

# Technical Appendix:

## CDFI Fund Financial Assistance Awards and OFN Member Loan Funds

Adrienne Smith, Jessica Milli, Samuel Abers, Alexander Carther, Brent Howell, and Lauryn Reynolds  
November 2025

This appendix provides additional detail on the analytical approach used in **Adrienne Smith, Jessica Milli, Samuel Abers, Alexander Carther, Brent Howell, and Lauryn Reynolds, “CDFI Fund Financial Assistance Awards and OFN Member Loan Funds,” Opportunity Finance Network and Research 2 Impact, 2025**. We first provide information on the data sources utilized in our analysis and descriptive statistics for our sample. Next, we outline our estimation strategy for both research questions and provide the full tabulated results for each primary analysis, along with results that account for multiple testing corrections. Finally, we discuss several robustness checks and additional analyses and present the results of each.

### Sample and Data

#### CDFIs Included in Analysis

For this analysis, we focused on a sample of 341 OFN member loan funds. We chose to focus on OFN members because, as a membership organization, we are most interested in and knowledgeable about this group. The sample excludes 36 member loan funds that are for-profits or subsidiaries of larger organizations. As discussed in the main report, this analytical sample is reasonably representative of all active OFN member loan funds. However, sample CDFIs are more likely to have received FA awards than all certified loan funds and all certified CDFIs throughout the analysis period. For this reason, readers should exercise caution when generalizing the findings presented in this report to all CDFIs.

#### Data

For all member loan funds included in the analysis, we gathered IRS Form 990 financial data through Candid for the years 2009-2022.<sup>1</sup> The analysis period spanned from 2009 to 2022, as 2022 was the latest year for which Form 990 dataset was available when the analysis began. Significant changes were made to the IRS Form 990 in 2008, making it challenging to maintain consistent data between the new and old versions of the form.<sup>2</sup>

**Appendix Table 1** details the variables that we used in the Form 990 dataset to measure the outcome domains of financial strength, leverage, and lending.

---

<sup>1</sup> Candid, Custom 990 Dataset for 341 OFN members, 2009 through 2022, <https://www.guidestar.org/>

<sup>2</sup> Our analysis requires a “baseline” period for comparison. Therefore, we do not assess outcomes of awardees in 2009, since they have no baseline of comparison. However, we do use 2009 as a baseline year for the 2010 awardees, so it is still a year used in our analysis.

**Appendix Table 1. Measurement of the Outcome Variables**

Outcome	Measurement in 990 Data
<b>Financial Strength</b>	
<b>Total Assets</b>	Part I: Summary, Net Assets of Fund Balances 20: Total assets
<b>Net Assets</b>	Part X: Balance Sheet, Net Assets or Fund Balances 32: Total net assets or fund balances
<b>Earned Revenue</b>	Part VII: Statement of Revenue 12: Total Revenue Minus 1h: Total of Contributions, Gifts, Grants, and other Similar Accounts
<b>Contributed Revenue</b>	Part VIII: Statement of Revenue 1h: Total of Contributions, Gifts, Grants, and other Similar Accounts
<b>Leverage</b>	
<b>Notes Payable</b>	Part X: Balance Sheet, Liabilities; 23: Secured mortgages and notes payable to unrelated third parties Plus 24: Unsecured notes and loans payable to unrelated third parties
<b>Capital Available for Lending</b>	Part X: Balance Sheet, Net Assets or Fund Balances 27: Net assets without donor restrictions Plus Part X: Balance Sheet, Liabilities 23: Secured mortgages and notes payable to unrelated third parties Plus 24: Unsecured notes and loans payable to unrelated third parties
<b>Lending</b>	
<b>Total Loan Volume Outstanding</b>	Part X: Balance Sheet, Assets 7: Notes and loans receivable, net Plus 13: Investments, program-related

Measurement of the outcome domains via the Form 990 data presents some limitations compared to the typical CDFI assessment of these measures. Limitations include:

- Form 990 does not distinguish between notes payable for lending and notes payable for operations, such as mortgages.
- Form 990 does not distinguish between revenue with and without donor restrictions. Effectively, this means that revenue booked for potential future use is included in the year it was booked, rather than the year it was actually used.
- Some loan funds report their loans receivable as program-related investments. We combined the two data points (Notes and loans receivable, net plus investments, program-related) to avoid inconsistencies.

We then merged the Form 990 data with data on the member loan funds that applied for and received FA Awards by year. We received this data through a Freedom of Information Act (FOIA) request submitted to the CDFI Fund. Because member loan funds' Employer Identification Numbers (EINs) were not included in the FOIA data, we manually merged the FA award data with the Form 990 data using organization name and location. After merging the data, we validated the FOIA data by comparing our data with the FA Award data presented in each year's CDFI Program Award Book and the CDFI Fund's award database. We then

constructed an indicator for FA award receipt based on whether a CDFI had received a Core, SECA, or NACA award in a given year.

The CDFI Fund data presented several challenges that underscore the need for increased data transparency and investments in data quality. These challenges included:

- FOIA data did not always align with the CDFI Program Award Book data. Some member loan funds were not flagged as receiving awards when they were reported in the Award Book, and some were erroneously flagged as receiving awards when they were not reported in the Award Book. Further, award amounts did not always agree with what was reported in the Award Book.
- FOIA data did not include NACA or HFFI awards in FA award receipt data, so we had to manually add NACA awards from the Award Book.
- FOIA data had incomplete coverage across years, so we had to use the CDFI Fund's Award Books and Award Database to supplement these years (2016, 2017, 2018, 2021)
- Time series analysis is complex using FOIA data because many loan funds change names over time. Our Form 990 data had the current names of member loan funds, but also had previous names used in each year. This discrepancy (or redundancy) made matching difficult, and we had to manually check many of the names to match records.
- Federal fiscal years in which FA awards are made may not neatly align with the fiscal years of member loan funds. Without knowing the exact date FA awards were made each year, it is not always possible to correctly assign the FA award to the correct member CDFI fiscal year.

### Sample Characteristics

**Appendix Tables 2 and 3** provide average and median values of the seven outcome variables of interest for member loan funds by year. As expected, average and median values of each have generally increased over the analysis period. Notably, however, there are substantial differences between average and median values each year, suggesting that the data are skewed by some of the larger member loan funds in the sample. As we discuss below, this is one of the reasons we decided to log-transform each variable for the analysis.

**Appendix Table 2. Average Value of Outcome Variables by Year among Sample Member Loan Funds, FYs 2009-2022**

Year	Total Assets	Net Assets	Earned Revenue	Contributed Revenue	Notes Payable	Capital Available for Lending	Total Loans Outstanding
2009	\$40,178,436	\$12,454,782	\$2,732,408	\$2,641,246	\$22,901,445	\$31,283,097	\$28,162,520
2010	\$38,345,682	\$12,686,516	\$2,760,997	\$2,603,080	\$21,365,237	\$29,691,272	\$26,620,838
2011	\$35,394,941	\$12,493,692	\$2,569,433	\$2,860,701	\$18,978,132	\$27,174,969	\$25,249,743
2012	\$34,342,899	\$13,153,422	\$2,778,690	\$2,769,043	\$17,360,209	\$26,077,621	\$24,258,296
2013	\$32,788,477	\$13,517,823	\$2,761,170	\$2,548,100	\$15,717,792	\$24,778,567	\$24,796,198
2014	\$33,506,544	\$14,128,397	\$2,917,924	\$2,398,144	\$15,821,314	\$25,494,996	\$26,143,061
2015	\$35,745,802	\$15,161,925	\$2,798,331	\$2,251,535	\$16,999,361	\$27,753,645	\$28,692,342
2016	\$38,816,804	\$16,018,612	\$2,794,345	\$2,682,433	\$18,718,703	\$29,942,639	\$31,825,077
2017	\$42,972,627	\$16,777,630	\$3,054,005	\$2,557,903	\$21,393,436	\$33,459,357	\$35,927,386
2018	\$46,973,313	\$17,916,505	\$3,734,358	\$2,766,038	\$24,841,997	\$37,778,260	\$39,611,345
2019	\$49,407,599	\$18,079,115	\$3,691,275	\$2,934,486	\$26,364,835	\$39,375,668	\$40,167,610
2020	\$57,665,490	\$21,097,058	\$4,112,497	\$5,802,210	\$30,865,292	\$46,311,252	\$46,246,192
2021	\$63,447,895	\$24,320,499	\$4,309,183	\$6,174,417	\$31,968,486	\$49,812,714	\$48,127,587
2022	\$65,277,319	\$26,159,180	\$4,142,080	\$5,449,727	\$32,213,364	\$51,412,280	\$49,062,938
<b>Total</b>	<b>\$44,822,174</b>	<b>\$17,164,961</b>	<b>\$3,290,638</b>	<b>\$3,415,560</b>	<b>\$22,913,377</b>	<b>\$35,059,844</b>	<b>\$34,800,493</b>

Appendix Table 3. Median Value of Outcome Variables by Year among Sample Member Loan Funds, FYs 2009-2022

Year	Total Assets	Net Assets	Earned Revenue	Contributed Revenue	Notes Payable	Capital Available for Lending	Total Loans Outstanding
2009	\$11,082,350	\$4,203,065	\$630,970	\$1,204,500	\$3,277,859	\$6,778,993	\$7,320,730
2010	\$11,519,487	\$4,160,301	\$597,663	\$1,135,203	\$3,004,745	\$6,742,106	\$6,008,550
2011	\$10,101,196	\$4,038,340	\$568,524	\$1,066,042	\$2,366,150	\$5,634,638	\$4,980,621
2012	\$10,563,761	\$4,402,975	\$578,429	\$1,073,395	\$2,452,834	\$6,024,962	\$4,993,116
2013	\$9,933,967	\$4,174,638	\$596,738	\$972,439	\$2,128,350	\$6,046,076	\$5,076,454
2014	\$10,080,843	\$4,302,006	\$629,212	\$936,699	\$2,487,002	\$6,713,291	\$5,298,380
2015	\$10,498,430	\$4,700,488	\$646,743	\$853,726	\$2,926,993	\$7,393,478	\$5,545,089
2016	\$9,955,091	\$4,843,180	\$748,717	\$954,150	\$3,186,400	\$7,610,232	\$5,399,144
2017	\$11,005,394	\$4,992,023	\$809,758	\$1,000,676	\$3,649,119	\$8,301,118	\$5,891,557
2018	\$13,046,283	\$5,491,289	\$812,779	\$1,130,928	\$4,115,997	\$9,579,342	\$6,886,151
2019	\$12,450,032	\$5,796,395	\$839,216	\$1,189,021	\$4,578,093	\$9,711,406	\$7,012,186
2020	\$15,420,552	\$6,506,169	\$938,821	\$1,877,281	\$5,199,390	\$11,999,037	\$7,564,128
2021	\$20,029,825	\$8,636,996	\$1,124,233	\$2,530,460	\$5,798,869	\$13,953,749	\$8,398,720
2022	\$21,033,643	\$10,510,375	\$1,009,542	\$2,458,186	\$5,993,528	\$15,365,699	\$9,601,600
<b>Total</b>	<b>\$12,745,924</b>	<b>\$5,447,178</b>	<b>\$725,049</b>	<b>\$1,308,686</b>	<b>\$3,501,334</b>	<b>\$8,390,402</b>	<b>\$6,254,070</b>

**Appendix Tables 4 and 5** show the distribution of sample member loan funds by the total number of FA awards received in the analysis period and the average and median award amounts received by year. There was wide variation in the number of FA awards that member loan funds in our sample received throughout the analysis period. The total number of awards received from FY 2009 to 2022 ranged from zero to 12. Only 23 percent of sample member loan funds did not receive any awards, and more than half received three or fewer. Changes in average and median award amounts over the analysis period are as expected, given the changes made to the FA award program in 2017. Before the changes made in 2017, award sizes were significantly larger.

**Appendix Table 4. Distribution of Sample Member Loan Funds by Total Number of Awards, FYs 2009-2022**

Total Number of Awards	Number of CDFIs	% of CDFIs
0	79	23.2%
1	34	10.0%
2	32	9.4%
3	39	11.4%
4	23	6.7%
5	28	8.2%
6	25	7.3%
7	22	6.5%
8	21	6.2%
9	18	5.3%
10	8	2.3%
11	11	3.2%
12	1	0.3%
<b>Total</b>	<b>341</b>	<b>100.0%</b>

Note: Awardees include both NACA and CDFI Program recipients.

**Appendix Table 5. Average and Median FA Award Amount by Year Among Sample Member Loan Funds**

Year	Average	Median
2009	\$875,000	\$1,000,000
2010	\$699,822	\$750,000
2011	\$1,193,953	\$1,500,000
2012	\$1,044,663	\$1,063,806
2013	\$1,000,262	\$1,347,000
2014	\$1,132,287	\$1,000,000
2015	\$1,381,379	\$1,384,402
2016	\$1,238,929	\$1,000,000
2017	\$939,173	\$776,500
2018	\$818,486	\$700,000
2019	\$693,378	\$650,000
2020	\$773,401	\$650,000
2021	\$826,925	\$590,000
<b>Total</b>	<b>\$948,711</b>	<b>\$750,000</b>

Note: Award amounts include all funds received from Base, NACA, HFFI-FA, PPC-FA, DF-FA, and HP-FA awards.

## Analytical Framework

To answer our research questions, we use a difference-in-differences model with matching. Difference-in-differences (DiD) models are a common method of evaluating the causal effects of a policy or program when “treatment” is not necessarily random. DiD models estimate the “difference in” two differences between members of “treated” and “comparison” groups. The first is the average difference between treated and comparison groups in the post-treatment period. The second is the average difference between treated and comparison groups in the pre-treatment period. Finding the difference in these two differences allows researchers to remove unobserved and fixed biases in the post-treatment period that could be due to factors such as differences in innate characteristics between members of the treatment and comparison groups, as well as changes in trends between the pre- and post-treatment periods that both groups experience.

Our treatment of interest is the first FA award receipt. Directly using award amount as a treatment presents an analytical challenge to DiD, because this would mean there are many levels of treatment and only one comparison group.

Because member loan funds that apply for and receive FA awards are more likely to have stronger balance sheets to begin with, we also match member loan funds that received an award (treatment group) with similar member loan funds that did not apply for or did not receive an award (comparison group). Given that member loan funds can receive an award in any year of the analysis period and may also receive multiple awards, matching similar member loan funds can be challenging. To do this, we used the `flexpaneldid` command in Stata, which allows for varied timing of treatment and a matching process.<sup>3</sup>

Because the CDFI FA award program began in 1994 and our analysis period began in 2009, “first” award in our case refers to the first award received during the analysis period. Member loan funds may have received additional awards before 2009, but we are unable to account for this in our model. We do, however, provide a robustness check to our findings, which excludes sample member loan funds that received FA awards in the three years prior to our analysis period.

For each outcome variable of interest, we matched our sample on values of the selected financial outcomes and the pre-treatment development of the outcome measure itself. Before the matching process, we conducted collinearity analyses of all the available matching variables and omitted any collinear variables. For each outcome, we ran several matches that varied the time period at which the match variables were compared (1 or 2 years before first FA award receipt) and the outcome development period (1 period only, 2 periods only, or both periods before first FA award receipt). We examined each of the matching models to determine whether there were significant differences in match variables between the treatment and comparison groups. We evaluated the percentage bias for each match variable, as well as the mean bias, and assessed the chi-squared statistics for match group balance. Based on these metrics, the most appropriate matching model, which minimized bias and differences between the treatment and comparison groups and produced balanced matched groups, was determined to be the one that matched variables in the year preceding the first FA award receipt. For each outcome variable, we also provide estimates from pre-trends that demonstrate whether any significant differences existed between the treatment and comparison groups prior to the receipt of the award.

---

<sup>3</sup> This nonparametric, flexible conditional DiD estimator (see Dettmann, Eva, Alexander Giebler, and Antje Wyeh. “Flexpaneldid: A Stata Toolbox for Causal Analysis with Varying Treatment Time and Duration.” Working Paper 3692458. SSRN, 2020.) produces a single average effect that represents the average effect across time and groups. Unlike generalized two-way fixed effects (TWFE), the validity does not rest on the assumption that treatments are homogenous (i.e., our treatment effect can vary over time and periods). For example, for the estimates of the effect in the year of award, this means that our result can be interpreted as the weighted average of the year of award estimates for each individual year from 2010 to 2021. Dettmann’s estimator closely follows past work by Heckman et al. (Heckman, J. J., H. Ichimura, and P. E. Todd. “Matching As an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme.” *The Review of Economic Studies* 64, no. 4 (1997): 605–54.) and Imai et al. (Imai, Kosuke, In Song Kim, and Erik H. Wang. “Matching Methods for Causal Inference with Time-Series Cross-Sectional Data.” *American Journal of Political Science* 67, no. 3 (2023): 587–605.) by incorporating a matching step into the DiD model.

---

Once we identified the appropriate matching model, we merged the matched sample onto the primary dataset and estimated our DiD models on matched sample member loan funds. For each outcome of interest, we ran a set of four DiD models, comparing outcomes in the year of award as well as the first, second, and third year after award receipt with outcomes in the baseline period (the year before award). This set of DiD models allows for the effects of receiving an award to persist and build over time, which is consistent with prior literature.<sup>4</sup>

The DiD models presented in the report estimate how the different outcomes of interest change over time for the average member loan fund in the treatment group compared with the average member loan fund in the comparison group. However, CDFIs can vary dramatically in size and have a highly skewed distribution. For example, our sample includes CDFIs with assets ranging from a few million to more than a billion. To produce interpretable results, the outcome variables were log-transformed to normalize their distributions, which is a standard practice for regressions involving financial quantities. Thus, coefficient estimates are approximately equal to the percentage change in the outcome as a result of receiving the first award.

**Appendix Table 7** presents the coefficient estimates of the effect of receiving the *first* award on each of the log-transformed outcome variables in the year of award and one, two, and three years post-award. **Figures 6 through 11** in the report transform these estimates by raising the constant  $e$  to the power of the coefficient of interest and subtracting 1, which represents the actual percentage increase resulting from receiving an FA award.

To better understand the scale of the changes, we also applied the percentage change estimates from the model to the average baseline values of the outcome of interest among member loan funds that received an FA award. This represents the average growth in the outcome of interest above and beyond what we would have expected had an award not been received. Dollar results are such throughout the report.

In our subgroup analyses, we calculated the median ratio of total FA award amount to total assets in each year. We divided the awarded member loan funds into two groups: a smaller relative award group, if the ratio of FA award to assets was below the median in the year of the first award, and a larger relative award group, if this ratio was above the median in the year of the first award. The FA award amount includes the base FA award (for NACA, SECA, and Core recipients), as well as supplemental award amounts (depending on year, HFFI-, DF-, and PPC-FA). We chose to compare against the median in each year rather than median overall so that the difference in subgroups is not related to changes in FA award amounts over time.

We then ran our matched DiD procedure twice, once comparing only the smaller relative award group to the comparison group, and a second time comparing the larger relative award group to the comparison group. Estimates are therefore on smaller samples, but represent separate estimates for the effects of FA in each respective group. **Appendix Tables 8 and 9** present the coefficient estimates of each DiD analysis for the small relative award group and the large relative award group, respectively.

---

<sup>4</sup> See Swack, Michael, Eric Hangen, and Jack Northrup. *CDFIs Stepping into the Breach: An Impact Evaluation—Summary Report*. The Carsey School of Public Policy, University of New Hampshire, 2014.

We also present several additional analyses in this appendix to assess the robustness of our findings. These supplementary analyses include:

- **Multiple Comparisons:** We are testing seven outcomes over four years, so to address multiple testing concerns, we discuss and present the results of conservative multiple testing corrections.
- **First Awards:** The term “first award” may not always be correct, because we are not observing awards before 2009. We assess the robustness of our findings to including awards prior to 2009.
- **Macroeconomic Context:** The 2020s were a turbulent time. As a robustness check, we show results that exclude the 2020s from our analysis.
- **2017 Programmatic Changes:** The 2017 programmatic changes at the CDFI Fund marked a potentially significant dividing line in the effects of FA. We present preliminary results assessing this change.

## Results from Main Findings

**Appendix Tables 7, 8, and 9** present the coefficient estimates and associated p-values for the findings discussed in the report.

**Appendix Table 7. Effects of First FA Award Receipt on Financial Strength, Leverage, and Lending Outcomes, OFN Members in the Sample, FYs 2009-2022**

Outcome Variable	Pre-Trends	Award Year	Years After Award		
	Two Years Pre-Award Coefficient (p-value)	Year of Award Coefficient (p-value)	One Year Post-Award Coefficient (p-value)	Two Years Post-Award Coefficient (p-value)	Three Years Post-Award Coefficient (p-value)
<b>Financial Strength</b>					
<b>Log Total Assets</b>	-0.0129 (.8963)	0.1841 (.0210)	0.2403 (.0178)	0.3049 (.0010)	0.4199 (0.0000)
<b>Log Net Assets</b>	-0.1590 (.2584)	0.1080 (.0963)	0.2527 (.0137)	0.3406 (.0004)	0.3890 (.0001)
<b>Log Earned Revenue</b>	-0.0322 (.8612)	0.1263 (.2220)	0.1870 (.1765)	0.3108 (.0086)	0.3429 (.3284)
<b>Log Contributed Revenue</b>	0.0047 (.9814)	0.0183 (.9185)	0.2839 (.1550)	0.2206 (.1967)	0.3618 (.0381)
<b>Leverage</b>					
<b>Log Notes Payable</b>	-0.0694 (.6813)	0.1508 (.1834)	0.2866 (.0139)	0.3941 (.0008)	0.5275 (.0004)
<b>Log Capital Available for Lending</b>	-0.1463 (.3013)	0.1169 (.2012)	0.2364 (.0228)	0.3078 (.0041)	0.4528 (.0013)
<b>Lending</b>					
<b>Log Total Loans Outstanding</b>	-0.0685 (.5823)	0.1275 (.1097)	0.2175 (.0315)	0.3166 (.0006)	0.5586 (.0001)

**Appendix Table 8. Effect of First FA Award Receipt on Financial Strength, Leverage, and Lending Outcomes, OFN Members in the Sample, *Small Relative Award Group*, FYs 2009-2022**

Outcome Variable	Pre-Trends	Award Year	Years After Award		
	Two Years Pre-Award Coefficient (p-value)	Year of Award Coefficient (p-value)	One Year Post-Award Coefficient (p-value)	Two Years Post-Award Coefficient (p-value)	Three Years Post-Award Coefficient (p-value)
<b>Financial Strength</b>					
<b>Log Total Assets</b>	0.2160 (0.4048)	0.2095 (0.0701)	0.2341 (0.0202)	0.2047 (0.1536)	0.1624 (0.1588)
<b>Log Net Assets</b>	-0.2936 (0.1949)	0.1912 (0.1747)	0.2245 (0.2592)	0.2816 (0.0628)	0.3081 (0.1563)
<b>Log Earned Revenue</b>	-0.3827 (0.1423)	0.1380 (0.2457)	0.1593 (0.2369)	0.0834 (0.5980)	0.1444 (0.2976)
<b>Log Contributed Revenue</b>	-0.4222 (0.3599)	-0.0123 (0.9555)	0.2128 (0.4833)	0.1692 (0.4866)	-0.0655 (0.8013)
<b>Leverage</b>					
<b>Log Notes Payable</b>	0.3799 (0.2767)	0.2222 (0.0747)	0.3499 (0.0085)	0.3113 (0.0394)	0.2382 (0.1624)
<b>Log Capital Available for Lending</b>	-0.1908 (0.4878)	0.1446 (0.3344)	0.3417 (0.0166)	0.2514 (0.0643)	0.2120 (0.1566)
<b>Lending</b>					
<b>Log Total Loans Outstanding</b>	-0.1823 (0.5169)	0.0573 (0.8702)	0.0380 (0.7240)	0.1421 (0.2580)	0.3820 (0.1095)

**Appendix Table 9. Effect of First FA Award Receipt on Financial Strength, Leverage, and Lending Outcomes, OFN Members in the Sample, *Large Relative Award Group*, FYs 2009-2022**

Outcome Variable	Pre-Trends	Award Year	Years After Award		
	Two Years Pre-Award Coefficient (p-value)	Year of Award Coefficient (p-value)	One Year Post-Award Coefficient (p-value)	Two Years Post-Award Coefficient (p-value)	Three Years Post-Award Coefficient (p-value)
<b>Financial Strength</b>					
<b>Log Total Assets</b>	-0.1595 (0.0564)	0.1756 (0.0154)	0.2362 (0.0030)	0.3250 (0.0069)	0.5134 (0.0013)
<b>Log Net Assets</b>	-0.0833 (0.6248)	0.0731 (0.3723)	0.2590 (0.0066)	0.3801 (0.0040)	0.4341 (0.0006)
<b>Log Earned Revenue</b>	0.1779 (0.5532)	0.1404 (0.3151)	0.2467 (0.1003)	0.4597 (0.0045)	0.4488 (0.1181)
<b>Log Contributed Revenue</b>	0.2342 (0.3228)	0.0198 (0.9159)	0.2784 (0.2308)	0.1590 (0.5277)	0.5028 (0.0136)
<b>Leverage</b>					
<b>Log Notes Payable</b>	-0.0640 (0.6135)	0.1035 (0.4255)	0.2661 (0.0792)	0.4426 (0.0064)	0.7123 (0.0000)
<b>Log Capital Available for Lending</b>	-0.1257 (0.4735)	0.1120 (0.2499)	0.1927 (0.1989)	0.3172 (0.0334)	0.5236 (0.0002)
<b>Lending</b>					
<b>Log Total Loans Outstanding</b>	-0.0657 (0.7911)	0.0705 (0.5422)	0.2593 (0.0892)	0.0892 (0.0034)	0.6815 (0.0029)

## Multiple-Testing Corrections

Because we present results that are a holistic picture of highly interrelated measures, we chose not to use a multiple-testing correction in the main presentation of results. However, we are presenting results for seven outcomes over four periods, or 28 individual (but not independent) tests of significance.<sup>5</sup> Readers may be interested in tests that either limit the rate of false results (rejections of the null hypothesis) or the chance of any result being false. In this section, we present several checks that control these rates when multiple hypotheses are being tested.

The first procedure we use, Benjamini-Hochberg (BH), controls the False Discovery Rate (FDR) to be five percent. With this BH correction, we would expect less than or equal to five percent of significant results to be erroneous. With 28 total estimates, this would mean that if all 28 were accepted as rejections of the null (significant results), approximately one of them would be incorrect. A significant result for one estimate also suggests that other results will be significant: we would expect an increase in an outcome in one year to make an increase in another year more likely, and outcomes are highly interrelated and sometimes components of one another. In other words, we have hypotheses with high positive dependence. The BH procedure is valid when hypotheses are independent but is both valid and conservative in standard cases of positive dependence, so our FDR control is likely both valid and conservative.<sup>6</sup> Some readers may only want to assess multiple testing issues across the seven outcomes but not over time, which is generally a less restrictive test. We present those results as well.

We also show results with a more restrictive multiple testing correction that limits the chance of any positive result being false (the Family-Wise Error Rate, or FWER) using the Holm Bonferroni (Holm) procedure. We show results under the Holm procedure for both seven and 28 hypotheses, controlling FWER at less than or equal to five percent. Unlike the BH procedure, Holm does not require any dependence assumptions. However, it is again conservative under positive dependence.

**Appendix Table 10** shows the results of these two tests, under both 7- and 28-hypothesis corrections. A test using a 28-hypothesis correction is often a more conservative correction, so if a result is robust to the 28-hypothesis correction, it will typically be robust for the 7-hypothesis correction.<sup>7</sup> A single checkmark (✓) therefore represents robustness to the 7-hypothesis correction, and a second checkmark represents robustness to the 28-hypothesis correction as well. For results that aren't robust to corrections, we use a cross mark (X). "N/A" indicates that there was not a significant result for that outcome-year pair in the first place, so even though we counted this as an evaluated hypothesis, the multiple-testing robustness will fail. Overall, we see that most results remain, especially using the BH correction. The Holm procedure is more conservative, but results are generally robust to Holm corrections for estimates two and three years following award receipt.

For the large vs. small analysis, we show the same multiple comparison corrections in **Appendix Tables 11 and 12**, but this time for 14-hypothesis and 56-hypothesis corrections. These multiple comparison tests are generally more conservative, since we are doubling the hypothesis correction while halving the sample for

<sup>5</sup> We do not test or present pre-trends as results, so we do not include these outcome-years in multiple-testing corrections.

<sup>6</sup> Benjamini, Yoav, and Daniel Yekutieli. "The control of the false discovery rate in multiple testing under dependency." *Annals of Statistics* (2001): 1165-1188.

<sup>7</sup> The year 0 total assets results in **Appendix Tables 10 and 12** have two checkmarks but are only robust to a BH correction with 28 hypotheses. Intuitively, this happens because they are the only one of the 7 hypotheses accepted in year 0 but one of many across all four years. Hence, they pass the correction only when there are other high-confidence results keeping the chance of erroneous discoveries (FDR) low.

each estimate. Results for this analysis also largely remain robust to multiple testing corrections, especially for the larger relative award group analysis.

**Appendix Table 10. Multiple Testing Corrections for Effect of Receiving FA Award on Member Loan Fund Outcomes**

Outcome Variable	Testing Procedure	Award Year	Years After Award		
		Year of Award Coefficient	One Year Post-Award Coefficient	Two Years Post-Award Coefficient	Three Years Post-Award Coefficient
<b>Financial Strength</b>					
Log Total Assets	BH	✓✓	✓✓	✓✓	✓✓
	Holm	X	X	✓✓	✓✓
Log Net Assets	BH	N/A	✓✓	✓✓	✓✓
	Holm	N/A	X	✓✓	✓✓
Log Earned Revenue	BH	N/A	N/A	✓✓	N/A
	Holm	N/A	N/A	✓	N/A
Log Contributed Revenue	BH	N/A	N/A	N/A	✓
	Holm	N/A	N/A	N/A	X
<b>Leverage</b>					
Log Notes Payable	BH Test	N/A	✓✓	✓✓	✓✓
	Holm	N/A	X	✓✓	✓✓
Log Capital Available for Lending	BH Test	N/A	✓✓	✓✓	✓✓
	Holm	N/A	X	✓	✓✓
<b>Lending</b>					
Log Total Loans Outstanding	BH Test	N/A	✓	✓✓	✓✓
	Holm	N/A	X	✓✓	✓✓

**Appendix Table 11. Multiple Testing Corrections for Effect of Receiving FA Award on Member Loan Fund Outcomes, *Smaller Relative Award Group***

Outcome Variable	Testing Procedure	Award Year	Years After Award		
		Year of Award Coefficient	One Year Post-Award Coefficient	Two Years Post-Award Coefficient	Three Years Post-Award Coefficient
<b>Financial Strength</b>					
Log Total Assets	BH	N/A	✓	N/A	N/A
	Holm	N/A	X	N/A	N/A
Log Net Assets	BH	N/A	N/A	N/A	N/A
	Holm	N/A	N/A	N/A	N/A
Log Earned Revenue	BH	N/A	N/A	N/A	N/A
	Holm	N/A	N/A	N/A	N/A
Log Contributed Revenue	BH	N/A	N/A	N/A	N/A
	Holm	N/A	N/A	N/A	N/A
<b>Leverage</b>					
Log Notes Payable	BH Test	N/A	✓	N/A	N/A
	Holm	N/A	X	N/A	N/A
Log Capital Available for Lending	BH Test	N/A	✓	N/A	N/A
	Holm	N/A	X	N/A	N/A
<b>Lending</b>					
Log Total Loans Outstanding	BH Test	N/A	N/A	N/A	N/A
	Holm	N/A	N/A	N/A	N/A

**Appendix Table 12. Multiple Testing Corrections for Effect of Receiving FA Award on Member Loan Fund Outcomes, *Larger Relative Award Group***

Outcome Variable	Testing Procedure	Award Year	Years After Award		
		Year of Award Coefficient	One Year Post-Award Coefficient	Two Years Post-Award Coefficient	Three Years Post-Award Coefficient
<b>Financial Strength</b>					
Log Total Assets	BH	✓✓	✓✓	✓✓	✓✓
	Holm	X	✓	✓	✓✓
Log Net Assets	BH	N/A	✓✓	✓✓	✓✓
	Holm	N/A	✓	✓	✓✓
Log Earned Revenue	BH	N/A	N/A	✓✓	N/A
	Holm	N/A	N/A	✓	N/A
Log Contributed Revenue	BH	N/A	N/A	N/A	✓✓
	Holm	N/A	N/A	N/A	✓
<b>Leverage</b>					
Log Notes Payable	BH Test	N/A	N/A	✓✓	✓✓
	Holm	N/A	N/A	✓	✓✓
Log Capital Available for Lending	BH Test	N/A	N/A	✓	✓✓
	Holm	N/A	N/A	X	✓✓
<b>Lending</b>					
Log Total Loans Outstanding	BH Test	N/A	N/A	✓✓	✓✓
	Holm	N/A	N/A	✓	✓

## Additional Results

### Robustness to Awards Before 2009

One concern in our estimation is that what we are labeling the “first” FA award may not be an organization’s actual first FA award, since we observed FA receipt starting in 2009 but the program has existed since 1994. To address the sensitivity of our analysis to this issue, we tracked the award status of sample member loan funds for the three years before 2009 (2006-2008) and excluded any previous awardees from the analysis. This approach means excluding a minimal number of member loan funds that were awarded FA in 2006-2008 but not in our sample period, since they were not truly “untreated.” We also exclude the member loan funds that were awarded FA in both 2006-2008 and our sample period, which is a similarly small group.

**Appendix Table 13** presents the results of this sensitivity analysis, demonstrating that our key findings are robust to the exclusion of awardees from prior years.

### Robustness to 2020s

Another concern regarding our estimation and results is the dramatic impact that the COVID-19 pandemic had on both CDFI lending and access to different sources of emergency funding (through both the CDFI Fund and other programs, like PPP). Both factors could muddy the effects of FA awards we are estimating if we include data from 2020 onward.<sup>8</sup> To address this, we also conducted a robustness check of our analysis, which replicated our main findings but only for the 2009-2019 period.

**Appendix Table 14** presents the results of this analysis and shows that our main findings remain robust.

### Analysis of Pre-/Post-2017 Effects

As we discussed in the report, the CDFI Fund made significant changes to its FA Award Program in 2017, shifting toward smaller awards to a greater number of CDFIs. An obvious question that emerges, then, is whether and how this change impacted the CDFIs receiving awards. Are CDFIs that receive smaller awards still able to leverage these awards to improve their financial strength and increase lending? To some extent, our subgroup analysis does explore the role of award size among sample member loan funds. However, as we note, it is not possible to fully disentangle the effects of larger/smaller awards from the effects on larger/smaller member loan funds in this analysis. Another way to answer this question would be to conduct the DiD analysis described above on sample member loan funds that received their first award before 2017 and again for those that received their first award in 2017 or later.

The same matching process was carried out on these subsamples to match sample member loan funds receiving their first award with similar members that had not received an award. Once matched, the DiD model was run for each outcome variable on the matched observations.

**Appendix Table 15** presents the coefficient estimates of the effect of receiving their first FA award prior to 2017, and **Appendix Table 16** presents the same for sample member loan funds receiving their first FA award in 2017 or later.

---

<sup>8</sup> There could be similar concerns about the Great Recession. Since we do not have a baseline period until 2009, we don’t investigate the effects of member loan funds receiving FA before 2010, so the core years of the Great Recession are already excluded from our analysis.

We find that the effect of receiving an FA award is consistently significant and larger among sample member loan funds that received awards before 2017, indicating that fewer, larger awards may have had a greater effect on organizational-level outcomes than more, smaller awards. There is a much shorter time period over which to examine the effects of FA awards made from 2017 onward. Also, this period included a time of intense change in the CDFI sector during the COVID-19 pandemic. Because of this, these results should be viewed as exploratory. Future research should revisit this research question once sufficient data has been collected and the results are more stable.

**Appendix Table 13. Effect of First FA Award Receipt on Member Loan Fund Outcomes, *Excluding Pre-2009 Awardees, FYs 2009-2022***

Outcome Variable	Pre-Trends	Award Year	Years After Award		
	Two Years Pre-Award Coefficient (p-value)	Year of Award Coefficient (p-value)	One Year Post-Award Coefficient (p-value)	Two Years Post-Award Coefficient (p-value)	Three Years Post-Award Coefficient (p-value)
<b>Financial Strength</b>					
Log Total Assets	0.0194 (0.8735)	0.1950 (0.0305)	0.2630 (0.0074)	0.2232 (0.0983)	0.3675 (0.0025)
Log Net Assets	-0.1542 (0.3451)	0.1123 (0.2054)	0.2687 (0.0827)	0.3774 (0.0053)	0.4578 (0.0037)
Log Earned Revenue	0.0265 (0.8964)	0.2376 (0.1004)	0.2462 (0.2102)	0.3387 (0.0299)	0.4045 (0.3456)
Log Contributed Revenue	0.0293 (0.9537)	0.0725 (0.7799)	0.1890 (0.4647)	0.0119 (0.9569)	0.3362 (0.1610)
<b>Leverage</b>					
Log Notes Payable	-0.0103 (0.9537)	0.2037 (0.2387)	0.4164 (0.0110)	0.4667 (0.0038)	0.4575 (0.0471)
Log Capital Available for Lending	-0.1798 (0.2617)	0.0767 (0.5025)	0.1632 (0.2015)	0.1639 (0.2147)	0.2168 (0.1176)
<b>Lending</b>					
Log Total Loans Outstanding	-0.1262 (0.4228)	0.1109 (0.3710)	0.2104 (0.1115)	0.3197 (0.0230)	0.6112 (0.0059)

Appendix Table 14. Effect of First FA Award Receipt on Member Loan Fund Outcomes, *Excluding 2020-2022, FYs 2009-2019*

Outcome Variable	Pre-Trends	Award Year	Years After Award		
	Two Years Pre-Award Coefficient (p-value)	Year of Award Coefficient (p-value)	One Year Post-Award Coefficient (p-value)	Two Years Post-Award Coefficient (p-value)	Three Years Post-Award Coefficient (p-value)
<b>Financial Strength</b>					
Log Total Assets	-0.0606 (0.5378)	0.1702 (0.0272)	0.2144 (0.0018)	0.2587 (0.0279)	0.4027 (0.0000)
Log Net Assets	-0.1395 (0.3531)	0.0997 (0.2010)	0.2057 (0.0596)	0.2594 (0.0068)	0.2892 (0.0145)
Log Earned Revenue	-0.0238 (0.9055)	0.0969 (0.4333)	0.1769 (0.1091)	0.2547 (0.0439)	0.3613 (0.0032)
Log Contributed Revenue	-0.0354 (0.8639)	0.0527 (0.7587)	0.3753 (0.0352)	0.2179 (0.2590)	0.3428 (0.0829)
<b>Leverage</b>					
Log Notes Payable	-0.1386 (0.2832)	0.1281 (0.2140)	0.2996 (0.0041)	0.4750 (0.0001)	0.6751 (0.0000)
Log Capital Available for Lending	-0.1901 (0.1751)	0.0888 (0.3142)	0.2152 (0.0240)	0.3037 (0.0065)	0.4863 (0.0001)
<b>Lending</b>					
Log Total Loans Outstanding	-0.0527 (0.6958)	0.1624 (0.0598)	0.2087 (0.0334)	0.2791 (0.0278)	0.5451 (0.0003)

**Appendix Table 15. Effect of First FA Award Receipt on Member Loan Fund Outcomes, *Awards Received Between FYs 2010 and 2016***

Outcome Variable	Pre-Trends	Award Year	Years After Award		
	Two Years Pre-Award Coefficient (p-value)	Year of Award Coefficient (p-value)	One Year Post-Award Coefficient (p-value)	Two Years Post-Award Coefficient (p-value)	Three Years Post-Award Coefficient (p-value)
<b>Financial Strength</b>					
Log Total Assets	-0.0297 (0.8234)	0.1575 (0.0166)	0.2059 (0.0120)	0.2760 (0.0224)	0.4027 (0.0016)
Log Net Assets	-0.1661 (0.3457)	0.0401 (0.6543)	0.1860 (0.0430)	0.2576 (0.0816)	0.2892 (0.0022)
Log Earned Revenue	-0.0353 (0.8844)	0.0076 (0.9528)	0.1352 (0.3087)	0.2893 (0.0165)	0.3613 (0.0064)
Log Contributed Revenue	0.0840 (0.6627)	-0.0047 (0.9780)	0.3325 (0.0829)	0.2269 (0.2577)	0.3428 (0.0294)
<b>Leverage</b>					
Log Notes Payable	0.0138 (0.9246)	0.1036 (0.3810)	0.2687 (0.0212)	0.4707 (0.0002)	0.6751 (0.0000)
Log Capital Available for Lending	-0.2056 (0.2427)	0.0890 (0.2873)	0.2575 (0.0532)	0.3364 (0.0029)	0.4863 (0.0000)
<b>Lending</b>					
Log Total Loans Outstanding	0.0813 (0.7108)	0.0674 (0.5025)	0.1244 (0.2052)	0.2541 (0.0123)	0.5451 (0.0013)

**Appendix Table 16. Effect of First FA Award Receipt on Member Loan Fund Outcomes, Awards Received Between 2017 and 2022**

Outcome Variable	Pre-Trends	Award Year	Years After Award		
	Two Years Pre-Award Coefficient (p-value)	Year of Award Coefficient (p-value)	One Year Post-Award Coefficient (p-value)	Two Years Post-Award Coefficient (p-value)	Three Years Post-Award Coefficient (p-value)
<b>Financial Strength</b>					
<b>Log Total Assets</b>	0.0187 (0.9169)	0.3185 (0.1052)	0.4024 (0.0666)	0.4356 (0.0453)	0.3169 (0.2584)
<b>Log Net Assets</b>	-0.1597 (0.3987)	0.4280 (0.0284)	0.6207 (0.0198)	0.7885 (0.0068)	0.9416 (0.0031)
<b>Log Earned Revenue</b>	0.0697 (0.8311)	0.4956 (0.0744)	0.1855 (0.6167)	0.2232 (0.5610)	0.1314 (0.7434)
<b>Log Contributed Revenue</b>	-0.0842 (0.8705)	0.0960 (0.7843)	0.0665 (0.8857)	0.1537 (0.7273)	0.2973 (0.4789)
<b>Leverage</b>					
<b>Log Notes Payable</b>	-0.3054 (0.5461)	0.3638 (0.2253)	0.2792 (0.3915)	-0.0059 (0.9865)	-0.4732 (0.2939)
<b>Log Capital Available for Lending</b>	-0.0438 (0.8363)	0.2539 (0.3080)	0.1918 (0.4185)	0.2269 (0.3668)	0.2959 (0.3126)
<b>Lending</b>					
<b>Log Total Loans Outstanding</b>	-0.3702 (0.1969)	0.2495 (0.3521)	0.1872 (0.5759)	0.3631 (0.3405)	0.3161 (0.5166)