td>
</tr>
<tr>
<td>$r_P = 7%, \ r_L = 5%$</td>
<td>-2.00%</td>
<td>0.00%</td>
<td>13.00%</td>
</tr>
<tr>
<td>$r_P = 10%, \ r_L = 5%$</td>
<td>-5.00%</td>
<td>-3.00%</td>
<td>10.00%</td>
</tr>
<tr>
<td><strong>$\tau = 15%$</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_P = 3%, \ r_L = 5%$</td>
<td>0.95%</td>
<td>3.70%</td>
<td>16.70%</td>
</tr>
<tr>
<td>$r_P = 7%, \ r_L = 5%$</td>
<td>-2.45%</td>
<td>0.30%</td>
<td>13.30%</td>
</tr>
<tr>
<td>$r_P = 10%, \ r_L = 5%$</td>
<td>-5.00%</td>
<td>-2.25%</td>
<td>10.75%</td>
</tr>
<tr>
<td><strong>$\tau = 35%$</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_P = 3%, \ r_L = 5%$</td>
<td>-0.45%</td>
<td>3.30%</td>
<td>16.30%</td>
</tr>
<tr>
<td>$r_P = 7%, \ r_L = 5%$</td>
<td>-3.05%</td>
<td>0.70%</td>
<td>13.70%</td>
</tr>
<tr>
<td>$r_P = 10%, \ r_L = 5%$</td>
<td>-5.00%</td>
<td>-1.25%</td>
<td>11.75%</td>
</tr>
</tbody>
</table>
Economics—Question #1: 401(k) loan vs. other sources of credit

- Li and Smith (2008)
  - Use SCF data on 401(k) loan availability, 401(k) loan utilization, and debt
  - Estimate that the average household with access to 401(k) loans could save ~$200 per year by shifting debt to a 401(k) loan
Economics—Question #2: 401(k) loans and wealth formation

- Enrollment effect (+)
  - GAO (1997): 6 pp. higher participation in plans with a loan option
    - Form 5500 data from 1992 (7000+ plans)
    - Cross sectional aggregate plan-level data
    - Vanguard participant-level data (500+ plans)
    - Cross sectional (2001)
  - Preliminary Hewitt data
    - Plan with added a loan option in July 2002
    - Pre/post loan comparison
    - Participation higher by 4-7 percentage points

- Calibration assumptions: 0% and 6%
The Impact of Loan Availability on Savings Plan Participation

After: Hired July 2002-December 2003
Average Difference: +3.5%

Before: Hired 2001
After: Hired 2003
Average Difference: 7.2%
Economics—Question #2: 401(k) loans and wealth formation

- Contribution effect (+)
  - GAO (1997): contributions 35% higher in plans with a loan option
    - Form 5500 data from 1992 (7000+ plans)
    - Cross sectional aggregate plan-level data
  - Mitchell, Utkus and Yang (2007): contributions 10% higher in plans with a loan option (6.1% to 6.7% of pay)
    - Vanguard participant-level data (500+ plans)
    - Cross sectional (2001)
  - Munnell, Sunden and Taylor (2000): contributions higher by 1% of pay in plans with a loan option
  - Holden and VanDerhei (2001): contribution rates higher by 0.6% of pay in plans with a loan option

- Calibration assumptions: 0.6% and 1.0%
Economics—Question #2: 401(k) loans and wealth formation

- Crowd-out (-)
  - Poterba, Venti and Wise (1995): most incremental 401(k) saving is new saving
  - Engen and Gale (2000): not much incremental 401(k) saving is new saving
  - Pence (2001): little incremental 401(k) saving is new saving

- Calibration assumptions: 50% and 25%
Economics—Question #2: 401(k) loans and wealth formation

- **Borrowing cost effect (+/-)**
  - 401(k) loan interest rate may reduce the cost of borrowing
  - This could increase or decrease savings
    - Borrow more because it's cheaper → lower savings (substitution effect)
    - Pay lower interest → higher savings (income effect)

- **Credit availability effect (-)**
  - 401(k) loan availability may increase the likelihood of borrowing because 401(k) assets are more liquid
  - Calibration Assumption: 50% and 10%
### TABLE 8. Reasons For Obtaining a 401(k) Loan

<table>
<thead>
<tr>
<th>Reason</th>
<th>1998</th>
<th>2001</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home purchase</td>
<td>25.2%</td>
<td>24.3%</td>
<td>14.6%</td>
</tr>
<tr>
<td>Home improvement</td>
<td>6.0%</td>
<td>12.5%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Vehicles</td>
<td>9.1%</td>
<td>11.5%</td>
<td>14.6%</td>
</tr>
<tr>
<td>Goods and services</td>
<td>28.5%</td>
<td>25.9%</td>
<td>35.7%</td>
</tr>
<tr>
<td>Investments and other real estate</td>
<td>2.5%</td>
<td>6.8%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Education, medical expenses and professional services</td>
<td>26.9%</td>
<td>11.8%</td>
<td>19.8%</td>
</tr>
</tbody>
</table>
Economics—Question #2:  
401(k) loans and wealth formation

- Repayment crowd-out (-)
  - 401(k) loan repayment may crowd-out existing savings (flows)
  - Preliminary Hewitt data--suggestive evidence of some crowd-out, but effect not large
    - 6 plans
    - Data on contribution rates over 5-7 year time period
    - Look at contributions of individual who take out a loan before and after they obtain the loan

- Calibration Assumptions: 100% and 25%
Economics—Question #2: 401(k) loans and wealth formation

Default effect (+/-)

- Job separation $\rightarrow$ required loan repayment $\rightarrow$ potential for default
- Impact of separation-generated default likely small
  - Default rate at separation $\sim$ 25% for those with loans
  - BUT, separation rates are low (e.g. 20%)
  - Loan utilization rates are low (e.g. 20%)
- Pre-separation, default rates likely low because loans repaid through payroll deduction
- Loan default not reported to credit agencies $\rightarrow$ lower future borrowing costs (borrowing cost effect)
<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment effect</td>
<td>+0%</td>
<td>+6%</td>
</tr>
<tr>
<td>Contribution effect</td>
<td>+0.6%</td>
<td>+1%</td>
</tr>
<tr>
<td>Initial participation</td>
<td>60%</td>
<td>70%</td>
</tr>
<tr>
<td>Initial contribution rate</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Savings crowd-out</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>Repayment crowd-out</td>
<td>100%</td>
<td>25%</td>
</tr>
<tr>
<td>Credit availability effect</td>
<td>50%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Economics—Question #2: 401(k) loans and wealth formation

- Savings increase
  - Increased participation rate
    - 0 or 6 percentage points
  - Increased contribution rate for existing participants and induced participants
    - 0.6% of pay or 1.0% of pay
  - Increase in savings within the plan
    - Pessimistic: 0.6% x 60% = 0.36%
    - Optimistic: (6% x 6%) + (1% x 76%) = 1.2%
  - Crowd-out: 50% or 25%
    - Pessimistic: 0.36% x 50% = 0.18% increase in saving
    - Optimistic: 1.2% x 75% = 0.84% increase in saving
Economics—Question #2: 401(k) loans and wealth formation

- Loan leakage
  - Loan repayment ~ 5.2% of pay for those with loans
    - Median monthly repayment ~$125 (Hewitt data)
    - Average number of outstanding loans (1.4)
    - Assume average annual pay of $40K
    - \( \frac{(125 \times 1.4)}{40K} = 5.2\% \) of pay
  - 20% of participants have loan \( \rightarrow \) repayments
    - ~ 1.05% of pay for all participants
Economics—Question #2: 401(k) loans and wealth formation

- Loan leakage
  - Repayment crowd-out of existing contributions
    - Pessimistic: 100% crowd-out → 1.05% decrease in saving
    - Optimistic: 25% crowd out → 0.26% decrease in saving
  - Credit availability effect—new consumption vs. more efficient financing

- Leakage
  - Pessimistic: 1.05% x 50% = 0.53% decrease in saving
  - Optimistic: 0.26% x 10% = 0.03% decrease in saving
## Savings Impact of 401(k) Loans

<table>
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<tr>
<th>Assumptions</th>
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<th>Scenario 2</th>
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<tr>
<td>Enrollment effect</td>
<td>+0%</td>
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</tr>
<tr>
<td>Contribution effect</td>
<td>+0.6%</td>
<td>+1%</td>
</tr>
<tr>
<td>Initial participation</td>
<td>60%</td>
<td>70%</td>
</tr>
<tr>
<td>Initial contribution rate</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Savings crowd-out</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>Repayment crowd-out</td>
<td>100%</td>
<td>25%</td>
</tr>
<tr>
<td>Credit availability effect</td>
<td>50%</td>
<td>10%</td>
</tr>
<tr>
<td>Savings Increase</td>
<td>+0.18%</td>
<td>+0.84%</td>
</tr>
<tr>
<td>Consumption leakage</td>
<td>-0.53%</td>
<td>-0.03%</td>
</tr>
<tr>
<td><strong>NET IMPACT ON SAVINGS RATE</strong></td>
<td><strong>-0.35%</strong></td>
<td><strong>+0.81%</strong></td>
</tr>
</tbody>
</table>
Economics—Question #2: 401(k) loans and wealth formation

- Net impact savings rate likely to be small:
  - Extreme lower bound: -0.35%
  - Extreme upper bound: +0.84%
  - Truth…somewhere in the middle?

- Li and Smith (2008) corroboration (SCF data)
  - 401(k) contribution rates are similar for those with and without loans
  - Household with 401(k) loans have a higher share of financial assets in the 401(k)
  - No difference in the rate of growth of household wealth between 1992 and 2004 for household with and without access to 401(k) loans
FIGURE 7. Fraction of 401(k) Participants in Plans with Loan Provisions Who Have an Outstanding Plan Loan (1990-2006)
Loan Utilization Rates (EBRI/ICI, 2006)
FIGURE 8. Outstanding Loan Balances as a Fraction of Total 401(k) Balances (1990-2006)
Loan-to-Balance Ratios

By Age:
- Bar chart showing distribution by age groups (20s, 30s, 40s, 50s, 60s).

By Tenure:
- Bar chart showing distribution by tenure groups (0 to 2, >2 to 5, >5 to 10, >10 to 20, >20 to 30, >30).

By Account Size:
- Bar chart showing distribution by account size categories ($<10k, $10k to $20k, $20k to $30k, $30k to $40k, $40k to $50k, $50k to $100k+

By Salary:
- Bar chart showing distribution by salary categories ($<40000, $40000 to $60000, $60000 to $80000, $80000 to $100000, $100000+).
FIGURE 9. Average Outstanding 401(k) Loan Balances (1990-2006)
## Participants with Multiple Loans

<table>
<thead>
<tr>
<th>Number of outstanding loans</th>
<th>Fraction of participants</th>
<th>Average total loan/balance ratio</th>
<th>Average total outstanding loan balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 loans</td>
<td>76.3%</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>1 loans</td>
<td>16.6%</td>
<td>9.7%</td>
<td>$5,720</td>
</tr>
<tr>
<td>2 loans</td>
<td>6.5%</td>
<td>16.6%</td>
<td>$8,878</td>
</tr>
<tr>
<td>3+ loans</td>
<td>0.7%</td>
<td>21.9%</td>
<td>$11,757</td>
</tr>
<tr>
<td>Characteristics of Newly Originated Loans (2005)</td>
<td>Loan amount</td>
<td>Payment amount (monthly equivalent)</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-------------</td>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td>5th percentile</td>
<td>$730</td>
<td>$28</td>
<td></td>
</tr>
<tr>
<td>25th percentile</td>
<td>$1,575</td>
<td>$69</td>
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</tr>
<tr>
<td>Median</td>
<td>$3,850</td>
<td>$125</td>
<td></td>
</tr>
<tr>
<td>75th percentile</td>
<td>$8,910</td>
<td>$238</td>
<td></td>
</tr>
<tr>
<td>95th percentile</td>
<td>$24,680</td>
<td>$566</td>
<td></td>
</tr>
</tbody>
</table>
Demographics and loan utilization

- Table 6 (see also Table 4)
- Hewitt participant-level data (47 plans)
- Regression of loan utilization on demographic and plan characteristics
  - Age: peaks in the 30s-40s
  - Tenure: peaks with 10-30 years tenure
  - Balance size: peaks at $10K-$20K
  - Salary: peaks at <$40K
Plan characteristics and loan utilization

- Number of loans permitted (relative to 1 loan)
  - 2 loans: +12%
  - 3+ loans: +7%

- Interest rate (relative to prime)
  - >Prime to prime+1: -1%
  - >Prime+1 to prime+2: -9%

- Minimum loan amount (relative to $500 or less)
  - >$500: -7%
<table>
<thead>
<tr>
<th>Demographics only</th>
<th>+Plan Loan Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficients</td>
</tr>
<tr>
<td>Age (20s omitted)</td>
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<tr>
<td>30s</td>
<td>0.039</td>
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<tr>
<td>40s</td>
<td>0.023</td>
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<td>50s</td>
<td>-0.012</td>
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<tr>
<td>60s</td>
<td>-0.111</td>
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<tr>
<td>Tenure (years, 0 to 2 omitted)</td>
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<tr>
<td>2 to 5</td>
<td>0.090</td>
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<td>5 to 10</td>
<td>0.188</td>
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<tr>
<td>10 to 20</td>
<td>0.258</td>
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<td>20 to 30</td>
<td>0.269</td>
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<td>&gt; 30</td>
<td>0.145</td>
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<td>Account Size (&lt;$10K omitted)</td>
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<td>$10,001 to $20,000</td>
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<tr>
<td>$20,001 to $30,000</td>
<td>0.114</td>
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<tr>
<td>$30,001 to $40,000</td>
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</tr>
<tr>
<td>$40,001 to $50,000</td>
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<tr>
<td>$50,001 to $60,000</td>
<td>0.086</td>
</tr>
<tr>
<td>$60,001 to $70,000</td>
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<tr>
<td>$70,001 to $80,000</td>
<td>0.080</td>
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<tr>
<td>$80,001 to $90,000</td>
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<tr>
<td>$90,001 to $100,000</td>
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<tr>
<td>&gt; $100,000</td>
<td>0.043</td>
</tr>
<tr>
<td>Salary Range (&lt;$40K omitted)</td>
<td>Coefficient</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------</td>
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<tr>
<td>$40,001 to $60,000</td>
<td>-0.002</td>
</tr>
<tr>
<td>$60,001 to $80,000</td>
<td>-0.024</td>
</tr>
<tr>
<td>$80,001 to $100,000</td>
<td>-0.048</td>
</tr>
<tr>
<td>&gt; $100000</td>
<td>-0.112</td>
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<tr>
<td>Primary residence loans</td>
<td></td>
</tr>
<tr>
<td>Maximum number of loans (1 omitted)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>0.121</td>
</tr>
<tr>
<td>≥ 3</td>
<td>0.072</td>
</tr>
<tr>
<td>Interest rate (prime omitted)</td>
<td></td>
</tr>
<tr>
<td>&gt;Prime to prime+1</td>
<td>-0.013</td>
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<tr>
<td>&gt;Prime+1 to prime+2</td>
<td>-0.085</td>
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<tr>
<td>Other</td>
<td>-0.045</td>
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<tr>
<td>Application fee (binary variable)</td>
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<tr>
<td>Minimum loan amount (≤ $500 (omitted))</td>
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</tr>
<tr>
<td>&gt; $500</td>
<td>-0.074</td>
</tr>
<tr>
<td>Minimum loan duration (≤ 1 month (omitted))</td>
<td></td>
</tr>
<tr>
<td>2 to 6 months</td>
<td>0.066</td>
</tr>
<tr>
<td>7 to 12 months</td>
<td>0.104</td>
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<tr>
<td>Maximum loan duration</td>
<td></td>
</tr>
<tr>
<td>&lt; 5 years (binary variable)</td>
<td>-0.021</td>
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<tr>
<td>Sample Size</td>
<td>578,749</td>
</tr>
<tr>
<td>R²</td>
<td>0.079</td>
</tr>
</tbody>
</table>
Future Research

- How does having a 401(k) loan option impact savings plan participation—other companies?
- How does having a 401(k) loan option impact contribution rates
  - Initially
  - After a loan is taken
- What is the net effect on asset accumulation?
- How important is 401(k) loan default?
Policy Implications

- Should 401(k) loans be allowed?
- If so, should they be further regulated?
  - 401(k) debit card
  - Maximum number of loans outstanding
  - Minimum loan amount
  - Restrictions on purposes for which loans can be used
Sources of Data/Information

- EBRI/ICI: administrative data from providers
  - 1996
    - 28,000 plans (9% of all plans)
    - 6.5 million participants (17% of all participants)
    - 31% of all assets
  - 2006
    - 54,000 plans (12% of all plans)
    - 20 million participants (40% of all participants)
    - 46% of all assets
  - EBRI/ICI tabulations available (data not available)
  - Representativeness?
  - Sample changes over time
Sources of Data/Information

- Profit Sharing/401(k) Council of America
  - Annual survey of employers
  - Long historical perspective
  - Extensive information on loan provisions
  - PSCA tabulations of survey responses available (data not available)
  - Representativeness?
  - Sample changes over time
Sources of Data

- BLS Employee Benefits Surveys
  - 1993, 1995, 1997 surveys collected limited information on loans
  - Representativeness
    - Random, stratified sampling with weights
    - Sampling frame
      - Medium and large firms
      - Restricted set of occupations/industries
        - 1995: sampling frame covers 33 million FT workers
  - Non-response
    - 60% overall survey response rate
    - 30% item non-response for retirement plan questions
Sources of Data

- Hewitt
  - Plan descriptions for 81 firms
    - Detail on loan provisions
  - Participant-level data for 47 firms
    - All outstanding loans at year-end
      - Outstanding balance
      - Loan interest rate
      - Remaining payments
      - Payment amount
Sources of Data

- Survey of Consumer Finances
  - Nationally representative with weights
  - Limited information on loans
  - Wealth of information on assets, income, debt