A Primer on 401(k) Loans

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Abstract: Although the popular press and politicians often describe 401(k) loans as a problem, classical economic theory has a more benign view. Loans from a 401(k) can relax liquidity constraints and increase household utility. Moreover, loan provisions may have the subtle effect of *raising* net asset accumulation by making 401(k) participation more appealing: employees who can access their 401(k) assets if they need them may be willing to put more money into an otherwise illiquid 401(k) account. Our research suggests that 401(k) loans are neither a blessing nor a bogeyman. Conditional on borrowing to finance consumption, we show that a 401(k) loan may be a reasonable source of credit in many circumstances. We further show that the net impact of 401(k) loans on asset accumulation is likely to be small (and could be either positive or negative) for a reasonable range of parameter assumptions. Our empirical analysis also suggests that it may be possible to structure the provision of 401(k) loans in ways that reduce their potential to negatively impact retirement wealth accumulation, as we find that 401(k) loan utilization is responsive to the types of loan features adopted by firms. 401(k) loan utilization is higher in plans that have lower minimum loan amounts and in plans that allow employees to take out multiple loans. 401(k) loan utilization is lower in plans that have higher loan interest rates.

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In Shakespeare's *Hamlet*, Polonius instructs his son: "Neither a borrower nor a lender be." The advent of the 401(k) loan has created the curious possibility of violating Polonius's maxim twice in the same transaction: individuals can borrow from their 401(k) wealth and repay themselves.

Borrowing from defined contribution savings plans, including 401(k) plans, has long been permissible, and such loans are prevalent. The Investment Company Institute reports that 18% of 401(k) participants had a 401(k) loan in 2006 (Holden, VanDerhei, Alonso and Copeland, 2007). Nevertheless, the impact of this borrowing on economic outcomes has only recently begun to attract attention in the academic and policy worlds. Anecdotally, the recent economic slowdown has caused the fraction of 401(k) participants with a 401(k) loan to rise.[1] This increase, coupled with the introduction of the 401(k) debit card,[2] motivated Senators Herb Kohl and Charles Schumer to propose legislation that would limit the number of outstanding 401(k) loans to three per participant and ban 401(k) debit cards outright (Asci, 2008). The concern is that easy access to one's retirement nest egg will lead to excessive consumption in the present at the expense of future financial security.

Although the popular press and politicians often describe 401(k) loans as a problem, classical economic theory has a more benign view. Loans from a 401(k) can relax liquidity constraints and increase household utility. Moreover, loan provisions may have the subtle effect of *raising* net asset accumulation by making 401(k) participation more appealing. Employees who know that they can access their 401(k) assets if they need them may be willing to put more money into an otherwise illiquid 401(k) account.

Our research suggests that 401(k) loans are neither a blessing nor a bogeyman. Conditional on borrowing to finance consumption, we show that a 401(k) loan may be a reasonable source of credit in many circumstances. We further show that the net impact of

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[1] See, for example, Transamerica Center for Retirement Studies (2008).
[2] See Burton (2008) on the 401(k) debit card.

401(k) loans on asset accumulation is likely to be small (and could be either positive or negative) for a reasonable range of parameter assumptions. Our empirical analysis also suggests that it may be possible to structure the provision of 401(k) loans in ways that reduce their potential to negatively impact retirement wealth accumulation, as we find that 401(k) loan utilization is responsive to the types of loan features adopted by firms. 401(k) loan utilization is higher in plans that have lower minimum loan amounts and in plans that allow employees to take out multiple loans. 401(k) loan utilization is lower in plans that have higher loan interest rates.

This paper is the first step in a research agenda on how the availability of 401(k) loans affects wealth accumulation. The aims of the current paper are largely descriptive. In Section I, we describe the various sources of data that we use. Section II discusses the prevalence of 401(k) loans. In Section III, we explain how 401(k) loans work, how they are regulated, and the types of loan provisions that plan sponsors offer. In Section IV, we discuss how 401(k) loans affect wealth accumulation. Section V assesses how savings plan participants utilize 401(k) loans. We conclude in Section VI with a discussion of what research remains to be done in order to accurately assess the impact of 401(k) loans on wealth accumulation.

I. Data on 401(k) Loans

We exploit several different sources of data on 401(k) loans in this paper: participant-level administrative data, firm-level data, household survey data, and published statistics. We briefly describe our primary data sources and the strengths (and weaknesses) that each has to offer for our analysis.

The first source of data is published statistics from a joint data collection effort by the Employee Benefit Research Institute (EBRI) and the Investment Company Institute (ICI). The EBRI/ICI database contains administrative data on savings plan participants and their savings plans from thousands of firms that are affiliated with either EBRI or ICI. In 1996, the first year for which such data were collected, the EBRI/ICI database included almost 28,000 401(k) plans with over 6.5 million plan participants, representing 9% of all plans, 18% of all participants, and 31% of all assets (VanDerhei, Galer, Quick and Rea, 1999). Over time, the coverage of the EBRI/ICI database has expanded; in 2006, it included almost 54,000 plans with 20 million participants, representing 12% of all plans, 40% of all participants, and 46% of all 401(k) assets (Holden and VanDerhei, 2007). Although the EBRI/ICI database is not a random or stratified random sample of either savings plans or savings plan participants, the distributions of plans by total assets and by number of participants are very similar to those for the entire universe of plans,[3] making the data fairly representative at least on those dimensions. The 401(k) loan statistics published for the EBRI/ICI database include the fraction of firms offering 401(k) loans, the fraction of savings plan participants utilizing such loans, and the average outstanding balance of 401(k) loans, all reported by plan size and by participant demographic characteristics. The strengths of the EBRI/ICI statistics include their broad coverage of the 401(k) market and their consistent reporting over the 1996-2006 time period. Their weakness is that the sample of firms included in the calculations is neither constant nor completely representative over time, so it is never clear whether differences over time or across plan/participant characteristics represent true differences or just different selectivity into the sample.

The second source of data is published tabulations from the Employee Benefits Surveys (EBS) conducted by the Bureau of Labor Statistics. These surveys, which have been conducted periodically since the early 1980s, were designed to be nationally representative of certain types of occupations in certain types of firms. The number of firms actually surveyed is substantially smaller than the sample of firms in the EBRI/ICI database (numbering in the low thousands rather than the tens of thousands). The strength of these data is their representativeness for the population covered by the survey design. The weaknesses of the EBS data are several: (1) the survey population covered is somewhat limited,[4] (2) there is high non-response both for surveyed firms and for the questions specific to retirement plans within the firms who did respond,[5] (3) the only loan variable reported for 401(k) plans is the fraction of savings plan participants who are in plans with a loan option,[6] and (4) this variable was only reported in the 1993, 1995, and 1997 surveys.

[3] Holden and VanDerhei (2007) benchmark the representativeness of the EBRI/ICI database to data published by Cerulli associates on the entire universe of 401(k) plans.

[4] The survey population is limited to certain occupations in private, non-agricultural, non-household establishments with 100 or more employees. The published numbers on savings plans with a loan option are limited to full-time workers. The Bureau of Labor Statistics (1998) reports that for tabulations from the 1995 survey, 33.4 million full-time workers fell within the scope of the survey, which is well less than half of the full-time, private sector labor force in 1995.

[5] The Bureau of Labor Statistics (1998) reports that for the 1995 survey, 60% of the establishments selected for the survey responded. Among responding establishments, 30 percent of the retirement plan participants represented in the data had their retirement plan provisions imputed due to missing data.

[6] A handful of loan-related provisions for other categories of defined contribution savings plans (e.g. savings and thrift plans, deferred profit sharing plans) are reported. These include whether loans are restricted to cases of hardship, whether participants' full account balances are available to be borrowed, and the length of the repayment

The third source of data is published statistics from the Profit Sharing/401(k) Council of America (PSCA). The PSCA data are derived from a survey of employers offering either profit-sharing or 401(k) plans and have two advantages relative to other sources of data. First, they offer a long historical perspective on loan availability, loan provisions, and loan utilization, with data going back to 1990 for 401(k) loans.[7] Second, the PSCA surveys collect extensive information on the loan provisions at sampled firms. As with the EBRI/ICI data, the primary weakness of this data source is that the sample of firms included is neither representative nor constant over time.

The fourth source of data we use is the Survey of Consumer Finances (SCF), a triennial survey of individuals conducted by the Federal Research Board. The primary advantages of these data are that the sampling is designed to be nationally representative (when appropriately weighted), the data are publicly available at the individual level (as opposed to available only at the aggregate level in the form of summary statistics, as is the case with the previous three data sources), and the data include questions on savings plan loans going back to 1989. The primary disadvantage of the SCF is that the questions on savings plan loans are asked only of savings plan participants and are fairly limited. Nonetheless, it is the only source of information on the reasons why individuals borrow from their savings plans.

Our final two sources of data come from Hewitt Associates, a large benefits administration and consulting firm. The first consists of plan descriptions from 81 large 401(k) plans. These plans are not representative (except perhaps of large plans), but they do give us some insights into the types of loan provisions that companies offer. The primary advantage of these data is the level of detail they give about the loan provisions in these 401(k) plans. The primary disadvantages are the limited number of firms in the sample and the fact that they are not representative of the universe of firms offering 401(k) loans.

Our second source of data from Hewitt is a series of year-end cross-sections from 2002 to 2005 for 47 firms offering 401(k) loans. The cross-sections include individual-level data on all employees eligible to participate in their companies' 401(k) plans. They contain demographic

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period. The vast majority of savings and thrift plans are also 401(k) plans, but the converse is less likely to be true as the universe of 401(k) plans includes other types of plan structures as well.

[7] The PSCA first began surveying firms offering profit-sharing plans in 1957. Over time, as regulatory changes led many profit-sharing plans to incorporate a 401(k) component, the survey framework was adjusted to incorporate 401(k) plans as well as profit-sharing plans. The 19XX survey is the first to separately identify 401(k) plans from profit-sharing plans without a 401(k) component.

information such as birth date, hire date, gender, and compensation.[8] They also contain information on each individual's 401(k), including participation status in the plan at year-end, date of first participation, monthly contribution rates, asset allocation, plan balances, and 401(k) loans outstanding at the end of the year. For participants with a loan, we know the date on which each loan was taken out, the loan terms (interest rate, duration, and monthly payment), and whether the loan was delinquent or had been converted to a taxable withdrawal due to non-payment. The primary advantage of this data source is the amount of information on loans and other aspects of individuals' 401(k) accounts. This will allow us to examine in greater detail than previous studies how 401(k) participants utilize 401(k) loans and how 401(k) loans affect long-run asset accumulation.

II. Availability of 401(k) Loans

The terms of a 401(k) loan are set by individual savings plans, within certain regulatory bounds. When a loan is made to a 401(k) participant, the plan liquidates some of its assets to make the loan disbursement, and the participant's account balance is reduced correspondingly. The participant is then responsible for the timely repayment of the loan. Loan payments, which include both principal and interest, are made with after-tax dollars and are credited to the participant's account.

The regulation of 401(k) loans is shared by the Department of the Treasury and the Department of Labor, the two agencies that jointly regulate tax-favored savings plans. Under the Internal Revenue Code, qualified retirement savings plans may provide plan participants with the option of obtaining one or more loans against their plan balances.[9] Savings plans are not required to make loans available. If plans do make loans available, they must be made available to all participants on a reasonably equivalent basis.

There are two sources of data on the fraction of 401(k) plans with a loan option: the EBRI/ICI database and the PSCA surveys. Using the EBRI/ICI database (which covers many more firms than the PSCA surveys), the Investment Company Institute[10] estimates that about half

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[8] The data on compensation are not reported for all companies.

[9] Qualified plans are those that satisfy the requirements of I.R.C. 401(a), annuity plans that satisfy 403(a) or 403(b), and governmental plans (Internal Revenue Service). Loans are not permitted from IRAs, SEPs, or other similar plans.

[10] The statistics from the EBRI/ICI database are reported in a series of publications put out by the Investment Company Institute starting in 1999, including the first report by VanDerhei, Galer, Quick and Rea (1999), and the

of all plans include a loan provision, a fraction that has not changed much over the 11 years (1996-2006) for which such data have been collected (Figure 1).[11] The PSCA data suggest that loan availability increased somewhat during the early 1990s, from 68% in 1990 to 84% in 1995, but like the EBRI/ICI data, indicate little change since the mid-1990s. In the period when loan availability appears stable, the fraction of firms with a loan option is much higher among PSCA survey respondents—about 85%—than among firms in the EBRI/ICI data.

Both the EBRI/ICI data and the PSCA surveys document that large plans are much more likely to offer a loan provision than small plans (Figure 2). In the 2006 EBRI/ICI data, 93% of plans with more than 10,000 participants offered loans, compared to only 27% of plans with 10 or fewer participants (Holden, VanDerhei, Alonso and Copeland, 2007). The patterns in the PSCA surveys are similar, although the fraction of PSCA companies offering a loan option is higher in all size categories.

Because most individuals work in large companies and large plans are more likely to offer loans, the fraction of savings plan participants whose plan offers loans is much higher than the fraction of plans that offer loans. In the most current EBRI/ICI data, 85% of savings plan participants belong to a plan offering loans, even though only half of the plans in the data offer loans. Although the fraction of plans with a loan provision does not appear to have changed much in the past decade, the EBRI/ICI data suggest that the fraction of participants whose savings plan offers loans has increased over time (Figure 3), from 70% in 1996 to 85% in 2006 (Investment Company Institute, 1999 and 2007). The EBS also collected data on the fraction of 401(k) participants with a loan option in their savings plan during the 1990s. Although the prevalence of loans in the EBS is much lower than in the EBRI/ICI data, the EBS also shows an increase in loan accessibility over time, from 43% of participants in 1993 to 51% in 1997 (Bureau of Labor Statistics, 1995, 1998 and 1999).

Note that in 1997, the one year when the two data sources overlap, there is a sizeable discrepancy in the fraction of participants who report belonging to a plan with a loan option: 51% for the EBS versus 79% in the EBRI/ICI database. It is not clear how to interpret this discrepancy. Neither sample is completely representative of all 401(k) plans. The EBS is designed to be representative of certain occupations in private establishments with at least 100

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most recent report by Holden, VanDerhei, Alonso and Copeland (2007). These publications and those for the intervening years are available at: http://www.ici.org/statements/res/arc-ret/index.html#TopOfPage .

[11] In the EBRI/ICI data, 51% of plans had a loan provision in 2006, compared to 52% in 1996.

employees, so small employers (and thus small savings plans) and workers in several occupations are necessarily excluded. The EBRI/ICI database, while not designed to be representative, does include small plans and appears to be fairly representative of the 401(k) plan universe on at least some dimensions; it also covers a sizeable share of the total market. The discrepancy between the EBS and the EBRI/ICI numbers is even more puzzling given the exclusion of smaller firms from the EBS data, since loans are much less likely to be offered in smaller plans than in larger ones. If the EBS survey had included smaller firms, the gap between the EBS and EBRI/ICI estimates of loan availability would have been even larger. The only thing that seems clear from both data sources is that 401(k) loan availability has grown over time. What is less clear is exactly how many participants had a loan option available at any particular point in time.

III. 401(k) Loan Provisions

There are no regulatory restrictions on how the proceeds from a 401(k) loan may be used; nor are borrowers required to demonstrate financial need.[12] Plan sponsors, however, have discretion to impose such restrictions if desired, although most do not. The PSCA (1999) reports that among savings plans with a loan option, 82% place no restrictions on how loan proceeds may be utilized.[13,14] Of the 18% of plans with restrictions, most allow loans for home purchases, education, and medical expenses.

There are, however, regulations on the maximum size of 401(k) loans. The total outstanding principal of all unpaid loans is limited to the minimum of 50% of a participant's vested account balance or $50,000 (employers can place additional limits on the size of 401(k) loans).[15] The only information we have on the actual limits that plan sponsors place on 401(k)

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[12] In contrast, hardship withdrawals—which plans are allowed but not required to offer—are limited by regulation to be used for "immediate and heavy" expenditures for which no other resources are available. Allowable expenditures include medical expenses, educational expenses, burial or funeral expenses, expenditures related to the purchase of a home, and payments necessary to forestall eviction or foreclosure.

[13] Restrictions are more common in profit sharing (27%) than in 401(k) plans (16%), and are more common in smaller plans than in larger ones (Profit Sharing/401(k) Council of America).

[14] Similarly, data from the EBS suggest that only 7% of savings and thrift plans (see f.n. 6) place restrictions on how loan proceeds may be used.

[15] Participants affected by the 2005 hurricanes Katrina, Rita, or Wilma face a higher limit: the lesser of $100,000 or 100% of the participant's account balance. The regulatory language also suggests that employers have discretion to allow loans of up to $10,000, even if this exceeds the limit of 50% of a participant's vested balance. Conversations with plan administrators suggest that in practice this is rarely allowed because of concerns that doing so could violate regulatory provisions in ERISA.

loan size comes from our sample of Hewitt plan descriptions. In this sample, virtually all plans adhere to the statutory limits, although some do so with some minor modifications.[16] Only one plan imposed a maximum loan amount less than the statutory limit—in this case, a much lower limit of $15,000.

Plans can also place restrictions on the minimum loan size. In the most recent PSCA annual survey, only 5% of plans report having no minimum loan limit. Ten percent of plans report a limit of $500 or less; 82% report a limit between $501 and $1000; and the remaining 2% report some other limit. In our sample of Hewitt plan descriptions (Table 1A)[17], the minimum loan amounts are roughly in line with those in the PSCA survey: one quarter have a minimum loan amount of $500 or less[18]; 72% have a minimum loan amount between $501 and $1000; and 2.5% have a minimum loan amount greater than $1,000 (with one as high as $10,000). A handful of plans impose a lower minimum for general purpose loans (typically $500) than for primary residence loans (between $1,000 and $2,500).

Plans are allowed to charge both an application fee and an annual service fee for each 401(k) loan. Survey data from the PSCA suggest that such fees are becoming more common. In the 1990 PSCA survey, only 26% of plans reported having loan fees; in the 2005 survey, this number had risen to 84%. The most common fee is a loan origination or application fee, which 81% of 2005 PSCA plans report having; among these plans, the median application fee is $60. Twenty-eight percent of plans report charging an annual maintenance fee, with a median amount of $25. Seven percent of plans report charging some other sort of fee. In our sample of Hewitt plan descriptions, 41% either report having no fees or make no mention of any fees. Of the remaining plans, none report having any fees other than application fees, which range from $25 to $150, with a median of $50.[19]

Employers may allow participants to have more than one loan outstanding simultaneously, although the loans would in total be subject to the maximum loan size

[16] Other restrictions included additional limits on loan amounts for participants with assets allocated to a self-directed brokerage window or employer stock.
[17] Tables 1A-1C report summary statistics from the Hewitt plan descriptions for the full sample for which have such plan descriptions, and for the subsample of such plans for which we also have year-end cross-sectional data in 2002-2005 inclusive; we report statistics for the latter subsample to show the loan provisions for the plans that are used in some of the empirical analysis in the paper.
[18] Only one firm in the Hewitt sample has a loan minimum of less than $500.
[19] Three of the plans in the Hewitt sample have a higher fee for primary residence loans than for general purpose loans. One has a higher fee for loans requested through a benefits representative than for loans requested on the benefits website.

restrictions noted above. In the latest PSCA survey, about half of plans allow participants to have more than one loan outstanding. Large plans are much more likely to allow multiple loans than small plans; for example, 25% of plans with fewer than 50 participants allow multiple loans, while 66% of plans with over 5,000 participants do. Figure 4 shows the distribution of the maximum number of loans allowed in the 2005 PSCA survey.[20] Most (52%) allow only one loan, 36% allow two loans, and 7% allow three loans. Only 5% of plans allow four or more loans. In our sample of Hewitt plan descriptions, 33% restrict participants to only one loan; 56% allow participants to take out two loans, and 11% allow three or more loans.

Employers have some discretion in establishing loan repayment procedures. Loan payments are required at least quarterly and must pay down both principal and interest. In practice, many companies use automatic payroll deduction for loan repayments, so loan payments are made on a monthly or bi-weekly basis. The amortization period for a 401(k) loan can typically be chosen by participants, within a set of constraints established by the plan and dictated, in part, by regulatory requirements. One such requirement is that general purpose loans must be repaid within five years (although employers can choose a shorter maximum repayment horizon). Employers have discretion, however, to establish a longer repayment period for loans taken for investment in a primary residence. Early repayment of loans (potentially with a prepayment penalty) is allowed.[21]

Our only source of information on the distribution of loan amortization periods is the sample of Hewitt plan descriptions (Table 1B). In this sample, almost two-thirds of plans have a minimum duration of at least twelve months for general purpose loans; the rest either do not specify a minimum repayment period or specify a shorter minimum repayment period (usually one or six months). Over three-quarters of plans have a maximum repayment period for general purpose loans of 5 years, the statutory maximum; the remaining quarter specify a shorter repayment period, usually between 4 and 5 years, but there is 1 plan with a maximum repayment period of 3 years.

[20] This figure includes profit-sharing and 401(k) plans, as the PSCA does not report the distribution of permissible loans separately by defined contribution plan type. The overall fraction of profit-sharing and 401(k) plans allowing for more than one loan (which is reported separately for 401(k) and profit-sharing plans) is similar for both types of plans.

[21] Prepayment penalties appear to be rare. None of the plans in our Hewitt sample of plan descriptions impose a prepayment penalty.

Of the plans in the Hewitt plan description sample that offer loans, 73% allow both primary residence and general purpose loans (Table 1A). The main distinction between general purpose and primary residence loans is that the latter can have a longer repayment period.[22] Plans, however, must verify that the loan is being used for a primary residence. Thus, these loans require both additional documentation from applicants and additional processing by plan sponsors.[23] As with general purpose loans, the modal minimum repayment period for primary residence loans is 12 months. But plans often stipulate a longer minimum loan duration for primary residence loans. 40% of the Hewitt plans have a minimum repayment period exceeding 12 months for a primary residence loan, with a minimum repayment period ranging from 5 to 6 years being most common for this group. The maximum repayment length for the primary residence loans varies widely across plans, ranging from 117 months to 360 months in the Hewitt plan description sample. The modal maximum repayment duration is 180 months (15 years).

Loan repayments are made with after-tax dollars and are not counted as plan contributions (and thus do not count against annual plan contribution limits), even though both the principal and interest payments are credited to participants' accounts. Interest payments are not tax deductible, even if the purpose of the loan was for a primary residence, because the loan is not secured by the residence, which is the IRS requirement for mortgage interest tax deductibility.

Plans have discretion in determining the interest rate for 401(k) loans, although the interest rate chosen must be reasonable, meaning that it must be similar to what other financial institutions are charging for similar types of loans. In practice, most savings plans that allow loans peg their interest rates to the prime rate. In the most recent PSCA survey to report on how plans determine their interest rate for 401(k) loans, 86% of plans report pegging their interest rate to the prime rate. In our sample of Hewitt plan descriptions, 93% of plans peg their interest rate to the prime rate (Table 1C). There is, however, variation in the spread between the prime rate and the 401(k) loan rate. Of the Hewitt plans that peg their rate to the prime rate, 29% set the interest rate equal to the prime rate, 60% set it to the prime rate plus 1%, 5% set it to the prime rate plus 2%, and the remaining 5% use some other spread. There is also some variation in the

[22] As noted earlier, some plans also charge a higher application fee for primary residence loans.

[23] In plans that do not offer both general purpose and primary residence loans, participants can apply for a general purpose loan and use the proceeds for their primary residence. The potential disadvantage to participants would be that such a loan would have to be repaid in five years (or less if the plan sponsor has a shorter maximum loan duration).

frequency with which 401(k) loan interest rates are updated. Most (56%) of the Hewitt plans adjust their interest rate monthly, but 33% adjust it only quarterly, 4% adjust their interest rate daily, and the rest at some other frequency (including 1 plan that makes adjustment only once a year). This increases variability in the 401(k) loan rate across plans during periods when the prime rate is changing frequently.

We can look at the participant-level data from our sample of Hewitt plans to get a sense for how 401(k) interest rates vary across firms and how they have evolved over time. We use the set of 47 companies for which we have year-end data in 2002, 2003, 2004, and 2005. For each company, we calculate the median interest rate for loans originated in each month.[24] Because we have data on not only newly originated loans, but all loans outstanding at year-end, we can examine interest rates prevailing before the 2002-2005 time period. This gives us a time series of interest rates. Figure 5 shows, across the 47 firms, the median, 5th, and 95th percentile interest rate by loan origination month.[25] The median interest rate tracks the prime interest rate (not shown in the graph) fairly well. The difference between the 5th and 95th percentile interest rates across firms averages about 200 basis points (which is about the difference between the prime rate and the prime rate + 2%).

If a participant defaults on his or her loan, the outstanding balance at the time of default is treated as a taxable distribution from the plan and is subject to the 10% early withdrawal penalty for participants under the age of 59½.[26] If a participant's employment is terminated, loans must typically be repaid in full within a reasonable period of time, or the outstanding loan balance is treated as a taxable distribution from the plan. In some circumstances, however, firms may allow terminated employees to continue repaying their 401(k) loans (for example, after a large layoff). The Hewitt plan descriptions show some heterogeneity across firms in when a loan is deemed to be in default and when it becomes a taxable distribution, but generally, terminated participants

[24] Given the way companies set 401(k) loan interest rates, there tends to be little heterogeneity in interest rates for loans originated in a particular plan in a given month. That said, it is not the case that loan interest rates are uniform within a plan for a given month. This is why we use the median interest rate, which is almost always the modal interest rate (and quite often is also the 5th percentile and 95th percentile interest rates for loans originated in a particular plan-month). Heterogeneity in plan-month interest rates could arise from within-month movements in the prime rate, differential delays between loan application and disbursement, and participants of acquired firms who took out loans under their former plans.

[25] To be clear, Figure 5 shows, across the 47 firms, the 5th percentile of the median interest rate within firms, the median of the median interest rate within firms, and the 95th percentile of the median interest rate within firms.

[26] Plans may suspend loan payments for employees on active military duty and for employees on leave for a period of up to one year.

have 60 to 90 days to repay a loan before it becomes a taxable distribution. Current employees of the company have a similar amount of time to become current on a loan whose payments are in arrears.

IV. The Economics of 401(k) Loans

The existence of the 401(k) loan channel raises several economic questions. When does a 401(k) loan reduce borrowing costs compared to other sources of liquidity? How do 401(k) loans affect overall retirement wealth accumulation? How do 401(k) loans affect individual utility?

A reader of the popular press will quickly conclude that there is no consensus answer to these questions. Articles and websites with titles such as "Robbing Tomorrow to Pay for Today" and "401(k) Loans are Hazardous to Your Wealth" argue that 401(k) loans are a bad idea in general.[27] A recent study that was widely cited by the media suggests that 401(k) loans may decrease wealth accumulation at retirement by as much as 22% (Weller and Wenger, 2008). The study further asserts that 401(k) loans have "significant downsides" (p. 1), including the fact that borrowed money is not earning an investment return, the interest and principal payments are made with after-tax dollars, the interest paid on the loan is typically below the market rate of interest, and loans in default incur an immediate tax liability and possibly a 10% tax penalty.

Others, however, cite the advantages of 401(k) loans.[28] Loans from a 401(k) involve less paperwork. Many analysts in the popular press point out that the interest on a 401(k) loan is paid to oneself. These analysts sometimes neglect the opportunity cost of foregone returns on the funds that have been withdrawn from the 401(k) plan.

Most of the assessments of 401(k) loans make a host of unstated assumptions about what savings rates would be like in the absence of a 401(k) loan option, the utility value of the consumption funded by the 401(k) loan, whether another type of loan would be taken in the absence of a 401(k) loan, the interest rate that would be charged by these other sources of credit, the interest rate on the 401(k) loan relative to the rate of return on other assets in the 401(k) plan, and whether the loan is paid back in full. These assumptions importantly affect the conclusions about 401(k) loans' welfare consequences.

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[27] See Weller and Wenger (2008), Applegarth, and Reeves and Villareal (2008).
[28] See Reeves and Villareal (2008) and Applegarth.

To explore these issues, suppose a consumer has already decided upon a current expenditure level, and the only question is whether to finance the expenditure using a 401(k) loan or another source of credit. To simplify the analysis, assume that the loan is taken out in period 1 and that in period 2 the consumer repays the loan and liquidates all 401(k) balances for consumption. We can evaluate the welfare consequences of using each source of credit by comparing the after-tax dollars available for consumption in the second period, since consumption in the first period is equivalent regardless of the borrowing decision.

Let B denote 401(k) balances before the loan is taken, L the loan amount, r_P the (risk-adjusted) rate of return on assets in the savings plan, r_L the interest rate charged on the 401(k) loan, r_A the interest rate charged on the alternative source of credit, Y the labor income in the second period, and τ the tax rate.

With a 401(k) loan, after-tax consumption in the second period, C_L, is

$$C_L = Y(1-\tau) - L(1+r_L) + [(B-L)(1+r_P) + L(1+r_L)](1-\tau) \tag{1}$$

If an alternative source of credit is used, after-tax consumption in the second period is given by:

$$C_A = Y(1-\tau) - L(1+r_A) + B(1+r_P)(1-\tau) \tag{2}$$

Subtracting (2) from (1) yields the following expression:

$$C_L - C_A = L[(r_A - r_P) + \tau(r_P - r_L)] \tag{3}$$

If (3) is positive, then the 401(k) loan dominates the alternative source of credit. This expression cannot be signed without further assumptions.

The net advantage of the 401(k) loan relative to an alternative source of credit depends on four factors: the interest rate on the alternative source of credit, r_A , the rate of return on assets in the 401(k) plan, r_P , the interest rate on the 401(k) loan, r_L , and the tax rate, τ. The 401(k) loan becomes more attractive as the interest rate on the alternative source of credit increases. The 401(k) loan becomes less attractive as the rate of return on assets within the 401(k) plan increases because the opportunity cost of using 401(k) balances to fund the 401(k) loan increases. The 401(k) loan also becomes less attractive as the interest rate on the 401(k) loan increases because the interest payments on the 401(k) loan are taxed twice: payments are made with after-tax dollars, and they are taxed again when distributed. The impact of a higher tax rate on the attractiveness of a 401(k) loan is ambiguous and depends on the magnitude of the 401(k) loan interest rate relative to the rate of return on assets in the 401(k) plan. Intuitively, a higher tax rate increases the cost of the double taxation of 401(k) loan interest payments, but it also reduces the opportunity cost of giving up the rate of return on plan assets by taking out a loan.

There are a number of special cases in which expression (3) simplifies. The first is when $\tau = 0$. In this case, expression (3) reduces to $L[r_A - r_P]$, implying that a 401(k) loan will be preferred if the interest rate on the alternative source of credit exceeds the rate of return on assets within the plan—a likely outcome if the alternative source of credit is a credit card. The Joint committee on Taxation (2008) reports that 37% of households have no federal tax liability, and state income tax rates are generally quite low for most households. Thus, this is the right calculation in many cases.

Similarly, if r_L is equal to r_P, expression (3) again reduces to $L[r_A - r_P]$. This is also a leading benchmark, since "prime +1" is a typical 401(k) loan rate and also a reasonable approximation for the risk-adjusted return on assets within the 401(k) plan.

It is worth noting that the term $L\tau(r_P - r_L)$ in (3) is likely to be relatively unimportant even when $\tau \neq 0$ and $r_P \neq r_L$. The expression $L\tau(r_P - r_L)$ is the product of τ and $(r_P - r_L)$, scaled by L. Since both τ and $(r_P - r_L)$ are likely to be near zero, their product is likely to be near zero. Hence, $L\tau(r_P - r_L)$ is likely to be less important than $L(r_A - r_P)$.

Table 2 calculates the advantage of a 401(k) loan as a percent of loan size (that is, the part of expression (3) in brackets) for various combinations of r_A, r_L, r_P, and τ. We use three values of τ: 0%, 15%, and 35%. The first two tax rates, 0% and 15%, are the two most prevalent federal marginal tax rates (Joint Tax Committee, 2008), and 35% is the highest current federal marginal tax rate. Likewise, we use three values for r_P , 3% (approximately the current rate of return on money market funds), 5%, and 7%. We peg our assumed interest rates for the 401(k) loan and alternative sources of credit to the current prime rate of 5%. We use two values for r_L: 5% (the current prime rate) and 7% (the current prime rate + 2%), which encompass the prevailing range of 401(k) loan rates for the vast majority of 401(k) plans (see Section III). Finally, we consider three alternative sources of credit: a home equity loan, a personal loan for a purchase of a large durable (e.g., a car), and a personal credit card. Because mortgage interest is tax deductible, the effective interest rate on a home equity loan depends on a consumer's marginal tax rate; we assume that r_A for a home equity loan is equal to $6\% \times (1-\tau)$. The interest rate we assume for a personal loan is the prime rate plus 2%, in other words 7%. Finally, the interest rate we assume for a credit card loan is the prime rate + 10%.

The cells in Table 2 report the advantage of a 401(k) loan relative to alternative sources of credit for the various assumptions about tax rates, interest rates, and the return on assets in the 401(k) plan. Positive values indicate that a 401(k) loan maximizes second period consumption, negative values that the alternative credit source maximizes second period consumption. Note that for all of our calibrated cases, a 401(k) loan dominates borrowing on a credit card and increases second period consumption by 8% to 12% of the loan amount. The picture is somewhat more ambiguous for the other alternative sources of credit. A home equity loan is usually preferred (or only weakly dominated) for consumers with a very high marginal tax rate ($\tau =$ 35%). At lower tax rates (0% or 15%), it is preferred only in when the return on 401(k) assets is high (7% in Table 2). For the parameter values assumed in Table 2, a personal loan never dominates a 401(k) loan, but could be preferred if the expected rate of return on assets in the plan were higher than the values assumed in Table 2. For a 7% rate of return on plan assets, a personal loan and a 401(k) loan appear to be close substitutes.

Of course, the analysis above has made many simplifying assumptions, and relaxing these assumptions could affect some of the conclusions. For example, incorporating an application fee and a tax penalty upon default for a 401(k) loan would make such loans less attractive. There are additional potential costs associated with other forms of credit as well: home equity loans often come with application fees; home equity loans, personal loans, and credit card loans carry penalties for late payments; and although default on these loans does not carry a tax penalty, it may increase the cost of borrowing in the future.[29] These factors would make a 401(k) loan more attractive.

Much of the recent criticism of 401(k) loans has been made *not* on the grounds that a 401(k) loan is inferior vis-à-vis other sources of credit, but on the grounds that 401(k) loans are easy (i.e., tempting) credit. As such, loan provisions induce individuals to consume more today than they otherwise would have consumed, implicitly reducing saving. However, this purported negative "savings effect" is actually ambiguous.

The existence of a loan option has numerous consequences for wealth formation with *offsetting* effects. We now list these mechanisms and discuss their potential effects on wealth formation, including our best-guess estimate of their signs and magnitudes.

[29] 401(k) loan default is not reported to the credit bureaus and will not adversely affect an individual's credit rating.

- Enrollment effect (+): The existence of a loan option may increase 401(k) participation, since a loan option increases the flexibility (and hence the value) of 401(k) savings.[30] There are two existing studies that try to estimate the magnitude of this effect: General Accounting Office (1997) and Mitchell, Utkus, and Yang (2007). Both of these studies use cross-sectional plan-level variation to identify the loan effect on participation. The GAO study uses firm-level data from the 1992 IRS Form 5500 filings of over 7,000 plans and finds that plans with a loan option have a 401(k) participation rate that is 6 percentage points higher than plans without a loan option. Mitchell, Utkus, and Yang (2007) use participant-level data for over 500 plans in 2001 and find no difference in participation rates between plans with and without a loan option. Because there are many differences between the types of firms that have a loan provision and those that do not, a causal interpretation of these cross-sectional regressions is problematic, although the results are certainly suggestive. This is clearly an issue on which more research is needed. Finally, to the extent that loan availability *does* generate new 401(k) participation, the positive 401(k) enrollment effect may crowd out savings elsewhere. This crowd-out effect also needs to be measured when accounting for the positive effect of loan availability on (total) savings.
- Contribution rate effect (+): The existence of a loan option may increase average 401(k) contribution rates (conditional on enrollment), since a loan option increases the effective liquidity of 401(k) savings. Balances in a 401(k) plan are probably less likely to be spent (even with a loan option) than balances in a regular investment account, particularly if that alternative investment account is not a tax-deferred retirement account with a withdrawal penalty. GAO (1997) estimates that employee contributions are 35% higher in plans with a loan provision than in plans without a loan provision. Mitchell, Utkus, and Yang (2007), despite estimating that a loan provision has no impact on plan participation, do find that a loan option increases plan contributions by 10% (from a base contribution

[30] Love (2007) simulates a stochastic life-cycle model of consumption and savings under various assumptions about 401(k) plan provisions. The paper does not examine 401(k) loans specifically, but does consider the impact of liquidity by comparing participation and contributions with and without a 10% early withdrawal penalty. Simulated 401(k) participation rates are substantially higher for some groups of workers without the early withdrawal penalty. See also Love (2006).

rate of 6.1% to 6.7%).[31] Similar effects on employee contributions are estimated by Holden and VanDerhei (2001), who use participant-level data from 1999, and by Munnell, Sunden, and Taylor (2000) using individual-level data from the 1998 Survey of Consumer Finances.[32] The potential crowd-out concerns mentioned above would also apply to new 401(k) savings resulting from increased contribution rates.

- Borrowing cost effect (+/-): The existence of a loan option may reduce borrowing costs (as discussed above), which could either reduce or raise savings depending on whether the substitution effect or the income effect dominates.
- Credit availability effect (-): The existence of a loan option may increase the likelihood of borrowing, since a loan option makes 401(k) savings liquid. Without a loan provision, withdrawals from a 401(k) are only available under conditions of financial hardship or after an employee separates from the firm.
- Repayment crowd-out effect (-): The repayment of a loan may crowd out existing savings flows (whether the loan is a 401(k) loan or a loan from an alternative source). To the extent that loan repayment displaces existing contributions, asset accumulation is reduced.
- Credit bureau default *reporting* effect (+/-): Loans from a 401(k) are repaid through payroll deduction. If a default occurs (e.g., at separation) the default is coded as a distribution. Hence, with a 401(k) loan, there is no risk that a default will be reported to a credit bureau. Since the *report* of a default raises future borrowing costs, eliminating the chance of such reports lowers expected future borrowing costs.
- Default effect at separation (-): A 401(k) loan raises default risk upon separation from the firm, since a 401(k) loan must be repaid in full at the time of separation. Such a default is not reported to credit bureaus since the borrower is defaulting on a loan to herself. However, the default does terminate loan repayments—prematurely ending the flow of deposits into the 401(k) account—and generates an immediate tax liability. Conversations with plan administrators suggest that the default rate upon separation is

[31] This result is for employees who are not classified as highly compensated according to the IRS non-discrimination rules, and includes the vast majority of plan participants.

[32] Holden and VanDerhei (2001) estimate that having a loan provision increases the average contribution rate of savings plan participants by 0.6 percentage points using administrative data from 1999 for a large sample of 401(k) plans. Munnell, Sunden, and Taylor (2000) find that being able to borrow against plan balances increases the average contribution rate of savings plan participants by 1 percentage point.

approximately 25% conditional on having a 401(k) loan. However, the effect of separation-related defaults on wealth formation is likely to be relatively insignificant in aggregate for two reasons. First, only a small fraction of employees terminate employment with an outstanding loan balance. Second, in our Hewitt participant-level data, the median outstanding loan balance for terminated employees whose loans are not repaid is only about $100.

Of the effects listed above, we believe that only the enrollment effect (+), the contribution rate effect (+), the credit availability effect (-), and the repayment crowd-out effect (-) are potentially large. Table 3 estimates the potential savings (rate) impact of having a loan provision. We analyze two sets of benchmark assumptions: pessimistic assumptions in which the potential positive effects on savings are small and the negative effects are large, and optimistic assumptions in which the potential positive effects on savings are large and the negative effects are small.

We first calculate the direct effect of having a loan option on savings—the participation and contribution rate effects described above. We assume that the initial 401(k) participation rate is either 60% (pessimistic scenario) or 70% (optimistic scenario), numbers that are roughly in line with prevailing participation rates in companies that do not have automatic enrollment. We then assume that the impact of having a loan option on plan participation is either nil (pessimistic scenario, based on Mitchell, Utkus and Yang, 2007) or a 6 percentage point increase in participation (optimistic scenario, based on GAO, 1997). We assume that the impact of having a loan option on the average contribution rate to the plan is either a 0.6 percentage point increase (pessimistic scenario, based on Mitchell, Utkus and, Yang, 2007 and Holden and VanDerhei, 2001), or a 1.0 percentage point increase (optimistic scenario, based on Munnell, Sunden and Taylor, 2000).

Under our pessimistic set of assumptions, having a 401(k) loan option increases contributions to the savings plan by 0.6% × 0.60 = 0.36% of pay (a 0.6 percentage point increase in the average contribution rate multiplied by a participation frequency of 0.60). However, some of these contributions may simply reflect savings reshuffled from other parts of the balance sheet. Assuming a (pessimistic) 50% crowd-out rate results in a net increase in the average total savings rate of 0.18% of income. Under our optimistic set of assumptions, having a 401(k) loan option increases contributions to the savings plan by (6% × 0.06) + (1% × 0.76) = 1.12% of pay (a 6 percentage point increase in the contribution rate for 0.06 fraction of the workforce plus a 1 percentage point increase in the contribution rate for 0.76 fraction of the workforce). With an (optimistic) 25% crowd-out rate, the increase in the average total savings rate is 0.84% of income.

Offsetting these potential savings increases are any leakages caused by the credit availability and repayment crowd-out effects. In the sample of Hewitt firms for which we have participant-level data, the average monthly loan repayment in 2005 is $125 (Table 7). Among participants with a loan in our Hewitt data, the average number of outstanding loans is 1.4. If we assume an average annual pay of $40,000, then the average loan repayment is ($125 × 1.4 × 12)/$40000 = 5.25% of pay. But only 20% of participants have a loan, so the average loan repayment across all participants is 1.05% of pay. If loan repayments completely crowd out existing contributions (our pessimistic scenario), 401(k) loans represent a savings reduction of the same magnitude—1.05% of pay. Alternatively, loan repayments could only partially crowd out existing savings. In our optimistic scenario, we assume that only 25% of loan repayments crowd out existing contributions, resulting in a total decline in savings due to loans of only 0.26% of pay.[33]

We also need to account for the fact that 401(k) loans may not represent a net drain on saving if they are efficiently financing consumption that would have taken place anyway, rather than inducing new consumption. In the pessimistic scenario, we assume a 50% credit availability effect: half of the consumption financed by the loan is consumption that would not have taken place without a 401(k) loan option. The total consumption leakage from having a 401(k) loan option is then 0.53% of pay (1.05% × 0.5).[34] With a smaller credit availability effect of 10% in our optimistic scenario, the total consumption leakage effect is only 0.03% of pay (0.26% × 0.10).

Adding all these effects together, the total impact on savings from having a 401(k) loan option is a savings reduction of 0.35% of pay under our pessimistic assumptions, and a savings increase of 0.81% of pay under our optimistic assumptions. If the truth lies somewhere in the

[33] See Poterba, Venti and Wise (1995), Engen and Gale (2000), and Pence (2001) for differing views on the extent to which 401(k) contributions crowd-out other forms of saving.

[34] This assumes that the savings crowd-out effect is the same whether a loan is a 401(k) loan or some other type of loan.

middle, then the estimates are inconsistent with a large negative savings impact of 401(k) loan provisions. Of course, as many of the parameter estimates used in our calculations are best guesses rather than based on solid evidence, these conclusions are only suggestive. But they are corroborated to some extent by the research findings of Li and Smith (2008) who examine the savings behavior and wealth accumulation of households in the SCF who do and do not have an outstanding 401(k) loan. Li and Smith find that 401(k) contribution rates are similar for households that do and do not have an outstanding 401(k) loan, suggesting that the extent of loan repayment crowd-out may not be large. They also find that households with 401(k) loans have a higher share of their financial assets in a 401(k) and a lower share in other financial assets, consistent with a positive contribution rate effect from 401(k) loan availability. Finally, they find no difference in the rate of growth in household wealth between 1992 and 2004 for households who have access to 401(k) loans relative to households without access to such loans, suggesting that the overall effect of 401(k) loans and wealth is small, as with our calibration here.[35]

V. 401(k) Loan Utilization

We now turn to an assessment of how individuals actually use 401(k) loans. Figure 7 plots the fraction of 401(k) participants in plans with a loan option who have at least one outstanding 401(k) loan as reported by the PSCA, as reported by the Investment Company Institute (using the EBRI/ICI data), and from our own calculations using the Hewitt data.[36] In the EBRI/ICI data, the fraction of participants with a loan has been relatively stable over time, ranging between 16% and 19%. The fraction of participants with a loan is somewhat higher in the PSCA surveys, ranging from 19% to 33%. In the Hewitt participant-level data, a nearly constant 23% of participants have a loan between 2002 and 2005. If we restrict the Hewitt sample to participants who remain employed at the same company for all four years, 12.7% have a loan in any given year, and 28.4% have a loan at some point over the entire four-year period.

The first two columns of Table 4 show the fraction of participants in plans with loan provisions who have a 401(k) loan by select demographic characteristics. The numbers in

[35] Note that the SCF is not a panel dataset, so the comparison of the rate of growth in wealth from 1992 to 2004 is based on cross-sectional wealth estimates for the households with and without access to 401(k) loans in each of the SCF survey years.
[36] See footnote 10 for the source of the statistics from the EBRI/ICI database. The PSCA statistics come from various issues of their "Annual Survey of Profit Sharing and 401(k) Plans."

column 1 are from the EBRI/ICI data for calendar year 2005, and the numbers in column 2 are from the Hewitt data at year-end 2005. Loan utilization follows a hump pattern with respect to age, peaking around 22% in the EBRI/ICI data and 28% in the Hewitt data for employees in their 40s. Employees in their 20s or 60s have substantially lower loan utilization rates between 10% and 15%. Loan utilization also follows a hump pattern with respect to tenure, peaking at around 26% in the ICI data and 34% in the Hewitt data for employees with 10 to 20 years of tenure. Employees with two or fewer years of tenure have very low utilization rates of 5% or less, likely reflecting the fact that employees must accumulate some balances in their savings plan before they can take out a loan. Loan utilization shows a generally declining pattern with respect to account balances, decreasing from between a quarter and a third of participants with balances between \$10,000 and \$40,000 to between 16% and 22% of participants with balances in excess of \$100,000. The one exception to this pattern is the low 12% to 13% utilization rate for employees with \$10,000 or less in balances, once again reflecting the fact that participants must accumulate a certain level of balances before a loan is a feasible option. Loan utilization rates are highest for middle-income participants (\$40,000 to \$100,000 in annual income), although the variability in utilization rates with respect to income is lower than the variability with respect to age, tenure, and account balance.

Figure 8 plots the size of total outstanding loan balances relative to overall year-end account balances for participants who have an outstanding 401(k) loan (the loan balance is excluded from the total account balance in the denominator).[37] In the EBRI/ICI data, loan balances as a fraction of total balances have declined slightly over time, from 16% in 1996 to 12% in 2006. The calculations for our sample of Hewitt participants show a similar trend for the years that overlap with the EBRI/ICI data, although the average loan-to-balance ratio is 5 to 6 percentage points higher in the Hewitt data than in the EBRI/ICI data.[38]

As with loan utilization, there are significant differences in the size of outstanding loan balances relative to 401(k) account balances for different demographic groups. These are shown in the third column of Table 4 for the EBRI/ICI data at year-end 2005, and in the fourth column

[37] For participants with more than one 401(k) loan, these calculations use total outstanding loan balances summed across all loans relative to total account balances.
[38] We eliminate the top and bottom 0.5% of the loan-to-balance observations in our Hewitt sample in order to reduce the impact of outliers on the calculation of the average loan-to-balance ratio.

for the Hewitt data at year-end 2005. In both data sets, loan balances relative to account balances decrease with age, tenure, account balances, and salary.

Figure 9 shows the average dollar value of outstanding 401(k) loan balances as reported by the PSCA, as reported by the Investment Company Institute (using the EBRI/ICI data), and from our own calculations using the Hewitt data. Average outstanding balances are very similar in all three data sources and are in the range of about $7,000 for the last couple of years for which data are available. They have increased slightly over time in the EBRI/ICI data and somewhat more substantially in the PSCA data.

Table 5 shows the distribution of the number of loans per participant in our Hewitt sample in 2005. Seventy-six percent of participants have no outstanding loans; 17% of participants have only one outstanding loan; 7% of participants have two outstanding loans; and less than 1% of participants have three or more outstanding loans (only 9% of plans in this participant-level sample allow participants to take out three or more loans). The last two columns of Table 5 show the average total outstanding loan to balance ratio and the average total outstanding loan balance broken down by the number of outstanding loans held by participants. Not surprisingly, the loan to balance ratio and the total outstanding loan balance both increase with the number of loans outstanding. For participants with only one outstanding loan, loans represent less than 10% of total balances, and the average outstanding loan balance is $5,720. In contrast, for participants with three or more loans, loans represent 22% of total balances, and the average outstanding loan balance is $11,757. Participants with exactly two outstanding loans lie in the middle, with a loan to balance ratio of 17% and a total outstanding loan balance of $8,878.

Because many of the demographic characteristics associated with loan utilization and the size of loan balances are highly correlated with each other, Table 6 reports coefficients from regressions of loan utilization and loan balances as a fraction of total balances on the demographic characteristics in Table 4 using the Hewitt participant-level data from year-end 2003 for the 47 plans in our sample with a loan feature.[39] Column (1) shows linear probability regression results for having a 401(k) loan as a function of only demographic characteristics. Column (2) then adds a set of plan loan feature variables: whether the plan offers primary

[39] We restrict the sample in these regressions to the year-end 2003 data because these data correspond most closely with the dates of the plan descriptions in our sample. As plans do change their provisions over time, restricting the data to the extract that most closely corresponds to the information in the plan descriptions reduces the amount of measurement error in the plan variables used in the regression.

residence loans, the maximum number of loans permitted by the plan, how the loan interest rate is set, whether there is an application fee, the minimum loan amount for a general purpose loan, the minimum loan duration for a general purpose loan, and whether the maximum loan duration for a general purpose loan is less than or equal to 5 years.

The regression coefficients on the demographic variables do not change much when the plan feature controls are added. They are also broadly consistent with the loan utilization patterns in Table 4, although there are some differences that result from the correlation between the various demographic characteristics. The regressions suggest that loan utilization rates are highest for participants in their 30s (not their 40s as in Table 4), for participants with 20 to 30 years of tenure (not 10 to 20 years of tenure as in Table 4), and for participants earning less than $40,000 per year (not $40,000 to $60,000 as in Table 4).

Some interesting patterns emerge from the coefficients on the 401(k) loan features in column (2) of Table 6.[40] 401(k) loan utilization is higher in companies that allow employees to take out multiple loans. Loan utilization is negatively related to the interest rate charged on 401(k) loans; participants in plans with an interest rate in the >prime+1% to prime + 2% range are 9 percentage points less likely to have a 401(k) loan than participants in plans with an interest rate equal to the prime rate. Loan utilization is also negatively related to the minimum loan amount; participants are 7 percentage points less likely to have a loan if the minimum loan amount exceeds $500 (usually this higher minimum is $1,000) than if it is $500 or less. These findings suggest that firms can discourage 401(k) loan utilization by making such loans more difficult to obtain (e.g., by increasing the minimum loan amount) or by making them less attractive economically (e.g., by charging a higher loan interest rate).

Columns (3) and (4) of Table 6 report the results of OLS regressions where the dependent variable is the size of the participant's outstanding 401(k) loan balance as a percent of total account balances, conditional on having a 401(k) loan, with demographic controls only (column 3) or with controls for plan features as well (column 4). As with the loan utilization regressions, controlling for plan features in the balance size regressions does not qualitatively change the

[40] The sample size for the regressions in columns (2) and (4) is smaller than that for the regressions in columns (1) and (3) of Table 6 because there are four firms for which we have participant-level data but for which we do not have plan documents from which to code the loan features. Participants in these four firms are included in the specifications in columns (1) and (3), but are necessarily excluded from the regressions including plan loan feature variables. We have verified that the regression results in columns (1) and (3) are qualitatively similar whether or not these four firms are included.

demographic coefficients. As in Table 4, the loan-to-balance ratios of participants with a loan decrease quite substantially with account size. The differences with respect to age, tenure, and salary, however, are more muted in the regressions of Table 6 than are the simple group averages in Table 4. All of the loan feature variables in the column (4) regression specification are either statistically insignificant or economically small, suggesting that loan features are less important determinants of the loan-to-balance ratio for those who have loans than they are of having a loan in the first place.

Table 7 reports the distribution of 401(k) loan characteristics for newly originated loans in our Hewitt participant-level data over the 2002 to 2005 time period. The vast majority of loans—almost 98%—are general purpose loans rather than primary residence loans. The administrative data give no further insights into the purposes for which individuals take out 401(k) loans. The Survey of Consumer Finances, however, does collect more detailed information on the reasons why individuals borrow from their retirement savings plans. These are presented in Table 8 for 1998, 2001, and 2004. Interestingly, between a quarter and a third of of 401(k) loan recipients report using the loan for either a home purchase or home improvement, uses that would potentially qualify for a longer-term primary residence loan. This far exceeds the fraction of individuals in the Hewitt administrative data who take out a primary residence loan. These findings are not necessarily inconsistent. Individuals could take out a general purpose loan and use the proceeds for a primary residence; in this case, they would simply have to repay the loan within the five-year maximum legal time limit (or sooner, if their plan specifies a shorter maximum repayment period). The advantage of doing this is that a general purpose loan requires less documentation and, in some plans, also has a lower application fee. Other significant reasons cited for obtaining a 401(k) loan include the purchase of a vehicle (10% to 15%), education, medical expenses or other professional service expenditures (12% to 27%), and the purchase of goods and other services (26% to 36%). Note that many of these categories represent expenditures frequently financed with loans (homes, vehicles, and education), suggesting that some 401(k) loans may be substituting for other sources of credit at potentially better terms.[41]

As shown in Table 7, the median loan amount taken out for newly originated loans was $3,850 in 2005, with a 5th percentile amount of $730 and a 95th percentile amount of $24,680.

[41] However, Li and Smith (2008) argue that households could be even more aggressive in substituting 401(k) loans for other sources of credit. According to their estimates, such substitutions could save households with 401(k) loans available to them approximately $200 per year on average.

Over the 2002 to 2005 time period covered by our data, only 0.4% of loans were made for $50,000, the maximum legal amount. More were surely made at the 50% of plan balances threshold, although we cannot assess how binding that constraint is on loan size, since we do not have balance data at exactly the time each participant took out a loan.

Despite the fact that most plans do allow participants to take out a general purpose loan for the full legal maximum duration of five years, most participants choose a much shorter repayment period. In 2005, 19% of loans were taken out with a repayment period of less than two years; another 19% had a repayment period of two to three years. Only 24% had a repayment period of five years or more.

The distribution of interest rates for new loans is shown both in Table 7 and Figure 6. Table 7 shows the distribution for new loans taken out during the 2002-2005 time period. Figure 6 shows the distribution for all loans in our Hewitt loan data, even for those that were initiated before 2002. Figure 6 differs from Figure 5 in that Figure 5 shows the distribution of the median loan interest rate across firms by loan origination date, whereas Figure 6 shows the distribution of loan interest rates for all loans. Table 7 largely mirrors the picture in Figure 6. There is more variation in interest rates in 2005, when the prime rate—and as a consequence, 401(k) loan interest rates—increased consistently for several months; the prime rate was relatively more stable in the 2002 to 2004 period.

The median monthly repayment amount for new loans is $125 in 2005, but the 5th percentile repayment amount is just $28 per month, whereas the 95th percentile repayment amount is $566 per month.

VI. Conclusions and Future Research

This paper has documented the types of loan provisions in 401(k) savings plans and how participants use 401(k) loans. It has also outlined the factors that affect how 401(k) loans compare to other sources of credit, and how 401(k) loans may affect total wealth accumulation.

We believe the latter issue—how 401(k) loans affect total wealth accumulation—is particularly interesting and important. But the answer to this question depends on several parameters about which little is currently known. How does having a loan option affect 401(k) participation? How does having a loan option affect contribution rates? Does having a 401(k) loan option encourage consumption that otherwise would not have taken place? Or do 401(k) loans largely represent efficient financing of consumption that would have occurred even in the absence of a 401(k) loan option? What fraction of loans are repaid, and what fraction experience default? How does this compare to the default rates on alternative sources of financing? These are all questions we hope to answer in our future research on 401(k) loans.

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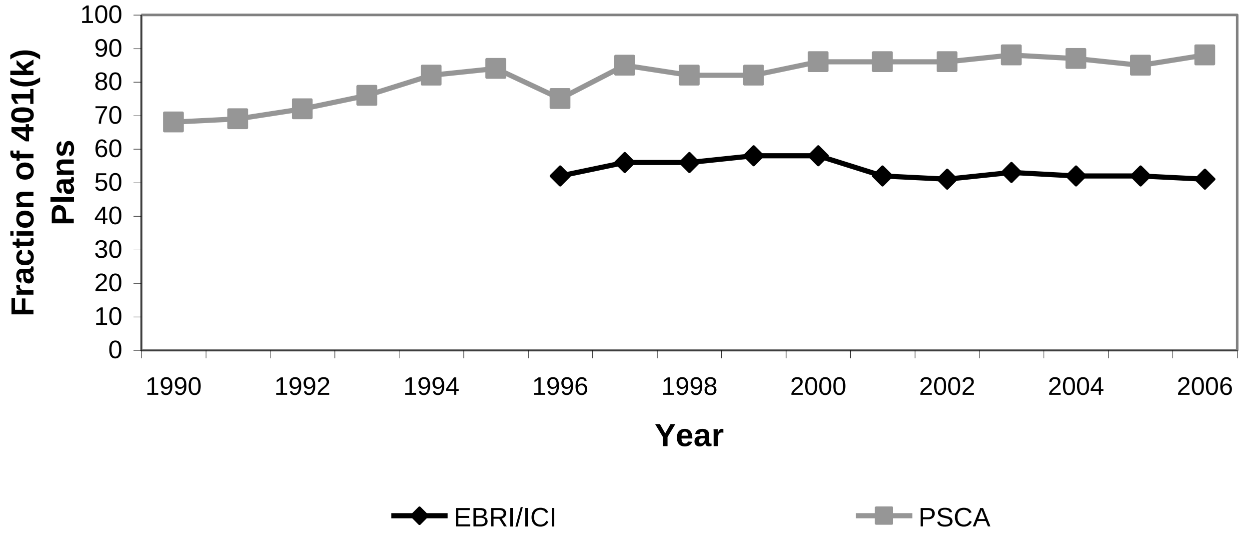
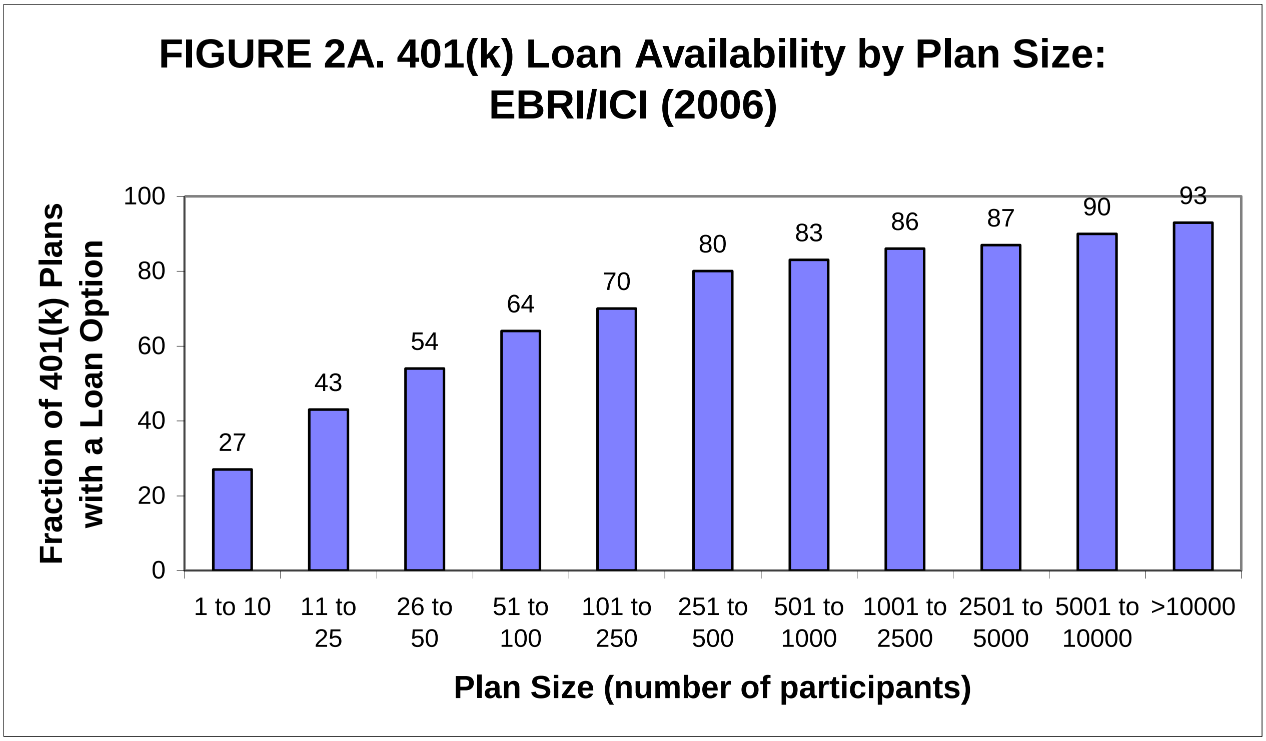
Weller, Christian E., and Jeffrey B. Wenger (2008). “Robbing Tomorrow to Pay for Today,” Center for American Progress, Washington, DC.

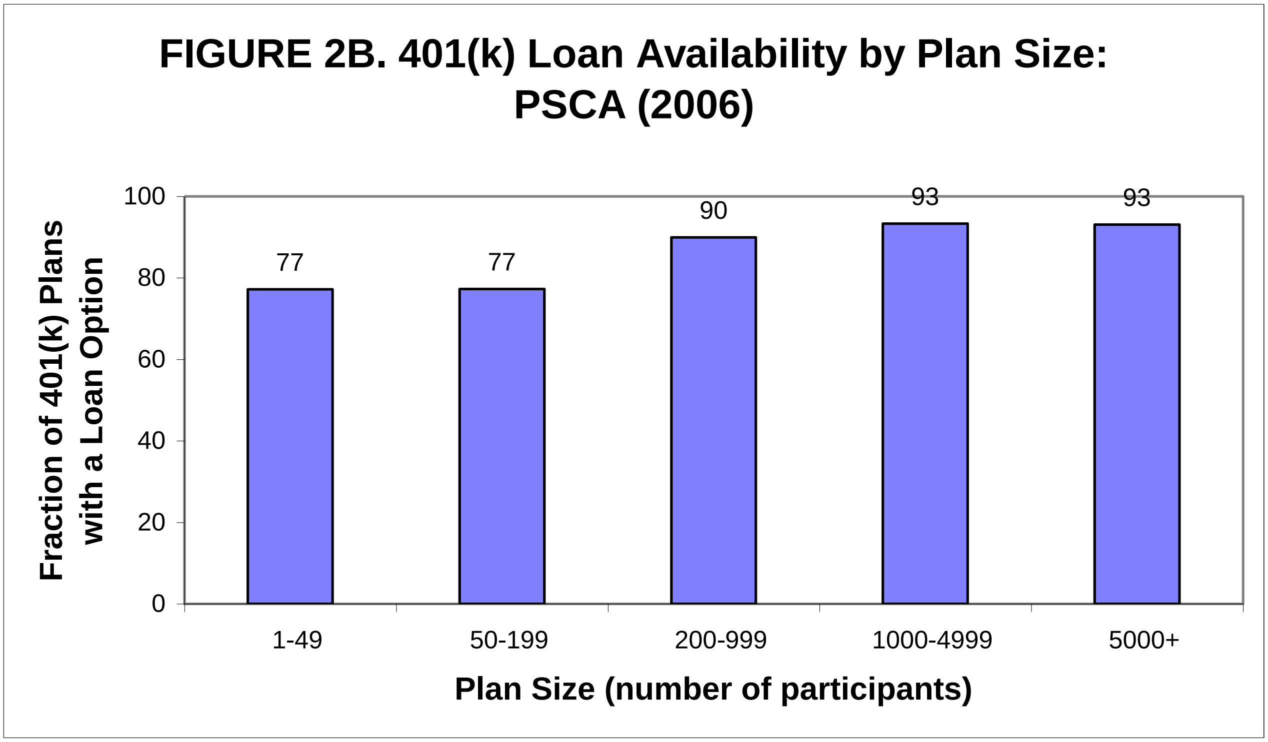
FIGURE 1. Fraction of 401(k) Plans with a Loan Option (1990-2006)



Source: EBRI/ICI statistics come from a series of reports put out by the Investment Company Institute starting in 1999, including the first report by VanDerhei, Galer, Quick and Rea (1999), and the most recent report by Holden, VanDerhei, Alonso and Copeland (2007); these publications and those for the intervening years are available at: http://www.ici.org/statements/res/arc-ret/index.html#TopOfPage. PSCA statistics come from various issues of the Profit Sharing/401(k) Council of America “Annual Survey of Profit Sharing and 401(k) Plans.”



Source: EBRI/ICI statistics come from a series of reports put out by the Investment Company Institute starting in 1999, including the first report by VanDerhei, Galer, Quick and Rea (1999), and the most recent report by Holden, VanDerhei, Alonso and Copeland (2007); these publications and those for the intervening years are available at: http://www.ici.org/statements/res/arc-ret/index.html#TopOfPage.



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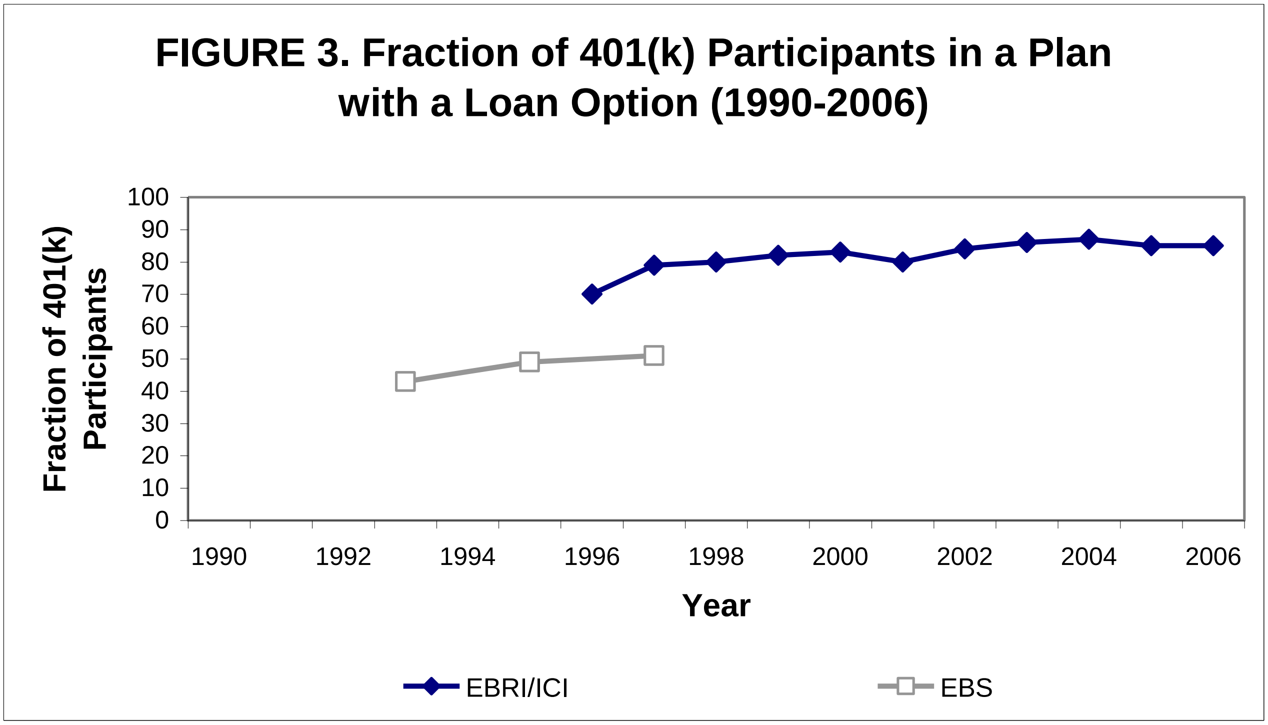

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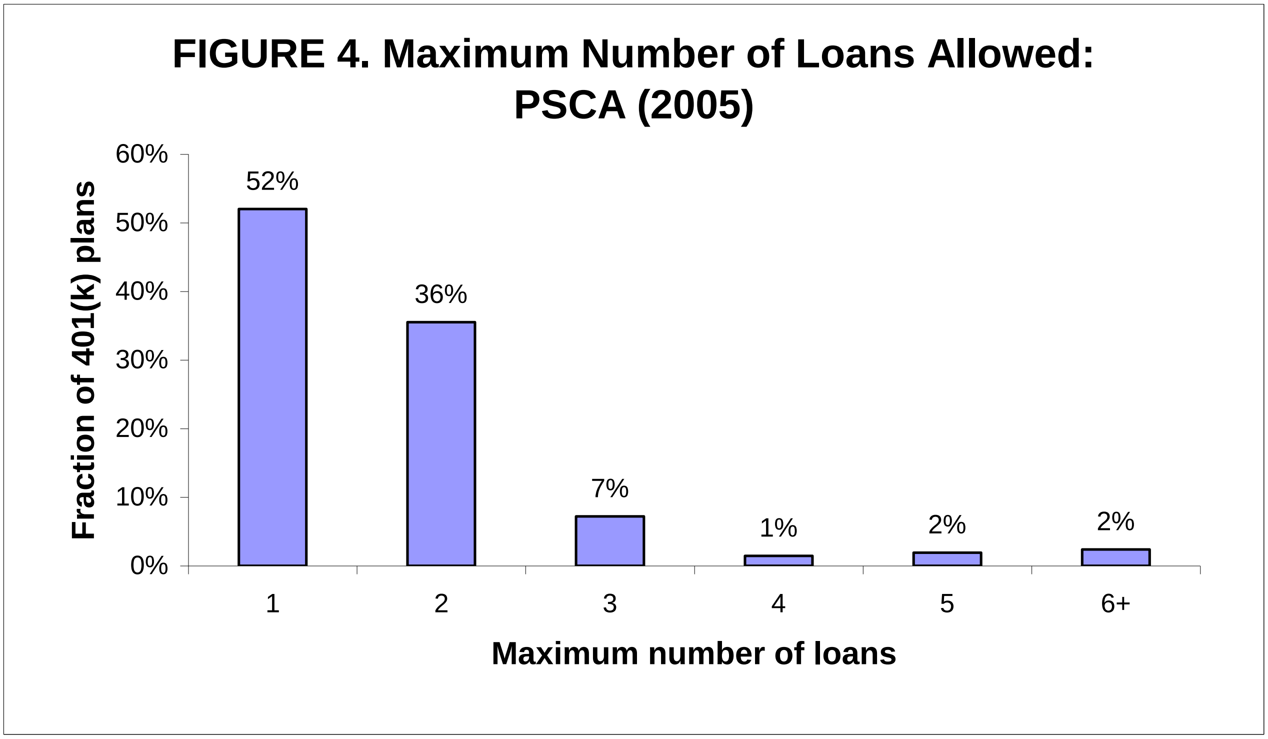
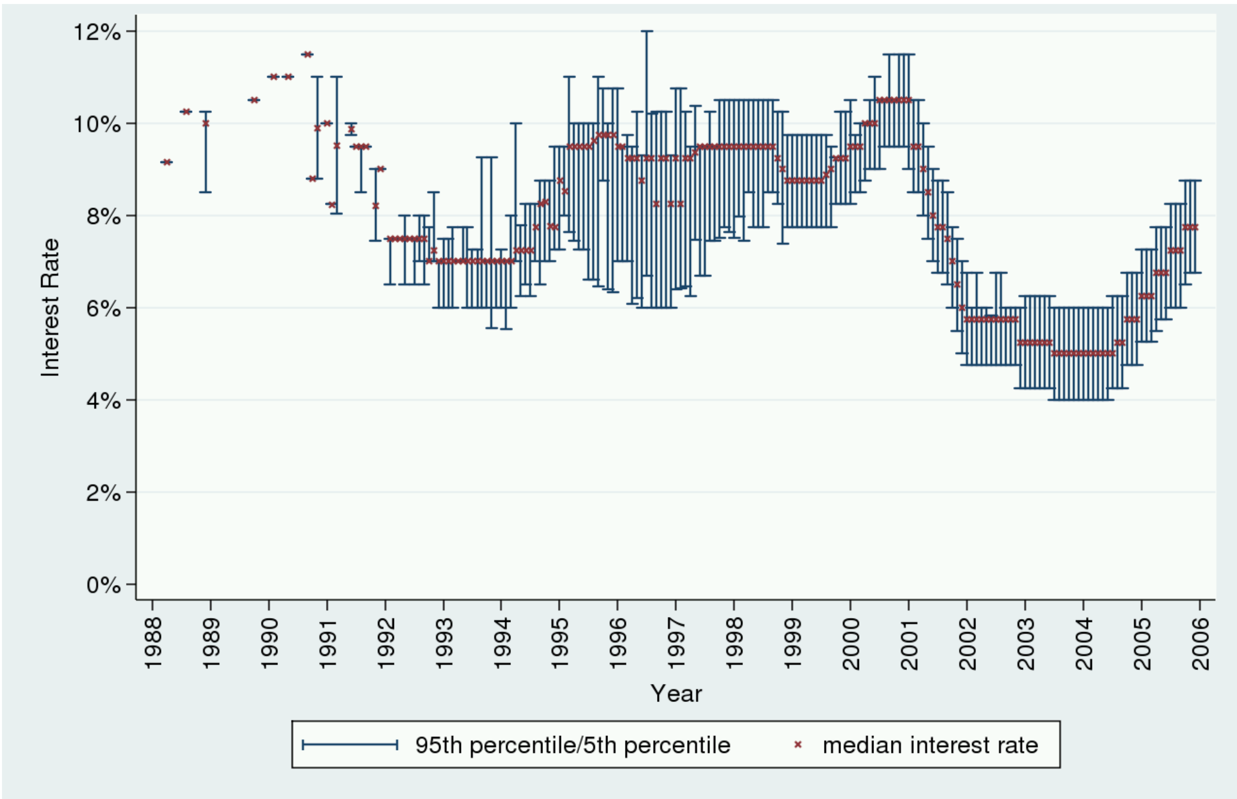


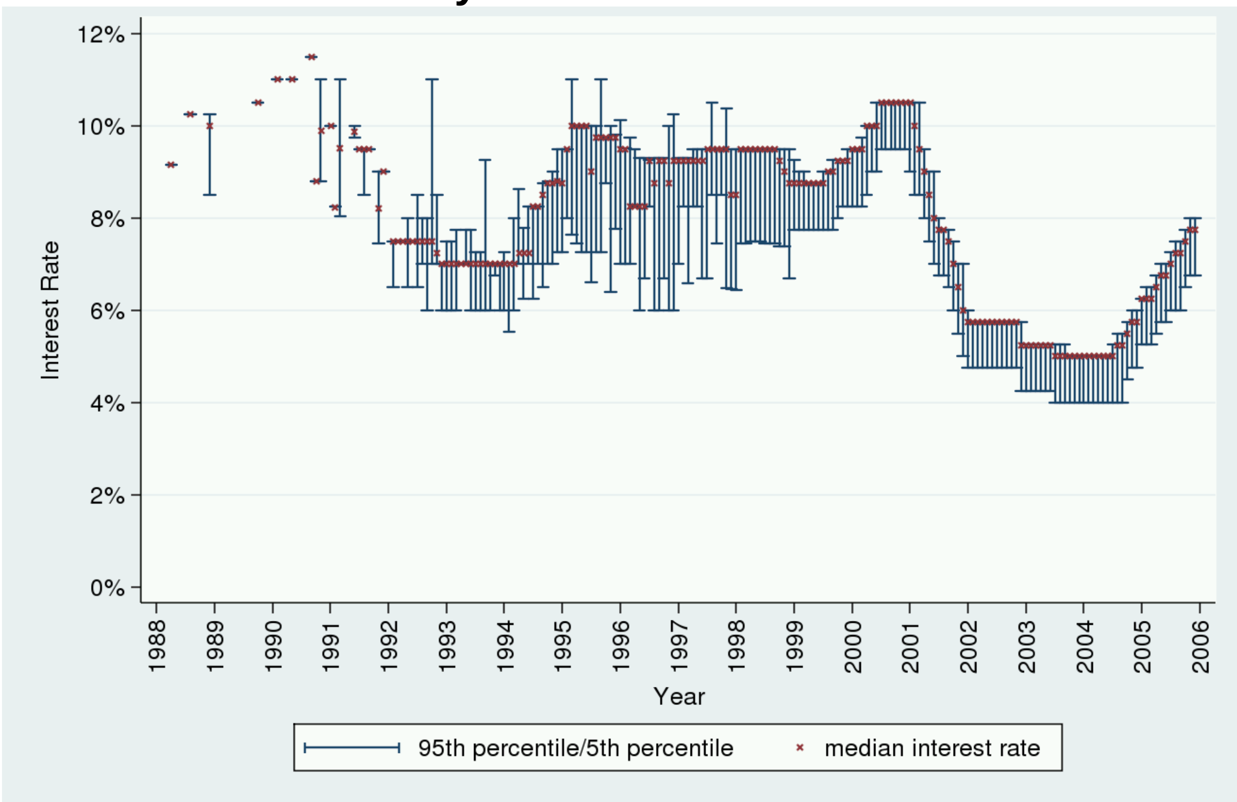
Source: PSCA statistics come from various issues of the Profit Sharing/401(k) Council of America "Annual Survey of Profit Sharing and 401(k) Plans."

FIGURE 5. Distribution of 401(k) Loan Interest Rates by Plan: 1988-2005

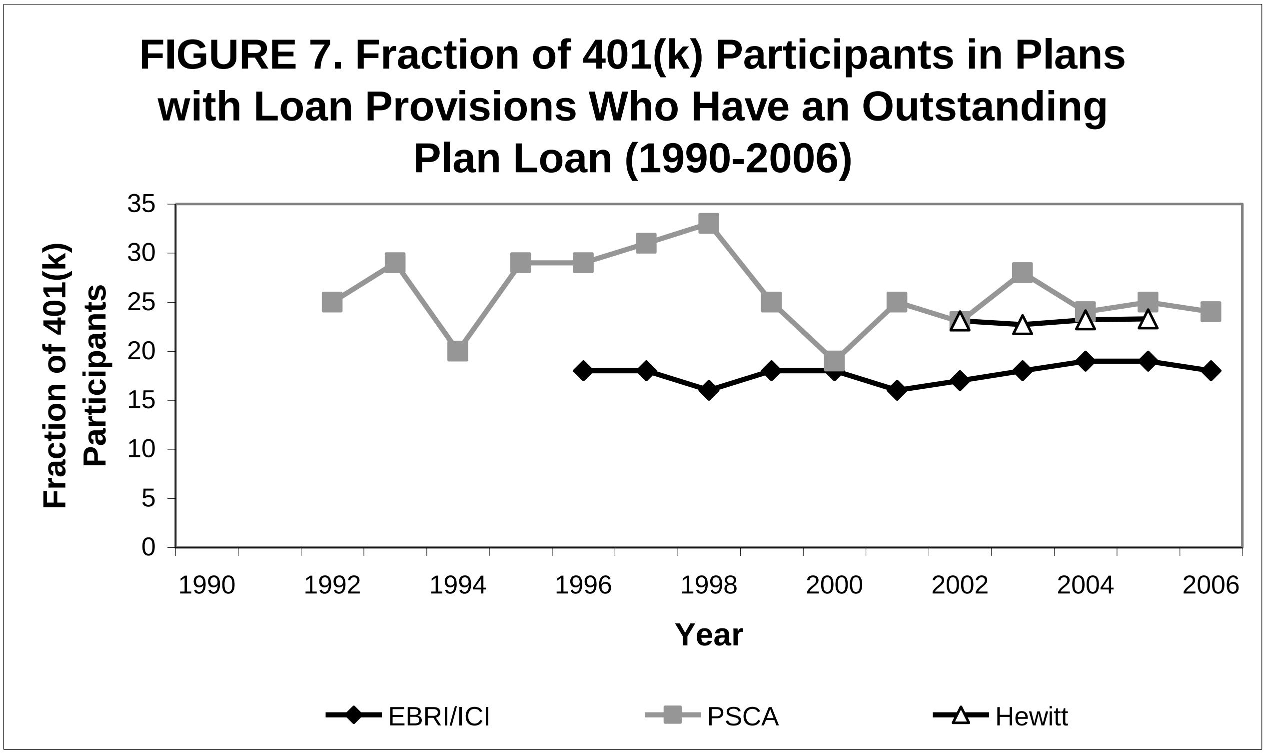


Source: Authors' calculations using the Hewitt participant-level data.

FIGURE 6. Distribution of 401(k) Loan Interest Rates by Loan: 1988-2005

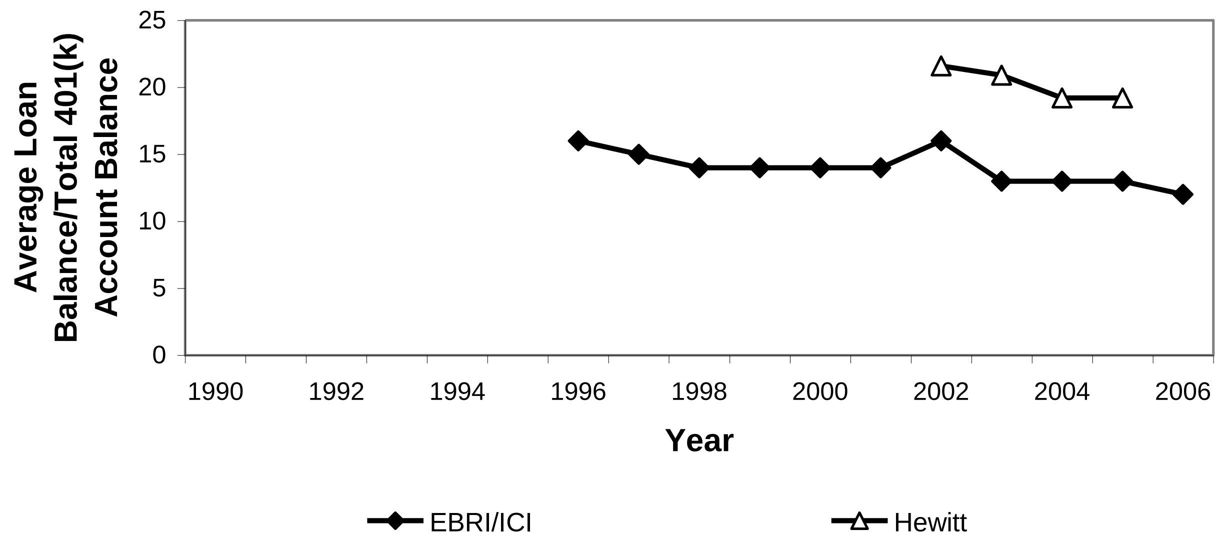


Source: Authors' calculations using the Hewitt participant-level data.



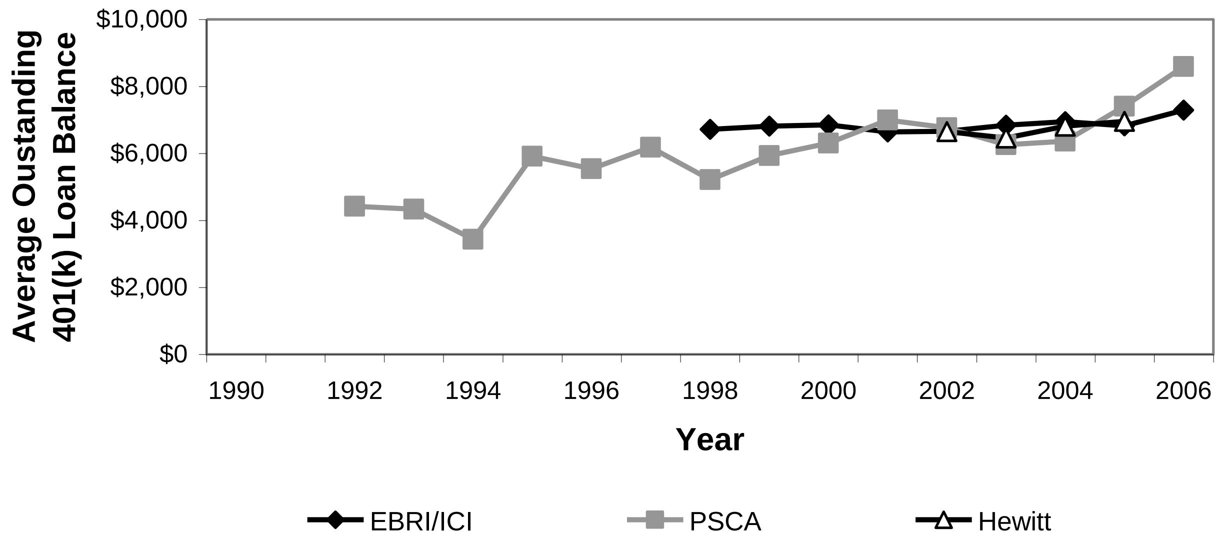
Source: EBRI/ICI statistics come from a series of reports put out by the Investment Company Institute starting in 1999, including the first report by VanDerhei, Galer, Quick and Rea (1999), and the most recent report by Holden, VanDerhei, Alonso and Copeland (2007); these publications and those for the intervening years are available at: http://www.ici.org/statements/res/arc-ret/index.html#TopOfPage. PSCA statistics come from various issues of the Profit Sharing/401(k) Council of America "Annual Survey of Profit Sharing and 401(k) Plans." Hewitt statistics come from the authors' calculations using the Hewitt participant-level data.

FIGURE 8. Outstanding Loan Balances as a Fraction of Total 401(k) Balances (1990-2006)



Source: EBRI/ICI statistics come from a series of reports put out by the Investment Company Institute starting in 1999, including the first report by VanDerhei, Galer, Quick and Rea (1999), and the most recent report by Holden, VanDerhei, Alonso and Copeland (2007); these publications and those for the intervening years are available at: http://www.ici.org/statements/res/arc-ret/index.html#TopOfPage. Hewitt statistics come from the authors' calculations using the Hewitt participant-level data. In the Hewitt data, we eliminate the top and bottom 0.5% of the loan-to-balance observations in order to reduce the impact of outliers on the calculation of the average.

FIGURE 9. Average Outstanding 401(k) Loan Balances (1990-2006)



Source: EBRI/ICI statistics come from a series of reports put out by the Investment Company Institute starting in 1999, including the first report by VanDerhei, Galer, Quick and Rea (1999), and the most recent report by Holden, VanDerhei, Alonso and Copeland (2007); these publications and those for the intervening years are available at: http://www.ici.org/statements/res/arc-ret/index.html#TopOfPage. PSCA statistics come from various issues of the Profit Sharing/401(k) Council of America "Annual Survey of Profit Sharing and 401(k) Plans." Hewitt statistics come from the authors' calculations using the Hewitt participant-level data.

TABLE 1A. Firm-Level 401(k) Loan Provisions (2003)

	Full Sample (81 firm)	Sub-sample (44 firms)
Offers a 401(k) loan option		
For general purpose	100.0%	100.0%
For a primary residence	72.8%	70.5%
Maximum number of loans outstanding		
1	33.3%	31.8%
2	55.6%	59.1%
3+	11.1%	9.1%
Application fee		
$0	40.7%	45.5%
≤$25	6.2%	9.1%
>$25 and ≤$50	34.6%	29.5%
>$50 and ≤$75	14.8%	11.4%
>$75	3.7%	4.5%
Minimum loan amount (general)		
<$500	1.2%	2.3%
$500	24.7%	25.0%
>$500 to $1000	71.6%	70.5%
>$1000	2.5%	2.2%

Source: Authors' tabulations from the Hewitt plan descriptions. The full sample in the first column includes all plans for which we have plan documentation available. The sub-sample in the second column includes only those plans for which we have year-end cross-sectional data for 2002, 2003, 2004 and 2005 along with plan documentation.

TABLE 1B. Firm-Level 401(k) Loan Provisions: Loan Duration (2003)

	Full sample (81 firms)	Sub-sample (44 firms)
Minimum loan duration (general)		
<=3 months	16.0%	18.2%
>3 to 6 months	14.8%	13.6%
>6 to 12 months	63.0%	63.6%
Not specified	6.2%	4.5%
Maximum loan duration (general)		
<5 years	23.5%	29.5%
5 years	76.5%	70.5%
Minimum loan duration (primary residence)		
≤3 months	15.3%	22.6%
>3 to 12 months	44.1%	38.7%
>12 to 36 months	0.0%	0.0%
>36 to 60 months	20.3%	22.6%
>60 to 72 months	18.6%	16.1%
Not specified	1.7%	0.0%
Maximum loan duration (primary residence)		
<10 years	3.4%	3.2%
10 years	33.9%	32.3%
15 years	49.2%	45.2%
20-25 years	5.1%	9.7%
30 years	8.5%	9.7%

Source: Authors' tabulations from the Hewitt plan descriptions. The full sample in the first column includes all plans for which we have plan documentation available. The sub-sample in the second column includes only those plans for which we have year-end cross-sectional data for 2002, 2003, 2004 and 2005 along with plan documentation.

TABLE 1C. Firm-Level 401(k) Loan Provisions: Interest Rates (2003)		
	Full sample (81 firms)	Sub-sample (44 firms)
Interest rate		
Prime	27.2%	31.8%
>Prime to prime+1	59.3%	54.5%
>Prime+1 to prime+2	6.2%	6.8%
Other	4.9%	4.5%
Not specified	2.4%	2.4%
Interest rate update frequency		
Daily	3.7%	0.0%
Monthly	55.6%	50.0%
Quarterly	33.3%	40.9%
Annually	1.2%	2.3%
Other frequency	6.2%	6.8%

Source: Authors' tabulations from the Hewitt plan descriptions. The full sample in the first column includes all plans for which we have plan documentation available. The sub-sample in the second column includes only those plans for which we have year-end cross-sectional data for 2002, 2003, 2004 and 2005 along with plan documentation.

TABLE 2. Relative Advantage of a 401(k) Loan to Alternative Sources of Credit			
	Alternative Source of Credit		
	Home Equity Loan $r_A = 6\% \times (1 - \tau)$	Personal Bank Loan $r_A = 7\%$	Credit Card Loan $r_A = 15\%$
τ = 0			
$r_P = 3\%$, $r_L = 5\%$	3.00%	4.00%	12.00%
$r_P = 3\%$, $r_L = 7\%$	3.00%	4.00%	12.00%
$r_P = 5\%$, $r_L = 5\%$	1.00%	2.00%	10.00%
$r_P = 5\%$, $r_L = 7\%$	1.00%	2.00%	10.00%
$r_P = 7\%$, $r_L = 5\%$	-1.00%	0.00%	8.00%
$r_P = 7\%$, $r_L = 7\%$	-1.00%	0.00%	8.00%
τ = 15%			
$r_P = 3\%$, $r_L = 5\%$	1.80%	3.70%	11.70%
$r_P = 3\%$, $r_L = 7\%$	1.50%	3.40%	11.40%
$r_P = 5\%$, $r_L = 5\%$	0.10%	2.00%	10.00%
$r_P = 5\%$, $r_L = 7\%$	-0.20%	1.70%	9.70%
$r_P = 7\%$, $r_L = 5\%$	-1.60%	0.30%	8.30%
$r_P = 7\%$, $r_L = 7\%$	-1.90%	0.00%	8.00%
τ = 35%			
$r_P = 3\%$, $r_L = 5\%$	0.20%	3.30%	11.30%
$r_P = 3\%$, $r_L = 7\%$	-0.50%	2.60%	10.60%
$r_P = 5\%$, $r_L = 5\%$	-1.10%	2.00%	10.00%
$r_P = 5\%$, $r_L = 7\%$	-1.80%	1.30%	9.30%
$r_P = 7\%$, $r_L = 5\%$	-2.40%	0.70%	8.70%
$r_P = 7\%$, $r_L = 7\%$	-3.10%	0.00%	8.00%

Source: Authors' calculations. Cells give the part of equation (3) that is in brackets: the advantage of a 401(k) loan relative to the stated alternative source of credit divided by the value of the loan. Positive numbers indicate that a 401(k) loan maximizes second period consumption, negative values that the alternative source maximizes second period consumption.

TABLE 3. Potential Savings Impact of a 401(k) Loan Option

	Pessimistic assumptions	Optimistic assumptions
Assumptions		
No-loan participation rate	60%	70%
No-loan contribution rate	6%	6%
401(k) enrollment effect	None	+ 6 percentage points
Contribution rate effect	+0.6% of pay	+1.0% of pay
Savings crowd out	50%	25%
Repayment crowd out	100%	25%
Credit availability effect	50%	10%
Impact on Savings		
Induced savings effect	+0.18% of pay	+0.84% of pay
Consumption leakage effect	-0.53% of pay	-0.03% of pay
TOTAL IMPACT	-0.35% of pay	+0.81% of pay

Source: Authors' calculations. See text for details.

TABLE 4. 401(k) Loan Utilization and Loan Balances by Demographic Characteristics				
	Fraction of Participants with a 401(k) Loan		**Average Loan Balance as a Fraction of Total Balances**	
	EBRI/ICI	**Hewitt Data**	**EBRI/ICI**	**Hewitt Data**
Overall	19%	23%	13%	19%
Age Group				
20s	11	13	24	24
30s	20	26	19	21
40s	22	28	13	18
50s	19	24	10	16
60s	10	15	8	16
Tenure (years)				
0 to 2	5	4	23	25
>2 to 5	14	14	21	24
>5 to 10	22	28	19	21
>10 to 20	26	34	13	17
>20 to 30	24	32	9	14
>30	17	23	8	16
Account Balance				
≤$10,000	12	13	35	26
$10,001 to $20,000	26	33	29	22
$20,001 to $30,000	27	34	25	20
$30,001 to $40,000	26	34	22	19
$40,001 to $50,000	25	33	20	18
$50,001 to $60,000	24	32	18	17
$60,001 to $70,000	23	31	16	16
$70,001 to $80,000	22	30	15	16
$80,001 to $90,000	21	29	14	15
$90,001 to $100,000	20	27	13	14
>$100,000	16	22	7	9
Salary Range				
≤$40,000	19	22	18	22
$40,001 to $60,000	26	28	16	20
$60,001 to $80,000	24	25	13	17
$80,001 to $100,000	22	22	11	16
>$100,000	16	16	9	14

Source: EBRI/ICI statistics come from a series of reports put out by the Investment Company Institute starting in 1999, including the first report by VanDerhei, Galer, Quick and Rea (1999), and the most recent report by Holden, VanDerhei, Alonso and Copeland (2007); these publications and those for the intervening years are available at: http://www.ici.org/statements/res/arc-ret/index.html#TopOfPage. Hewitt statistics come from the authors' calculations using the Hewitt participant-level data. Columns (1) and (2) give the fraction of 401(k) participants with an outstanding loan at year-end 2005 for participants in a savings plan with a loan option. Columns (3) and (4) give the size of participants' outstanding loan balances as a fraction of total 401(k) balances at year-end 2005 for participants with an outstanding loan. In the Hewitt data, we eliminate the top and bottom 0.5% of the loan-to-balance observations in order to reduce the impact of outliers on the calculation of the average.

TABLE 5. Multiple Loans			
Number of outstanding loans	**Fraction of participants**	**Average total loan/balance ratio**	**Average total outstanding loan balance**
0 loans outstanding	76.3%	0.0%	0
1 loans outstanding	16.6%	9.7%	5,720
2 loans outstanding	6.5%	16.6%	8,878
3+ loans outstanding	0.7%	21.9%	11,757

Source: Authors’ calculations using the Hewitt individual-level data.

TABLE 6. The Impact of Demographic Characteristics and Plan Features on 401(k) Loan Utilization (Hewitt Participant Data, 2003)

	Has a 401(k) Loan Outstanding				Loan Balance as a Fraction of Total Balances			
	Demographics only		+Plan Loan Features		Demographics only		+Plan Loan Features	
	Coefficients	Standard errors	Coefficients	Standard errors	Coefficients	Standard errors	Coefficients	Standard errors
Constant	0.016	(0.014)	-0.049	(0.087)	0.257	(0.018)	0.243	(0.026)
Demographic Controls								
Age Group								
20s (omitted)								
30s	0.039	(0.011)	0.034	(0.007)	0.002	(0.003)	0.006	(0.002)
40s	0.023	(0.014)	0.023	(0.009)	0.000	(0.004)	0.007	(0.003)
50s	-0.012	(0.016)	-0.009	(0.011)	-0.012	(0.006)	0.000	(0.004)
60s	-0.111	(0.018)	-0.093	(0.014)	-0.025	(0.015)	0.003	(0.011)
Tenure (years)								
0 to 2 (omitted)								
2 to 5	0.090	(0.015)	0.104	(0.020)	0.005	(0.013)	0.005	(0.013)
5 to 10	0.188	(0.022)	0.205	(0.030)	0.015	(0.016)	0.021	(0.015)
10 to 20	0.258	(0.029)	0.274	(0.035)	0.017	(0.017)	0.030	(0.015)
20 to 30	0.269	(0.033)	0.287	(0.039)	0.020	(0.018)	0.033	(0.016)
> 30	0.145	(0.070)	0.193	(0.051)	0.040	(0.027)	0.044	(0.021)
Account Size								
< $10000 (omitted)								
$10,001 to $20,000	0.121	(0.012)	0.096	(0.009)	-0.047	(0.004)	-0.052	(0.005)
$20,001 to $30,000	0.114	(0.014)	0.087	(0.013)	-0.071	(0.007)	-0.080	(0.006)
$30,001 to $40,000	0.102	(0.019)	0.074	(0.018)	-0.087	(0.008)	-0.098	(0.008)
$40,001 to $50,000	0.100	(0.021)	0.072	(0.020)	-0.099	(0.009)	-0.112	(0.008)
$50,001 to $60,000	0.086	(0.024)	0.056	(0.024)	-0.116	(0.010)	-0.129	(0.009)
$60,001 to $70,000	0.085	(0.026)	0.056	(0.025)	-0.125	(0.011)	-0.140	(0.009)
$70,001 to $80,000	0.080	(0.029)	0.048	(0.028)	-0.136	(0.012)	-0.152	(0.010)
$80,001 to $90,000	0.085	(0.034)	0.051	(0.032)	-0.146	(0.011)	-0.161	(0.010)
$90,001 to $100,000	0.075	(0.030)	0.044	(0.029)	-0.152	(0.012)	-0.167	(0.011)
> $100000	0.043	(0.039)	-0.001	(0.038)	-0.205	(0.014)	-0.223	(0.012)

Salary Range								
≤ $40,000 (omitted)								
$40,001 to $60,000	-0.002	(0.017)	-0.011	(0.010)	0.019	(0.005)	0.017	(0.002)
$60,001 to $80,000	-0.024	(0.015)	-0.033	(0.015)	0.030	(0.005)	0.031	(0.003)
$80,001 to $100,000	-0.048	(0.020)	-0.062	(0.020)	0.036	(0.006)	0.037	(0.004)
> $100000	-0.112	(0.022)	-0.120	(0.018)	0.043	(0.007)	0.042	(0.006)
Plan Loan Features								
Primary residence loans			0.003	(0.025)			0.009	(0.014)
Maximum number of loans								
1 (omitted)								
2			0.121	(0.040)			0.013	(0.011)
≥ 3			0.072	(0.040)			0.030	(0.016)
Interest rate								
Prime (omitted)								
>Prime to prime+1			-0.013	(0.043)			-0.004	(0.012)
>Prime+1 to prime+2			-0.085	(0.034)			0.033	(0.013)
Other			-0.045	(0.052)			0.022	(0.023)
Application fee (binary variable)			-0.027	(0.027)			0.008	(0.014)
Minimum loan amount								
≤ $500 (omitted)								
> $500			-0.074	(0.031)			-0.014	(0.009)
Minimum loan duration								
≤ 1 month (omitted)								
2 to 6 months			0.066	(0.077)			-0.008	(0.011)
7 to 12 months			0.104	(0.043)			-0.021	(0.017)
Maximum loan duration								
< 5 years (binary variable)			-0.021	(0.040)			0.009	(0.008)
Sample Size	578,749		497,169		132,280		113,934	
R^2	0.079		0.092		0.171		0.192	

Source: Authors' calculations from the Hewitt participant-level data from 47 plans. Standard errors are clustered at the plan level. We eliminate the top and bottom 0.5% of the loan-to-balance observations in order to reduce the impact of outliers.

TABLE 7. Characteristics of Newly Originated 401(k) Loans

	2002	2003	2004	2005	2002-2005
Loan type					
General purpose	97.5%	97.5%	97.6%	97.8%	97.5%
Primary residence	2.5%	2.5%	2.4%	2.2%	2.5%
Loan amount					
5^{th} percentile	$700	$700	$756	$730	$700
25^{th} percentile	$1,545	$1,535	$1,638	$1,575	$1,545
Median	$3,500	$3,500	$3,950	$3,850	$3,500
75^{th} percentile	$8,000	$8,000	$8,550	$8,910	$8,000
95^{th} percentile	$21,045	$21,340	$23,000	$24,680	$21,045
Loan duration					
<1 year	1.68%	1.73%	1.39%	1.10%	1.68%
1-2 years	18.51%	18.13%	16.68%	17.50%	18.52%
2-3 years	19.76%	20.03%	18.73%	18.63%	19.76%
3-4 years	14.39%	14.33%	13.64%	13.08%	14.39%
4-5 years	21.66%	22.99%	24.70%	25.61%	21.66%
5+ years	24.00%	22.79%	24.86%	24.08%	24.00%
Loan interest rate					
5^{th} percentile	4.75%	4%	4%	5.25%	4.75%
25^{th} percentile	4.75%	4.25%	4.25%	6.25%	4.75%
Median	5.75%	5%	5%	6.75%	5.75%
75^{th} percentile	5.75%	5.25%	5.25%	7.25%	5.75%
95^{th} percentile	5.75%	5.25%	5.75%	7.75%	5.75%
Payment amount (monthly equivalent)					
5^{th} percentile	$29	$28	$28	$28	$29
25^{th} percentile	$66	$65	$68	$69	$66
Median	$118	$116	$121	$125	$118
75^{th} percentile	$220	$219	$226	$238	$220
95^{th} percentile	$507	$508	$520	$566	$507

Source: Author's calculations from Hewitt-level participant data.

TABLE 8. Reasons For Obtaining a 401(k) Loan			
Reason	**1998**	**2001**	**2004**
Home purchase	25.2%	24.3%	14.6%
Home improvement	6.0%	12.5%	12.7%
Vehicles	9.1%	11.5%	14.6%
Goods and services	28.5%	25.9%	35.7%
Investments and other real estate	2.5%	6.8%	2.6%
Education, medical expenses and professional services	26.9%	11.8%	19.8%

Source: Authors' calculations from the Survey of Consumer Finances.