The Profitability of Payday Loans

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Abstract

Payday loans provide households with expensive, short-term liquidity. This paper studies the profitability of payday lending using standard financial data from CRSP and SEC filings and loan-level data from a payday lender. Despite charging effective annualized rates of many *thousand* percent, we find lenders' firm-level returns differ little from typical financial returns. The data are consistent with an interpretation that payday lenders face high per-loan and per-store fixed costs in a competitive market.

JEL classification: D14 (Personal Finance), D21 (Firm Behavior)

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Payday lenders typically charge interest rates of 12%-18% for loans lasting less than one month.[1] Annualized returns on the lenders' capital, assuming it were to remain continuously, costlessly employed at these interest rates, are reported in Table 1. This paper examines the actual net returns to payday lenders who have capital earning annualized returns of many *thousand* percent.[2]

First we summarize publicly available, firm-level profitability data from CRSP and SEC filings. Since 1987, seven lenders have been listed for various spans of time on NYSE or NASDAQ. These data show average firm-level returns of 10-25% per year. Adjusting for risk would reduce these figures.

Second, we present analysis of individual-level data from one large payday lender that begins to explain how astronomical loan interest rates can coexist with more pedestrian firm-level return on equity. The individual data reveal that loans are small, yielding interest payments of only $49 on average; loss ratios of about 5% per loan immediately consume over 1/4 of interest income; and net financial returns– interest payments less loan defaults– amount in expectation over all of the marginal borrower's loans to only about $100. These data are consistent with the interpretation that payday lenders in a competitive market face per-loan and per-store fixed costs that are large relative to the interest earnings on their small loans.

Third, we contextualize our findings in relation to a small but excellent and rapidly growing literature on the supply side of the payday loan industry. Robinson and Wheeler (2003) reports (as part of an irregular series) on the number of stores in the industry, growth rates, and regulatory threats. Flannery and Samolyk (2005) use proprietary, store-level data to study profitability.

The current paper's sections elaborate this three-part sketch.

1 Firm-Level Profits

CRSP's standard offerings include returns data for the payday lenders that are or have been publicly traded. Basic listing and returns information about these seven firms may be found in Table 2.

From the monthly CRSP data we compute the average annual return for firm i with gross return

[1] To belabor the point, those rates are *for the duration of the loan*: they are *not* annualized.

[2] Payday loans are designed to tide borrowers over until their next paydays. For an overview of the industry, which had $40 billion in loan volume in 2003 (Robinson and Wheeler 2003), see Caskey (2005).

R_{it} in month t as $\left(\prod_{t=t_{0i}}^{t_{1i}} R_{it}\right)^{12/(t_{1i}-t_{0i}+1)} - 1$. We estimate β_i by regressing the (non-annualized) monthly return for firm i on the (also non-annualized) S&P500 monthly return including dividends. The Sharpe ratio for firm i equals $\frac{E(R_{it}-1)-r_f}{\sigma(R_{it}-1)}$, where r_f is the net rate of return on the 3-month Treasury bill and the denominator is the standard deviation of firm i's net monthly returns. Averages of these quantities over all the firms use the observations as if they all came from a single firm, and hence weight each firm-month equally.

The returns data, which include dividend payments and are split-adjusted, indicate that payday lenders have performed well on average,[3] earning 10.1% per year. However, these returns have been highly volatile, so Sharpe ratios have been close to zero. In addition, payday lenders' stocks were not useful over this period as hedges against broader market movements: substantial covariance with the market is implied by the average β we find of 0.701.[4]

Anticipated returns could, of course, have been capitalized into payday lenders' equity prices at the times they went public. However, return on equity figures derived from SEC 10-K and 10-Q filings are also moderate.

Regulatory uncertainty may be an important source of the volatility, and may justify a large risk premium. For example, FDIC regulations implemented in November 2005 capped the number of payday loans any individual customer may take per year, and in September 2006 the "Talent Amendment" placed a strict 36% APR cap on loans to active-duty military personnel. FDIC (2005) explains that payday lending entails unusual risks for the lenders, and suggests how to mitigate those risks.[5]

Capital constraints are not likely to be a cause for slow adjustment in this industry. Interest earnings on only six loans, over three months, would generate enough capital to make an additional loan. Moreover, though most banks and other mainstream financial institutions do not make payday loans directly, Wells Fargo, Bank of America, JP Morgan, and others have entered the

[3] One could also compare to overall returns for the financial services industry and for consumer finance firms, e.g. by using the NYSE Financial Index. However, we are unaware of established indices that extend further backward than 2003.

[4] Since demand for consumer credit is anticyclic, one might have expected payday lenders to perform better when the overall market was in decline (and vice versa).

[5] Their assessment of capital adequacy ratios, however, surprisingly ignores that payday loans are small and very short-term, and they present no actual data that imply payday lending imperils banks. Danger to lenders is the only statutory justification for FDIC regulatory intervention.

sector indirectly by acquiring payday lenders' debt and equity.[6]

We also plot the annual split-adjusted return including dividend payments for each of the payday lenders in Figure 1. The S&P500 return is included for comparison. Here again we see a profile of firm-level profits that fails to approach annualized payday loan interest rates.

2 Individual-Level Profits

To explain why typical compounded interest of 7295% per year amounts to equity returns of only 10% per year, we turn first to individual-level data on payday borrowing, repayment, and default. Skiba and Tobacman (2007a, 2007b) introduce a dataset of payday loan applications at a large lender from 2000-2004. At this lender the mean loan size is $283 and the median is $269. Since interest rates are 18% per loan, the average amount of revenue per loan is $49. To the extent the firm's per loan costs approach $49, corporate returns descend to earth.

First we examine loan losses. All payday loans at this company are collateralized with checks dated on borrowers' next paydays, and nine percent of these checks bounce. Skiba and Tobacman's lender pursues collections internally for 60 days, during which it collects on half of the bounced checks. If delinquency were not correlated with loan principal, this would imply that one-quarter ($= \frac{1}{2} * 9\%/18\%$) of interest revenues are immediately lost to loan defaults.[7] The exact findings are summarized in Table 3.[8]

We can also examine the direct financial consequences of all the loans an individual takes over time. First-time loan applications at this company are evaluated based on a subprime credit score. That score is computed by a third-party company called Teletrack which serves most payday lenders and other firms in the subprime market. Here we construct a measure of gross profits as a function of the credit score. For each first-time applicant at this payday lender, we sum all interest payments made on this and all subsequent loans and subtract the loan principal of defaulted loans. The result

[6] Robinson (2004) reports the financing arrangements, citing SEC filings and Uniform Commercial Code records.

[7] Loan loss ratios at other firms appear to be lower, but are derived from potentially inferior data. For example, Reuters (2006) reported that 6% of payday loans at QC Holdings resulted in bounced checks of which collections succeeded on half. Flannery and Samolyk (2005) find loan losses of 15% of revenue using samples from two unnamed firms.

[8] We lack information on collections after 60 days, but know that the firm sells its NPL's to a collection agency. Credit card NPL's are sold to collection agencies for 8% of their book value.

is plotted in Figure 2. Each point in the figure represents one of 1000 quantiles and is plotted at the quantile's average credit score and average gross profit.

Not surprisingly, total revenues are approximately zero for loan applicants with credits scores below the approval threshold. Some applicants with low credit scores apply again after improving their scores enough to get payday loans, but 94% do not. For applicants with credit scores above the approval threshold, total revenues are strongly– and nearly linearly– increasing in the credit score. The intercept of the best-fitting line at the credit score threshold is \$100.49. Thus, if the industry is competitive, the total economic costs of servicing the marginal borrower equal \$100.49.[9]

3 Discussion

The small size of payday loans and their high default rates explain part of the difference between payday loans' astronomical theoretical return and payday lenders' moderate stock returns. In this section we pursue the remainder of the difference by discussing store-level costs, cash flow, and the IO of the payday lending industry. Since we lack additional cost data from the lender that provided the individual repayment data, a complete, exact accounting decomposition is unavailable.

3.1 Store-Level Costs

The largest remaining component of the difference is the wage bill. Robinson and Wheeler (2003) estimates "40,000 people are employed in the payday loan industry with annual wages totalling \$1.4 billion." In the same report, they find interest revenue in the industry in 2002 of between \$4.0 and \$4.3 billion, implying that wages account for fully one-third of revenues.

Wage and other cost information are unfortunately not available in the Skiba and Tobacman (2007a, 2007b) dataset. In addition, since their payday lender also makes pawn loans, costs would be difficult to properly attribute.

Stegman and Faris (2003) use 2000 data from the North Carolina Commissioner of Banks Annual Report that include non-wage costs to compute a per-outlet payday loan profitability figure

[9] Most of the reason for the upward slope to the right of zero in the figure is that people with lower credit scores are more likely to default on loans, which has two effects. First, the defaults directly result in losses to the firm. Second, after a given individual defaults, the firm generally refuses to lend again to that individual. Thus people with higher credit scores are endogenously able to take out more loans than people with lower scores.

of $57,599. Since the total value of payday loans made by North Carolina's 902 outlets in 2000 was $835 million, and the typical loan's duration is two weeks, capital requirements could be as low as $835M / (902*(52/2)) = $35,606 per outlet. That would imply a return on equity of over 150%. However, Stegman and Faris (2003)'s "modified gross income" equals payday loan fees plus bounced-check fees, minus payday loan screening costs, loan losses, and the portion of payroll due to payday lending operations. Rent, marketing, and G&A expenses are excluded, so the profitability numbers are an upper bound.

Flannery and Samolyk (2005) have conducted the authoritative study of payday lenders' costs and profitability, using detailed, proprietary store-level data. They examine store costs and revenues as a function of store age, and find an enormous median ROA for mature stores of 124%. However, the newest stores in Flannery and Samolyk's sample hemorrhage money (confirming the Robinson and Wheeler (2003) reports), and they do not speculate whether mature stores perform better because of start-up costs that dissipate (ie, store age effects) or because older stores were placed in higher-demand locations (ie, store cohort effects). Flannery and Samolyk also lack estimates of the profitability of the marginal store. To assess whether payday lenders are optimizing, and to assess models of competition in the industry, estimates of the NPV of returns on equity invested in a *marginal* payday loan store are crucial. Flannery and Samolyk (2005) go further than any previous work to document the supply side characteristics of the industry, and are on the cusp of additional important answers.

3.2 Cash Flow

Calculations of payday lenders' profitability are complicated by cash flow considerations. Costs like wages, rent, and loan losses matter not only in their amounts but also in their timing. For example, if the firm starts with $10000 in capital at the start of the year and employs it and its interest continuously and risklessly at 18% every two weeks it will end up with $739500 at the end of the year. Suppose the firm pays wages of $30000 at the end of the year. Then the annual net return would be (739500-30000-10000)/10000, still nearly 7000%. Suppose instead (more realistically) the firm had to pay wages every two weeks. That biweekly bill would be $30000/26 $\approx$ $1200, which at the start of the year would be a large share of the $1800 in interest income– in the first two weeks the firm would only earn 6% on its capital. This results in a much smaller rate of compounding

returns and an annual net return of "only" 2150%. Evaluating the consequences of these cash flow issues for profitability is necessary for a full decomposition of the difference between loan interest rates and overall equity returns but requires better data.

3.3 Pricing and Industrial Organization

One margin on which firms can typically adjust is not available to payday lenders: a large share of stores in the Flannery and Samolyk (2005) sample already set interest rates at the statutory maximum. Widespread pricing at the regulatory corner is also documented by Robinson and Wheeler (2003). This pricing homogeneity presumably results from fundamentals that would push prices higher absent the usury limits.[10]

If the firms were pricing loans strictly according to their costs, they might charge flat fees per loan, in addition to (smaller) proportional fees. In other words, though the cost of loan losses is obviously proportional to loan size, the cost to the firm of loan origination and collection is probably independent of loan size. In this sense, loan pricing and the structure of loan contracts in this industry might be viewed as puzzles. Moreover, at the firm that supplied our data, the credit score threshold for loan approval did not vary across store locations (within states), and it only changed once during our four-year period of observation. One might expect that where local costs differ, approval thresholds should also perhaps differ.

From 200 stores in 1990 to 30,000 stores in 2004, the payday loan industry has grown explosively. Four factors seem most important for explaining the expansion. First, payday lenders and their trade organization, the Consumer Financial Services Association, lobbied effectively for safe harbor legislation in many states. This legislation generally relieved registered payday lenders from standard interest rate caps. Second, IT investment and development of the subprime market segment may have been influential: subprime credit scoring helps firms evaluate payday loan applicants. Third, an increasingly large number of consumers during this period have become excluded from the prime (regular) credit market because of improvements in (prime) credit scoring and because of personal bankruptcies. When excluded from ordinary credit, consumers turn to sources like payday loans. Fourth, entry costs are low: as discussed above, capital costs may be less than $50,000 per

[10] Alternatively, it could result from tacit collusion, as suggested by DeYoung and Phillips (2006), in the manner Knittel and Stango (2003) find to be relevent in the credit card industry.

store, and informational advantages of incumbents are mitigated by Teletrack's presence. More analysis of the industrial organization of the industry, in order to understand pricing behavior and such rapid growth, would be invaluable.

Even if the payday lending industry is competitive, regulation should not be ruled out (Stegman 2007, DellaVigna and Malmendier 2004, Skiba and Tobacman 2007b). However, payday lenders face substantial costs which can account for much of the difference between loans' astonishing interest rates and lenders' ordinary profitability.

References

Caskey, John P., "Fringe Banking and the Rise of Payday Lending," in Patrick and Howard Rosenthal, eds., *Credit Markets for the Poor*, Russell Sage Foundation, 2005.

DellaVigna, Stefano and Ulrike Malmendier, "Contract Design and Self-Control: Theory and Evidence," *Quarterly Journal of Economics*, May 2004, *119* (2), 353–402.

DeYoung, Robert and Ronnie Phillips, "Strategic Pricing of Payday Loans: Evidence from Colorado, 2000-2005," 2006.

FDIC, "Guidelines for Payday Lending," 2005. Available at http://www.fdic.gov/regulations/safety/payday/.

Flannery, Mark and Katherine Samolyk, "Payday Lending: Do the Costs Justify the Price?," *Federal Reserve Bank of Chicago Proceedings*, April 2005.

Knittel, Christopher R. and Victor Stango, "Price Ceilings as Focal Points for Tacit Collusion: Evidence from Credit Cards," *American Economic Review*, December 2003, *93* (5), 1703–1729.

Robinson, Edward, "Big Banks Fuel Growth of Payday Lenders," *Bloomberg News*, 2004.

Robinson, Jerry and John Wheeler, "Update on the Payday Loan Industry: Observations on Recent Industry Developments," Technical Report, Stephens, Inc. September 2003.

Skiba, Paige Marta and Jeremy Tobacman, "Do Payday Loans Cause Bankruptcy?," 2007. University of Oxford mimeo.

—— **and** —— , "Payday Loans, Uncertainty, and Discounting: Explaining Patterns of Borrowing, Repayment and Default," 2007. University of Oxford mimeo.

Stegman, Michael, "Payday Lending," *Journal of Economic Perspectives*, Winter 2007, *21* (1), 169–190.

Stegman, Michael A. and Robert Faris, "Payday Lending: A Business Model That Encourages Chronic Borrowing," *Economic Development Quarterly*, February 2003, *17* (1), 8–32.

Table 1: Theoretical Annual Interest Earnings

Interest rate *per loan term*	Loan Term (1) One month	(2) Two weeks	(3) One week
12%	290%	1804%	36152%
15%	435%	3686%	143214%
18%	629%	7295%	546745%

Note: This table reports the annual interest earnings to a firm making payday loans of durations one month, two weeks, or one week and earning the stated interest rates per loan term. For example, for a one week loan at 15%, a payday lender would earn 15% per week, or ((1.15)^52-1)*100 = 143214% per year. Two week loans at 18% are most common.

Table 2: Publicly Traded Payday Lenders

Company Name Exchange:Ticker	(1) Month listed	(2) Average annual return since listing	(3) Return on equity	(4) Beta	(5) Sharpe
ACE Cash Express NASDAQ:AACE	Dec-92	9.8%	15.3%	0.799	0.099
Advance America NYSE:AEA	Dec-04	-44.4%	24.2%	1.04	-0.330
Cash America NYSE:PWN/CSH	Jan-87	9.9%	15.6%	0.855	0.095
Dollar Financial NASDAQ:DLLR	Jan-05	-27.0%	1.4%	2.51	-0.128
EZCORP NASDAQ:EZPW	Aug-91	2.9%	19.1%	0.574	0.077
First Cash Financial Services NASDAQ:PAWN/FCFS	Jun-91	19.5%	19.5%	0.441	0.151
QC Financial Services NASDAQ:QCCO	Jul-04	-16.8%	12.4%	3.04	-0.150
Average		10.1%	15.4%	0.701	0.111

Note: This table reports information about the seven publicly traded payday lenders through December 2005. Cash America's ticker symbol was changed from PWN to CSH on 11/1/2004. First Cash's symbol was changed from PAWN to FCFS in the late 1990s. ACE was taken private on 10/5/2006. Numbers are derived from monthly CRSP data on split-adjusted returns including dividends. Columns (2,4,5) weight each firm-month equally. Column (3) uses data from 2005:Q1 to 2007:Q2, weighting each firm-quarter equally.

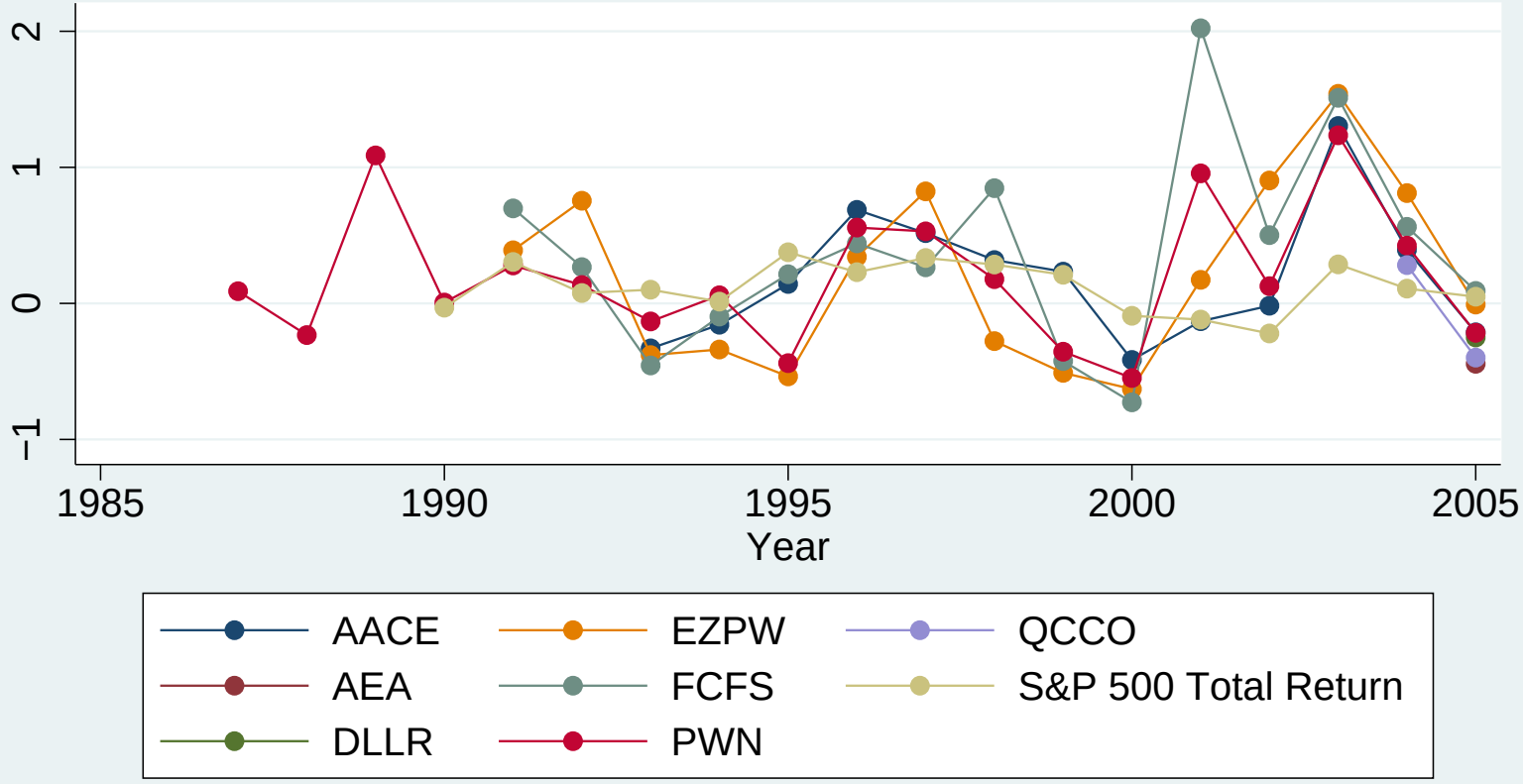
Table 3: Borrowing and Default

	Loan Term				
	(1) One month	(2) Two weeks	(3) One week	(4) Missing	(5) Average
Fraction of Borrowers	14.8%	58.1%	10.5%	16.6%	100%
Average Loan Size	270.92	296.94	198.51	296.59	282.65
Average Interest Payment	46.36	51.18	33.30	52.31	48.75
Default Rate (Loans)	3.8%	4.6%	5.8%	3.2%	4.4%
Default Rate (Dollar-weighted)	4.3%	5.3%	6.7%	3.8%	5.0%
Loan Losses as % of Interest Revenues	26.2%	32.4%	42.6%	22.2%	29.0%

Note: Column (1) reports loan statistics for borrowers paid monthly, Column (2) for borrowers paid semi-monthly or biweekly, Column (3) for borrowers paid weekly, Column (4) for borrowers with pay frequency missing in the data, and Column (5) the average across all pay frequencies.

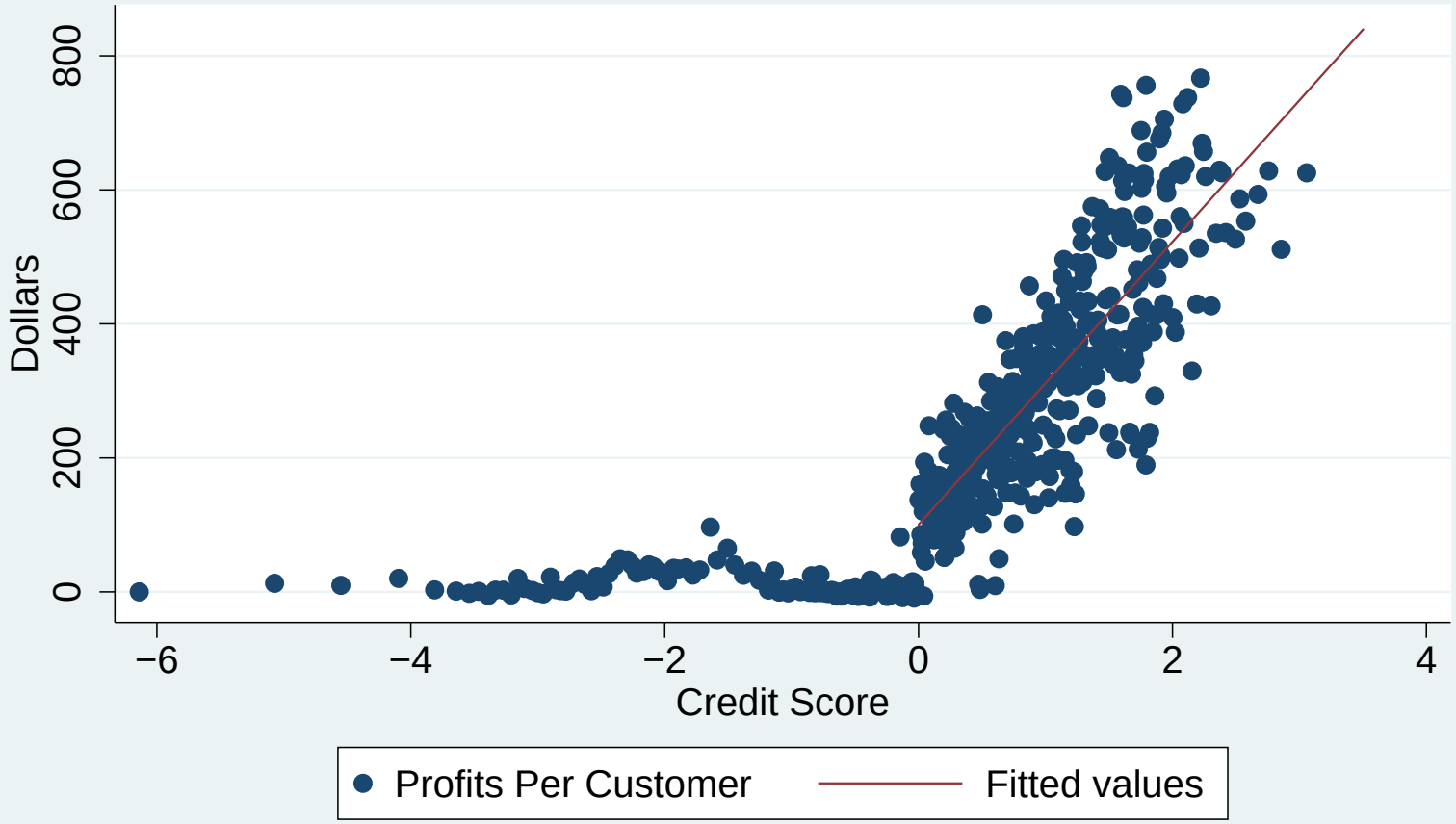
Source: Authors' calculations using proprietary data from a large payday lender, cf. Skiba and Tobacman (2006a,b).

Figure 1: Annual Returns to Publicly Traded Payday Lenders



Source: Authors' calculations based on CRSP data. This figure plots the annual gross returns of publicly traded payday lending companies. Companies are added or dropped when they are listed or delisted. Included firms are ACE Cash Express (NASDAQ:AACE), Advance America (NYSE:AEA), Dollar Financial (NASDAQ:DLLR), EZCORP, Inc. (NASDAQ:EZPW), First Cash Financial Services (NASDAQ:PAWN/FCFS), Cash America (NYSE:PWN/CSH), and QC Financial Services, Inc. (NASDAQ:QCCO). The S&P500 Total Return is plotted for comparison.

Figure 2: Credit Scores and Per−Customer Profits



This figure plots per−customer interest revenues minus the principal of written−off loans as a function of how much a first−time payday loan applicant's credit score exceeds the credit score threshold for loan approval. A linear polynomial is fit to the data to the right of zero. Here credit scores are measured in standard deviations.