Online Appendix to "Short-term Finance, Long-term Effects"

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September 4, 2024

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A.1 Sample Construction and Statistics

Sample Cleaning We clean the Orbis firm-level data following the standard procedure as in Kalemli-Ozcan et al. (2015): (i) the data series deflated by the Moroccan national GDP deflator from the World Bank (2007 base); (ii) the entire series of company data is dropped if total assets, sales, tangible fixed asset are negative in any year; (iii) values of zero are dropped for all financial variables; (iv) the series are winsorized by year at 1% following Amamou, Gereben, and Wolski (2020); (v) as a final step, firms that are in the finance and insurance, public administration and utilities sectors are excluded since firms are not eligible for Tamwilcom guarantees.

Merge Databases We pair the Tamwilcom guarantee dataset and the Orbis balance-sheet dataset in four rounds. In the first round, considering that the firm's registered ID with the chamber of commerce is not unique across regions, a unique combination of two variables of national ID and date of firm creation is applied to conduct the first pairing round. This yields good pairing results owing to the good coverage of both variables. In the second round, we use the firm's national ID and name as a unique combination. As a first step, redundant elements in firm names are trimmed away, such as STE, SARL, and Société. With more compact firm names, the Levenshtein distance between the names of two firms is calculated to locate the closest match. A string distance of up to two generally indicates a good match. The third pairing round relies on combining the firm name and address. Paired results from this step only yield a small number of matches. The final round is based on the firm's name and the date of firm creation; the pairing rate is also low.

Table 1: Summary Statistics of Tamwilcom-Guaranteed Firms: Whole Sample vs. Merged Sample

Statistics	Guaranteed Amount		Guaranteed Loan		Sales	
Sample	Whole	Merged	Whole	Merged	Whole	Merged
Mean	545	663	967	1,162	14,610	15,949
Std	1,336	1,467	3,401	3,598	28,120	28,314
Min	2	4	3	5	3	3
25%	35	42	50	60	775	1,148
Median	105	140	150	200	3,219	4,462
75%	400	560	550	800	14,176	17,039
Max	10,000	10,000	190,000	190,000	163,235	163,235

Notes: This table reports summary statistics of three variables (sales, guaranteed loan, and guaranteed amount) from the Tamwilcom sample and the merged sample between the Tamwilcom database and Orbis. All variables are in thousands of Moroccan Dirhams.

Sample Statistics After linking the Tamwilcom database to Orbis, we can identify 11,344 out of 23,017 guaranteed firms in the Orbis database, implying a rate of the successful pairing of 49.3%. Further participation of identified and unidentified guaranteed firms in Orbis shows that the two groups have similar characteristics. As shown in Table 1, loan amount, guaranteed amount, and sales reported by Tamwilcom are comparable for the two groups. One expected difference is that firm size is slightly higher for the subset of guaranteed firms that have been merged with Orbis data. This is because small firms usually report less complete information, making it less likely to be identified in Orbis.

Although we could successfully pair about half of the firms in our confidential loan-level data, a substantial portion of the successfully paired firms do not have key financial variables. Unfortunately, in our final matched sample, only 2.2% of the Tamwilcom-guaranteed firms are included.[1] The rate is admittedly low but is consistent with other studies using Orbis data, especially considering Morocco as an African country. Even studies focusing on the EU and the US, which have much better data coverage, also suffer from low pairing rates. For instance, Gereben et al. (2019) report a rate of only 3.6% using data from Central and Eastern Europe. Fortunately, the sample size is still sufficiently large for our analysis. Our main concern about the pairing rate is the attrition of small firms in the final sample. To correct this bias, we follow Amamou, Gereben, and Wolski (2020) and use the technique of inverse probability weight (henceforth IPW) to recover the shares of firms of different sizes in the original treated population as a robustness check.

Potential Concerns We have two main concerns about our sample construction. The first is that some unidentified treated firms could be mistaken as untreated control firms and are matched with other treated firms later in the procedure. This would bias the estimation downward. However, this concern is marginally relevant due to the low treatment rate. Suppose the total number of firms in Orbis is taken as a representation of the whole business world in Morocco. In that case, there are approximately 1.58 million firms, of which only 23,017 have been treated. The resulting treatment rate is only 1.5%, indicating a very small possibility of a treated firm being matched with another unpaired treated firm.

The second is survivor bias. It mainly results from the fact that only businesses that actively report their balance sheet to the local trade register's office for the last five years are maintained in Orbis' online version. To reduce this bias, we complement the main online version with Orbis historical vintages, which have records of firms exiting the market.

[1] Only 7505 firms have sales data for the year in which they are granted the guarantee. The number drops even further when a panel of at least three consecutive years is required for the matching process later.

A.2 Matching Procedure

Mahalanobis Distance Matching The matching, implemented under the assumption of "selection on observables," consists of finding statistical twins (control firms) for a guaranteed firm based on a series of time-varying and observable variables relevant to selection into the program. We use the Mahalanobis distance matching (MDM) method to construct a control sample in which a treated firm is matched with the five nearest "neighbors."[2]

Variable Choices Following Caliendo and Kopeinig (2008)'s recommendation, we choose the matching variables based on the existing literature and the institutional setting. As a result, total assets, sales, current liabilities, cash and cash equivalents, and firm age are used to measure the statistical distance between observations. Total assets and sales are selected as matching criteria since they are essential to balance sheet items, which reflect the firm's size and overall performance. Current liabilities, namely short-term debt, shed light on the firm's ability to rely on bank credit and the amount of existing indebtedness and risks associated with external credit. Cash and cash equivalents contain short-term investments and funds that can be used to pay current invoices and represent the firm's liquidity situation. The financial variables are log-transformed.

Matching Choices The matching is based on the firm's three-year history before receiving the credit guarantee. Firms with insufficient data coverage are inevitably excluded from the matching procedure. We apply exact matching on the sector, year, and firm size classification. We further divide the firms into 20 quantiles based on their sales and impose exact matching on their quantile bin. The purpose is to maximize the similarities between matched firms while maintaining a decent sample size. In robustness tests, we extend the three-year pre-treatment period to four and five. Our results are robust for both tests.

We conduct a new round of matching for each outcome variable in Section 5.1. In each round, we impose two requirements to ensure sample quality. First, we restrict the sample used for matching only to firms with data points for that outcome variable in that year. If a firm's data is missing for this variable in that period, this observation is dropped automatically. This ensures we match firms with data for the specified outcome variable to be tested in the regression. Second, we drop out outliers for that outcome variable before conducting matching. An observation is considered an outlier if that log change is huge (we use ten as the cutoff). A guaranteed firm is matched with a maximum of five closest control firms based on their Mahalanobis distances. Matched observations of treated firms are assigned a weight of one, whereas those of control firms are allocated a weight based on their distance from the corresponding treated firm.

[2]The Mahalanobis distance is a matrix that measures the multivariate proximity between two observations based on selected variables.

Caliper A caliper is implemented to ensure the common support assumption. A caliper refers to the maximum distance allowed between a treated firm and its controls. Any control firm beyond this caliper is dropped. This is to ensure that all control firms in the final sample are similar enough to the treated firm that it is matched with. The choice of the caliper is derived from the 0.9-quantile of the distribution of distances between observations in nearest neighbor pairwise matching with replacement, multiplied by 1.5. The choice is based on Jann (2017), Huber, Lechner, and Wunsch (2013), Huber, Lechner, and Steinmayr (2015) after considering the variance-bias trade-off: choosing a large caliper includes more control observations, thus decreasing variance; however, the bias increases if a non-comparable and distant control is included.

Weighing The analysis unit is firm-year, based on a similar procedure in Brown and Earle (2017). Matched observations of treated firms are assigned a weight of one, whereas those of control firms are allocated a weight based on their distance from the corresponding treated firm. We first calculate the kernel weight of each matched control observation based on its distance from the treated firm, using the Epanechnikov kernel function with the same bandwidth used in the matching. Subsequently, the weight of each control observation is rescaled as the share of its kernel weight in the sum of kernel weights of all controls matched with the same treated firm. This weight rescaling intends to up-weight those control firms close to treated firms and down-weight those that are far away. For treated firms, only the firm-year observation of the guarantee receipt year is kept. This is to avoid the situation where a treated observation is matched with another observation from a treated firm in a year in which it does not receive a guarantee. For control firms, multiple firm-year observations that belong to the same firm are maintained in the pool of potential controls for matching, provided that the firm's data covers a three-year history of selected financial variables. The matching is performed with a replacement, which implies that one firm-year observation of an untreated firm can be selected more than once.

Matching Outcomes All matched samples have similar characteristics. For ease of discussion on matching outcomes, we hereby use the matched sample where the outcome of interest is sales growth between year $t+1$ and year $t-1$ as a representative sample. We obtain a final matched sample of 506 guaranteed firms and 1937 control firms, among which 60% have been matched only once, and 26% are used twice. The maximum number of times a control firm has been matched is eight. There are only eight firms in this situation. Since most untreated firms are matched only once, we expect the estimation results to be similar to a matching procedure without replacement. This is confirmed later by a robustness check.

Balancedness Tests Figure 1 represents the standardized mean difference (SMD) and variance ratios between the treated and control groups in the raw and matched sample.[3] The SMD mea-

[3]See Table 2 for the statistics represented in Figure 1.

Figure 1: Standardized Mean Difference and Variance Ratio in Raw and Matched Sample

Notes: This figure is a visualization of Table 2. The standardized mean differences ("Std-Dif") and variance ratios ("Ratio") of the raw sample and matched sample are reported by the Stata *kmatch* package as in Jann (2017). All financial variables are log-transformed.

sures the mean difference of a given variable between two groups, normalized by the standard deviation of that variable. Variance ratio refers to the ratio between the variances of a variable across two groups. A value of zero for the SMD and a value of one for the variance ratio indicate a good balance in the sample. As shown in the Figure, the matching procedure substantially improves the overall balancedness for most variables, except for cash. Guaranteed firms have a lower cash holding level on average compared to their matched control firms, which also appears in Figure 2.

As a second balancedness test suggested by Caliendo and Kopeinig (2008), we evaluate the probability of obtaining a guarantee through a logit model based on the variables used in the matching. Ideally, a drop in R^2 indicates a good balance in the sample. We observe that the pseudo R^2 of the logit model falls from 0.11 with the raw sample to 0.01 with the matched sample. This confirms the loss of the predictive power of the selected variables after matching. It confirms that the matching procedure has eliminated differences in the pre-treatment observable characteristics between the two groups and that the treatment status is "randomized" in the matched sample conditional on the selected variables.

Trend Inspection Figure 2 illustrates the weighted average of the log value of the four variables used in the matching procedure. It confirms the parallel pre-treatment trend between the

Table 2: Standardized Mean Difference and Variance Ratio: Raw and Matched Sample

Sample	Raw			Matched		
Mean	Treated	Untreated	StdDif	Treated	Untreated	StdDif
$\ln(\text{total assets})_{t-1}$	15.60	14.01	0.88	16.61	16.62	-0.01
$\ln(\text{sales})_{t-1}$	15.62	11.23	1.06	16.71	16.70	0.003
$\ln(\text{current liabilities})_{t-1}$	15.09	13.42	0.71	16.16	16.08	0.03
$\ln(\text{cash})_{t-1}$	11.35	10.76	0.25	12.21	12.90	-0.30
$\ln(\text{total assets})_{t-2}$	15.40	13.94	0.79	16.50	16.55	-0.03
$\ln(\text{sales})_{t-2}$	15.13	11.19	0.89	16.66	16.66	-0.001
$\ln(\text{current liabilities})_{t-2}$	14.88	13.28	0.64	16.06	16.04	0.01
$\ln(\text{cash})_{t-2}$	11.35	10.77	0.26	12.13	12.81	-0.30
$\ln(\text{total assets})_{t-3}$	15.12	13.82	0.67	16.39	16.48	-0.05
$\ln(\text{sales})_{t-3}$	14.39	10.78	0.72	16.60	16.61	-0.004
$\ln(\text{current liabilities})_{t-3}$	14.48	12.96	0.50	15.97	15.99	-0.01
$\ln(\text{cash})_{t-3}$	11.31	10.78	0.24	12.13	12.74	-0.28
ln(age)	5.18	5.15	0.07	5.43	5.45	-0.06
Variances	Treated	Untreated	Ratio	Treated	Untreated	Ratio
$\ln(\text{total assets})_{t-1}$	2.17	4.35	0.50	1.65	1.64	1.01
$\ln(\text{sales})_{t-1}$	2.26	32.33	0.07	1.35	1.34	1.01
$\ln(\text{current liabilities})_{t-1}$	3.32	7.66	0.43	1.96	1.91	1.03
$\ln(\text{cash})_{t-1}$	5.14	5.56	0.92	4.57	3.72	1.23
$\ln(\text{total assets})_{t-2}$	2.46	4.34	0.57	1.73	1.71	1.01
$\ln(\text{sales})_{t-2}$	7.32	31.99	0.23	1.37	1.38	0.99
$\ln(\text{current liabilities})_{t-2}$	3.72	8.60	0.43	2.01	1.95	1.03
$\ln(\text{cash})_{t-2}$	4.95	5.27	0.94	4.55	3.81	1.20
$\ln(\text{total assets})_{t-3}$	3.09	4.47	0.69	1.79	1.77	1.01
$\ln(\text{sales})_{t-3}$	15.34	34.52	0.44	1.37	1.41	0.98
$\ln(\text{current liabilities})_{t-3}$	6.67	11.31	0.59	2.08	1.94	1.07
$\ln(\text{cash})_{t-3}$	4.78	5.00	0.96	4.51	3.78	1.19
ln(age)	0.23	0.20	1.13	0.22	0.18	1.27

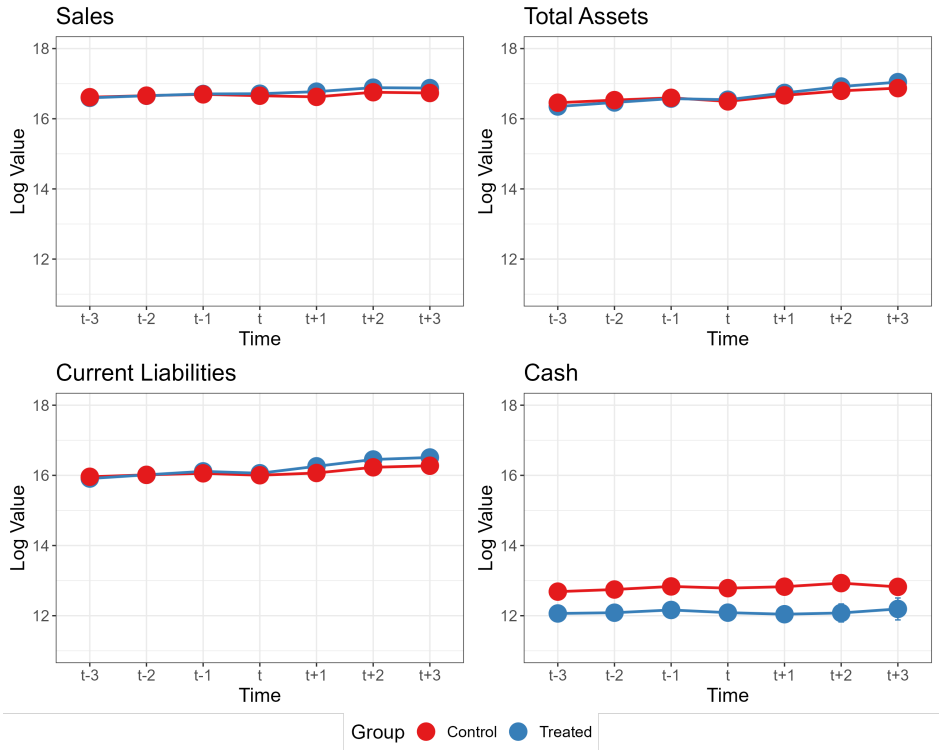
Notes: This table reports the standardized mean differences ("StdDif") and variance ratios ("Ratio") of the raw sample and the matched sample, reported by Stata *kmatch* package (see Jann (2017)). All variables are log-transformed.

treated and control firms and provides preliminary evidence on the dynamic impact of working capital loan guarantees on a firm's growth. As shown in Figure 2, guaranteed firms experience growth in sales, total assets, current liabilities, and a decline in cash. This will be confirmed later in the regressions. Overall, standard balancedness tests indicate a good balance in the sample.

As for the level of financial variables before treatment, they are similar, except for cash. Guaranteed firms have a lower level of cash holding on average compared to their matched control

firms. This is likely linked to the firm's short-term credit demand. Firms that apply for a guarantee have insufficient cash to cover their liquidity needs. To address this issue, we conduct two robustness tests of a matching procedure focused only on cash-related variables. We show that the results are consistent. This is detailed in A.5.

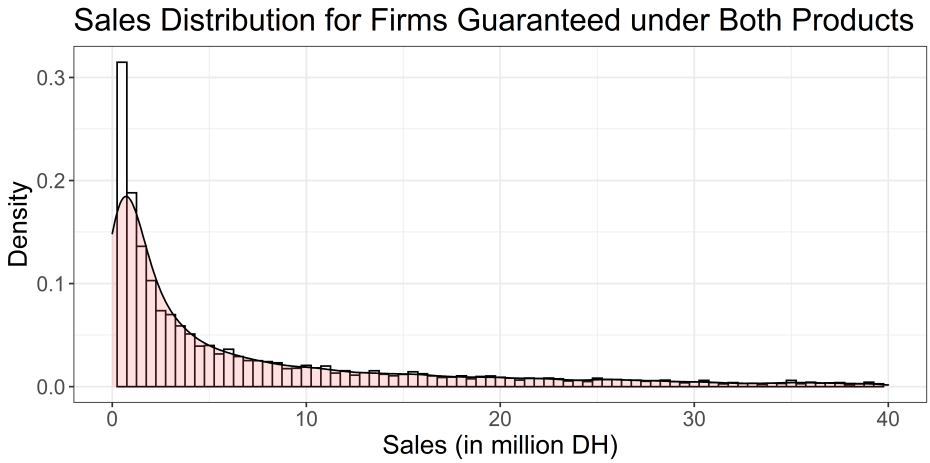
Figure 2: Trend Inspection of Four Financial Variables Used in Matching



Notes: This figure depicts the weighted average of the log values of sales, total assets, current liabilities, and cash in years $t-3$ to $t+3$ of treated and control firms in the final matched sample. Confidence intervals are at the 95% level.

A.3 Supplementary on Summary Statistics

Figure 3: Sales Distribution of Guaranteed Firms



Notes: This figure presents the sales distribution (density) of firms guaranteed under Damane Exploitation and Damane Express. The sales number is from the Tamwilcom database.

Table 3: Summary Statistics: Guaranteed Firms VS. Non-Guaranteed Firms

Statistic	N	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)
Guaranteed firms (treated sample)						
Sales Growth	3,178	0.152	1.836	−0.108	0.073	0.290
Total Assets Growth	3,184	0.177	1.728	−0.015	0.148	0.367
Costs of Employees Growth	3,091	0.204	0.597	−0.017	0.130	0.331
Fixed Assets Growth	3,184	0.099	2.308	−0.323	−0.053	0.340
Current Liabilities Growth	3,184	0.189	1.537	−0.091	0.123	0.388
Cash Growth	3,124	0.058	1.984	−0.942	0.066	1.038
Non-guaranteed firms (control sample)						
Sales Growth	15,921	0.086	2.214	−0.126	0.034	0.224
Total Assets Growth	15,932	0.095	1.804	−0.048	0.087	0.265
Costs of Employees Growth	15,338	0.138	0.573	−0.038	0.089	0.258
Fixed Assets Growth	15,932	−0.043	2.374	−0.377	−0.096	0.182
Current Liabilities Growth	15,951	0.094	1.558	−0.137	0.045	0.290
Cash Growth	15,674	0.104	1.608	−0.624	0.076	0.860

Notes: The summary statistics are based on the matched sample of treated firms and control firms. The growth rate of financial variables is the first difference between logged variables.

Table 4: Distribution Statistics of Firm Characteristics

Assets Quantile	Assets	Sales/Assets	Debt/Assets	Cash/Assets
Orbis Sample				
1	77	1.21	0.24	0.59
2	338	1.24	0.53	0.25
3	1,102	1.02	0.61	0.15
4	3,509	0.89	0.65	0.10
5	41,965	0.68	0.65	0.06
Guaranteed Sample				
1	770	1.69	0.56	0.18
2	2,462	1.31	0.62	0.08
3	5,422	1.21	0.65	0.06
4	12,866	1.12	0.66	0.05
5	54,923	0.91	0.68	0.03
Non-Guaranteed Sample (Control)				
1	2,897	2.02	0.60	0.12
2	8,704	1.54	0.64	0.08
3	16,971	1.32	0.64	0.06
4	33,254	1.08	0.63	0.06
5	111,372	0.72	0.60	0.04
Non-Guaranteed Sample (Whole)				
1	73	1.20	0.23	0.60
2	309	1.25	0.52	0.26
3	996	1.01	0.61	0.16
4	3,166	0.87	0.65	0.11
5	40,929	0.65	0.65	0.06

Notes: This table reports the means of indicated financial variables and ratios based on five quantile groups of total assets. The unit of total assets is a thousand. Observations with ratios of current liabilities/total assets and cash/total assets greater than one or less than 0 are dropped. The Orbis sample comprises all firms in Morocco. The guaranteed sample refers to the whole sample of guaranteed firms. The non-guaranteed sample (whole) comprises all firms that do not possess a credit guarantee. The non-guaranteed sample (control) refers to those non-guaranteed firms selected during the empirical analysis's matching process.

A.4 Supplementary on Participation Rate

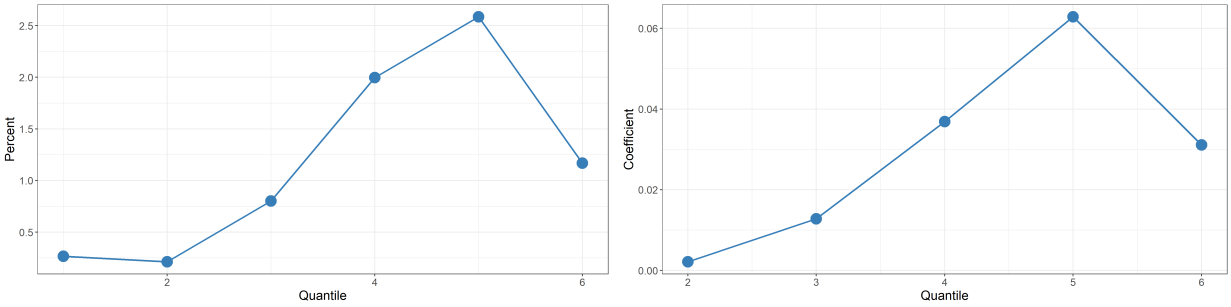
Table 5: Participation Rate by Size

Size	Participation Rate (%)
Small company	2.51
Medium-sized company	15.40
Large company	11.44
Very large company	1.22

Table 6: Probability of Successful Pairing between Tamwilcom and Orbis by Size

Size	Probability (%)
Small company	30.37
Medium-sized company	52.54
Large company	74.41
Very large company	79.03

Figure 4: Distribution of Participation Rate



(a) Distribution by Total Assets Quantile Bin (b) Coefficient of Quantile Regression

Notes: The cut points of total assets quantile bins are set at 0.1, 0.5, 0.75, 0.9, 0.99. In Figure 4 (a), the participation rate is calculated as the ratio of the number of guaranteed firms to the total number of firms in each bin. In Figure 4 (b), the coefficient is from the following regression: $\text{Participation}_{it} = \sum_{q=1}^{6} \beta_q \text{ Quantile Bin}_q + \delta_j + \delta_t$, where i indexes individual firms, j indexes sector, and t indexes year. $\text{Participation}_{it}$ is a dummy variable of one if the firm is guaranteed and zero otherwise. Quantile Bin_q is a dummy variable of one of the firm's total assets located in quantile q ($q \in [1, 6]$), and zero otherwise. δ_j and δ_t refer to sector and year fixed effects. Observations in quantile one are dropped automatically by Stata due to collinearity. Coefficients of β_q are reported in Figure 4 (b).

A.5 Robustness Checks

A.5.1 Number of Pre-treatment Years in Matching

The first robustness test corresponds to concerns regarding the number of pre-treatment years used for matching. Existing literature suggests that we should rely on at least three years' pre-treatment performance for matching, which is our main estimation. In this robustness check, we extend the number of years to four and five. Table 7 reports the estimated results when we match four years' data. As a result of the stricter matching requirement, the number of treated firms that have at least one matched control firm drops to 345. Most results in year $t+1$ remain robust and significant on a similar level, consistent with our baseline results. When we increase the number of years used for matching to five, we only have 213 guaranteed firms that enter the final sample. The estimated results for the year $t+1$ in Table 8 are mostly significant except for the coefficient on cash. This is also in line with the baseline.

Table 7: Results of Year $t+1$ from Matching on Four Pre-Treatment Years' Data

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Total Assets	Current Liabilities	Cash	Costs of Employees	Fixed Assets
Guaranteed	0.130^{***}	0.094^{**}	0.129^{***}	0.090	0.090^{***}	0.146^{*}
	(0.029)	(0.029)	(0.031)	(0.106)	(0.025)	(0.069)
N	13432	13723	13952	13531	12636	13460
adj. R^2	0.216	0.236	0.213	0.338	0.228	0.213
Group × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
City × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the coefficients of treatment ("Guaranteed") from DID regression in the robustness test, where we match on four pre-treatment years' data. Each outcome variable in each year is based on a different matched sample where we drop firms without data for that outcome variable in that year before matching and excluding outliers. The dependent variables are the log difference of six main outcome variables (sales, total assets, labor costs, fixed assets, cash, and current liabilities) in year $t+1$ from year $t-1$. "Guaranteed" indicates that a firm receives a Tamwilcom guarantee in year t. Group-year and city-year fixed effects are included. Standard errors are clustered at the group-year level. Significance level: $^{+}$ $p<0.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 8: Results of Year $t+1$ from Matching on Five Pre-Treatment Years' Data

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Total Assets	Current Liabilities	Cash	Costs of Employees	Fixed Assets
Guaranteed	0.169^{***}	0.137^{***}	0.130^{***}	0.015	0.081^{**}	0.273^{***}
	(0.039)	(0.032)	(0.036)	(0.133)	(0.029)	(0.075)
N	8664	8805	8902	8752	8343	8641
adj. R^2	0.265	0.236	0.133	0.361	0.223	0.229
Group × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
City × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the coefficients of treatment ("Guaranteed") from DID regression in the robustness test, where we match five pre-treatment years' data. Each outcome variable in each year is based on a different matched sample where we drop firms without data for that outcome variable in that year before matching and excluding outliers. The dependent variables are the log difference of six main outcome variables (sales, total assets, labor costs, fixed assets, cash, and current liabilities) in year $t+1$ from year $t-1$. "Guaranteed" indicates that a firm receives a Tamwilcom guarantee in year t. Group-year and city-year fixed effects are included. Standard errors are clustered at the group-year level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A.5.2 Data Attrition Bias

The second robustness test is to correct the bias from the data attrition issue. The main concern arises from the loss of observations of small firms during matching. Considering that small firms often report minimal financial data, it could lead to their exclusion in the matching process due to missing data points. In order to correct this bias, we use inverse probability weighting (ipw) (Amamou, Gereben, and Wolski, 2020) to increase the weight of underrepresented SMEs and decrease the weight of those who are over-represented. As a first step, we calculate the number of small, medium, and large firms in the sample of Tamwilcom-guaranteed firms that can be merged with Orbis. As discussed earlier, this sample shares similar statistical properties with the sample of all Tamwilcom-guaranteed firms. The reason for choosing this merged sample rather than the full sample is that we can use the size information provided by Orbis. We assume that information on firm size composition in this merged sample can reflect that of the full sample. As a second step, we count the number of firms of different sizes in the processed sample after matching and divide the number of small, medium, and large firms in the processed sample by the number in the original sample before matching. The inverse of the proportion is then used as a weight to re-scale the representation of different-sized firms in the final sample. As Table 9 shows, estimation results are similar to the main ones, with the exception of total and fixed assets.

Table 9: Results of Year $t+1$ with Inverse Probability Weight

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Total Assets	Current Liabilities	Cash	Costs of Employees	Fixed Assets
Guaranteed	0.129**	0.039	0.109**	-0.224	0.131**	0.003
	(0.046)	(0.037)	(0.041)	(0.176)	(0.040)	(0.103)
N	17199	17344	17520	17017	16571	17117
adj. R^2	0.201	0.222	0.193	0.323	0.319	0.201
Group × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
City × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the coefficients of treatment ("Guaranteed") from DID regression in the robustness test, where we use the technique of inverse probability weight to correct data attrition bias. Each outcome variable in each year is based on a different matched sample where we drop firms without data for that outcome variable in that year before matching and excluding outliers. The dependent variables are the log difference of six main outcome variables (sales, total assets, labor costs, fixed assets, cash, and current liabilities) in year $t+1$ from year $t-1$. "Guaranteed" indicates that a firm receives a Tamwilcom guarantee in year t. Group-year and city-year fixed effects are included. Standard errors are clustered at the group-year level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A.5.3 Emphasizing Cash in Matching

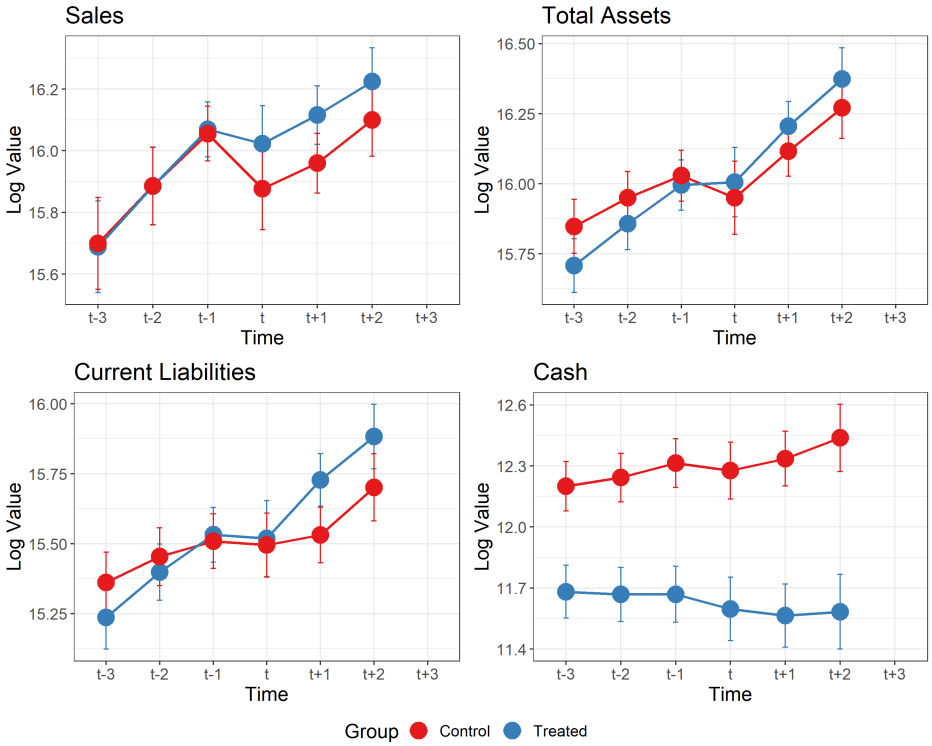
The third set of checks intends to test the robustness of the main results when we emphasize matching on cash-related variables to reduce the difference in the cash level of treated and control firms after matching in Figure 2. As a first test, we use one-to-one nearest-neighbor matching to ensure that only the closest control firm is selected. This is to see if the difference in the gap comes from any chosen control firm that is not similar enough to its matched neighbor. As shown in Figure 5, the gap remains large and is very similar to the five-to-one nearest neighbor matching. In view of this, we rule out the possibility that remote control firms contribute to the difference in cash. As a further test, we only include logged cash and the ratio of cash to total assets in the matching process. This setup "forces" a good matching result on cash by not including other variables so that the measurement of Mahalanobis distance is only based on cash-related variables. In addition, we divide the variable of logged cash into 20 quantile intervals and apply exact matching on the interval. Figure 6 shows that this procedure manages to substantially improve the matching performance on cash. Furthermore, total assets are balanced as well due to the incorporation of the ratio of cash to total assets. However, we observe a gap in sales. To reduce this gap, we modified the setup to match on cash ratio and logged sales. As Figure 7 indicates, the good balancedness in cash, total assets, and current liabilities are preserved while the difference in sales is decreased. Estimation results for both matchings are reported in Table 10 and Table 11. They are consistent with the main results.

Table 10: Results of Year $t+1$ from Matching on Logged Cash and Cash Ratio

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Total Assets	Current Liabilities	Cash	Costs of Employees	Fixed Assets
Guaranteed	0.217**	0.162**	0.203***	-0.067	0.088**	0.256*
	(0.080)	(0.052)	(0.050)	(0.114)	(0.032)	(0.114)
N	6109	6435	6604	6144	4963	6209
adj. R^2	0.233	0.231	0.101	0.325	0.359	0.215
Group × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
City × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

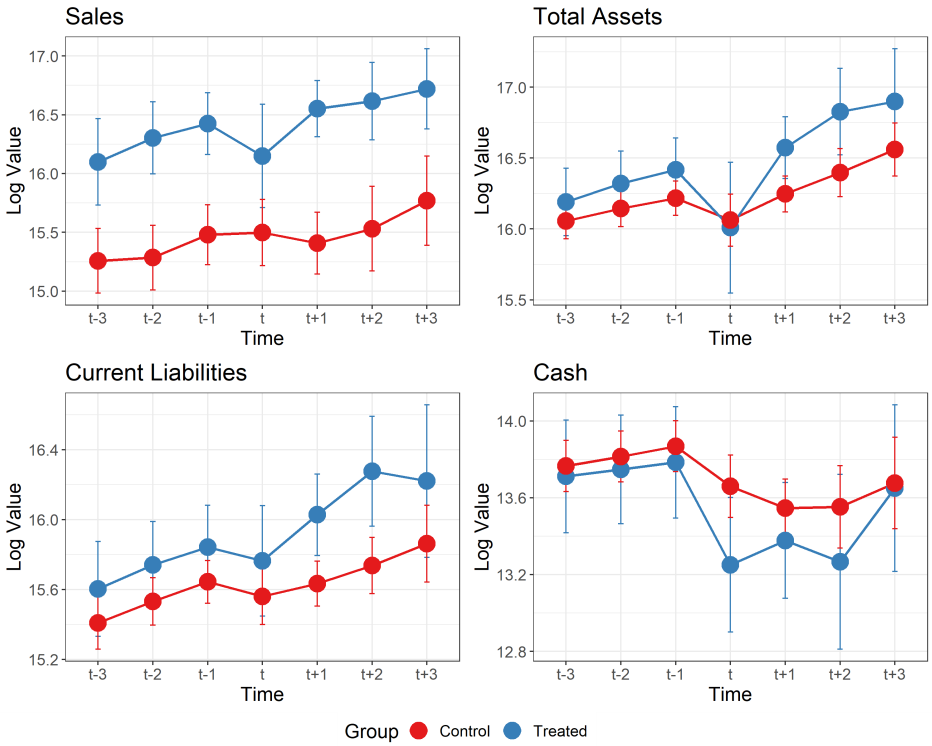
Note: This table reports the coefficients of treatment ("Guaranteed") from DID regression in the robustness test, where we only include logged cash and the ratio of cash to total assets from three pre-treatment years for matching. In addition, we divide the log cash variable into 20 quantile intervals and apply exact matching on the interval. Each outcome variable in each year is based on a different matched sample where we drop firms without data for that outcome variable in that year before matching and excluding outliers. The dependent variables are the log difference of six main outcome variables (sales, total assets, labor costs, fixed assets, cash, and current liabilities) in year $t+1$ from year $t-1$. "Guaranteed" indicates that a firm receives a Tamwilcom guarantee in year t. Group-year and city-year fixed effects are included. Standard errors are clustered at the group-year level. Significance level: $^{+}$ $p<0.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Figure 5: Robustness: Trend Inspection from Matching with One Nearest Neighbor



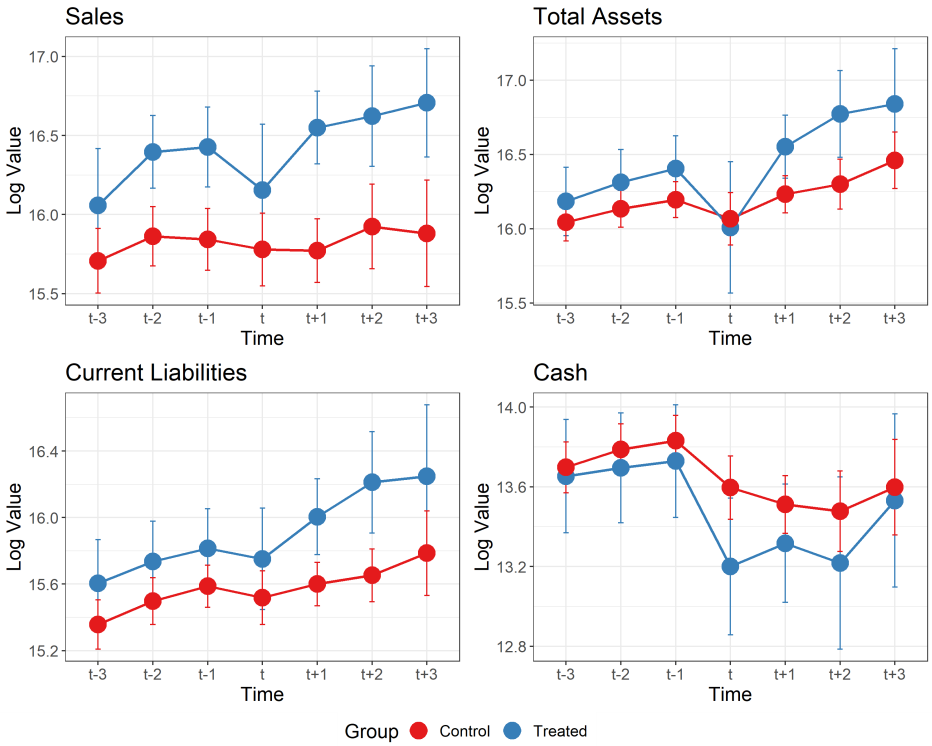
Notes: This figure depicts the weighted average of the log values of sales, total assets, current liabilities, and cash in year $t-3$ to $t+2$ of treated and control firms from the robustness test, where we match only one nearest control firm for a treated firm. The confidence interval is at 95% level.

Figure 6: Robustness: Trend Inspection from Matching on Log Cash and Cash Ratio



Notes: This figure depicts the weighted average of the log values of sales, total assets, current liabilities, and cash in year $t-3$ to $t+2$ of treated and control firms from the robustness test, where we only include logged cash and the ratio of cash to total assets from three pre-treatment years for matching. In this robustness test, we also divide the log cash variable into 20 quantile intervals and apply exact matching on this interval. The confidence interval is at 95% level.

Figure 7: Robustness: Trend Inspection from Matching on Log Sales and Cash Ratio



Notes: This figure depicts the log values of sales, total assets, current liabilities, and cash in year $t-3$ to $t+2$ of both treated and control firms from the robustness test, where we only include logged sales and the ratio of cash to total assets from three pre-treatment years for matching. In this robustness test, we also divide the log cash variable into 20 quantile intervals and apply exact matching on this interval. The confidence interval is at 95% level.

Table 11: Results of Year $t+1$ from Matching on Logged Sales and Cash Ratio

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Total Assets	Current Liabilities	Cash	Costs of Employees	Fixed Assets
Guaranteed	0.202**	0.136**	0.205***	-0.091	0.096**	0.243*
	(0.071)	(0.052)	(0.050)	(0.115)	(0.031)	(0.104)
N	6478	6750	6873	6496	5335	6595
adj. R^2	0.324	0.215	0.137	0.297	0.364	0.196
Group × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
City × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the coefficients of treatment ("Guaranteed") from DID regression in the robustness test, where we only include logged sales and the ratio of cash to total assets from three pre-treatment years for matching. In addition, we divide the log cash variable into 20 quantile intervals and apply exact matching on the interval. Each outcome variable in each year is based on a different matched sample where we drop firms without data for that outcome variable in that year before matching and excluding outliers. The dependent variables are the log difference of six main outcome variables (sales, total assets, labor costs, fixed assets, cash, and current liabilities) in year $t+1$ from year $t-1$. "Guaranteed" indicates that a firm receives a Tamwilcom guarantee in year t. Group-year and city-year fixed effects are included. Standard errors are clustered at the group-year level. Significance level: $^{+}$ $p<0.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

A.5.4 Propensity Score in Mahalanobis Distance

In the fourth set of checks, we include propensity score as one variable in calculating Mahalanobis distance. We exploit the predictive power of a logit model, where the dependent variable is a dummy of one if a firm is guaranteed in a certain year, and independent variables are the same as those selected for calculating Mahalanobis distance. Table 12 reports the estimation results, which are similar to our main results. We conduct another robustness test where we increase the number of nearest neighbors matched with guaranteed firms to ten. We find that the results are not sensitive to the number of controls chosen for the treated firm, as shown in Table 13. We also apply the matching procedure without replacement and confirm that estimation results remain similar, as shown in Table 14.

Table 12: Results of Year $t+1$ with Propensity Score in Multivariate Matching

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Total Assets	Current Liabilities	Cash	Costs of Employees	Fixed Assets
Guaranteed	0.139***	0.093***	0.143***	-0.054	0.107***	0.113+
	(0.025)	(0.024)	(0.027)	(0.091)	(0.021)	(0.061)
N	18268	18464	18841	18141	17418	17976
adj. R^2	0.190	0.204	0.213	0.313	0.241	0.199
Group × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
City × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the coefficients of treatment ("Guaranteed") from DID regression in the robustness test, where we include propensity score as one variable in calculating Mahalanobis distance. Each outcome variable in each year is based on a different matched sample where we drop firms without data for that outcome variable in that year before matching and excluding outliers. The dependent variable in the logit model is a dummy of one if a firm is guaranteed in a certain year, and the independent variables are the same ones selected for calculating Mahalanobis distance in the main setup. Outcome variables are the log difference of six main variables (sales, total assets, labor costs, fixed assets, cash, and current liabilities) in year $t+1$ from year $t-1$. "Guaranteed" indicates that a firm receives a Tamwilcom guarantee in year t. Group-year and city-year fixed effects are included. Standard errors are clustered at the group-year level. Significance level: $^{+}$ $p<0.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 13: Results of Year $t+1$ from Matching on 10 Nearest Neighbors

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Total Assets	Current Liabilities	Cash	Costs of Employees	Fixed Assets
Guaranteed	0.136***	0.084***	0.131***	0.135	0.098***	0.163*
	(0.023)	(0.022)	(0.025)	(0.101)	(0.023)	(0.064)
N	23583	24054	24569	23644	22796	23410
adj. R^2	0.253	0.253	0.249	0.348	0.278	0.246
Group × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
City × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the coefficients of treatment ("Guaranteed") from DID regression in the robustness test, where we match up to 10 nearest control firms for a treated firm. Each outcome variable in each year is based on a different matched sample where we drop firms without data for that outcome variable in that year before matching and excluding outliers. The dependent variables are the log difference of six main outcome variables (sales, total assets, labor costs, fixed assets, cash, and current liabilities) in year $t+1$ from year $t-1$. "Guaranteed" indicates that a firm receives a Tamwilcom guarantee in year t. Group-year and city-year fixed effects are included. Standard errors are clustered at the group-year level. Significance level: $^{+}$ $p<0.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Table 14: Results of Year $t+1$ from Matching without Replacement

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Total Assets	Current Liabilities	Cash	Costs of Employees	Fixed Assets
Guaranteed	0.147***	0.105***	0.146***	-0.198*	0.086**	0.109^{+}
	(0.030)	(0.024)	(0.028)	(0.084)	(0.028)	(0.063)
N	16165	16631	16682	16131	14681	16226
adj. R^2	0.297	0.207	0.261	0.328	0.267	0.234
Group × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
City × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the coefficients of treatment ("Guaranteed") from DID regression in the robustness test, where we apply the matching procedure without replacement. Each outcome variable in each year is based on a different matched sample where we drop firms without data for that outcome variable in that year before matching and excluding outliers. The dependent variables are the log difference of six main outcome variables (sales, total assets, labor costs, fixed assets, cash, and current liabilities) in year $t+1$ from year $t-1$. "Guaranteed" indicates that a firm receives a Tamwilcom guarantee in year t. Group-year and city-year fixed effects are included. Standard errors are clustered at the group-year level. Significance level: $^{+}$ $p<0.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

A.5.5 Placebo Test Assuming Treatment Occurred Three Years Earlier

We conduct a falsification test assuming the treatment occurred three years earlier than it actually took place. Table 15 reports the estimation results. As it shows, most coefficients are not significant, which confirms the robustness of the main results.

Table 15: Results of Year $t+1$ from Placebo Test

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales	Total Assets	Current Liabilities	Cash	Costs of Employees	Fixed Assets
Guaranteed	-0.013	0.098	-0.006	-0.022	0.104**	0.091
	(0.117)	(0.089)	(0.057)	(0.100)	(0.039)	(0.126)
N	17833	17859	17874	17575	17219	17859
adj. R^2	0.069	0.037	0.032	0.102	0.083	0.029
Group × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
City × Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: This table reports the coefficients of treatment ("Guaranteed") from DID regression in the robustness test, where we assume the treatment occurred three years earlier. Each outcome variable in each year is based on a different matched sample where we drop firms without data for that outcome variable in that year before matching and excluding outliers. The dependent variables are the log difference of six main outcome variables (sales, total assets, labor costs, fixed assets, cash, and current liabilities) in year $t+1$ from year $t-1$. "Guaranteed" indicates that a firm receives a Tamwilcom guarantee in year t. Group-year and city-year fixed effects are included. Standard errors are clustered at the group-year level. Significance level: $^{+}$ $p<0.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

B Theoretical Appendix

B.1 Proofs in the Analytical Model

B.1.1 The entrepreneur's program in the special case

The first-order conditions of the Lagrangian problem associated with objective (12) are the following:

$$/d_t \ : d_t^{-\eta} - \eta_t = 0 \tag{1}$$

$$/n_t \ : \beta \epsilon v'(n_t) - \eta_t = 0 \tag{2}$$

$$/k_t \ : -\gamma_t + [\psi'(k_t) + 1 - \delta] + \lambda_t(\theta - a) = 0 \tag{3}$$

$$/c_t \ : -\gamma_t + (1 + r_t) + \lambda_t + \zeta_t = 0 \tag{4}$$

where η_t is the shadow price of the budget constraint (13), and γ_t, λ_t and ζ_t the shadow prices of, respectively, the net worth allocation constraint (14), the working capital constraint (15) and the non-negative cash constraint (16), normalized by $[\eta_t(1-\tau)]^{-1}$. The envelope theorem yields

$$v'(n_{t-1}) - \gamma_t \eta_t (1 - \tau) = 0 \tag{5}$$

We use the first-order conditions to derive the equations (17) and (19) in the paper. FOC equation (3) and equation (4) yield the relationship between MBK and MBC equation (17) immediately. Considering a sufficiently small SME which needs positive cash holdings ($\zeta = 0$), FOC equation (2), combined with equation (5) evaluated in $t+1$, together with equation (4) evaluated in $t+1$, and finally replace both η_t and η_{t+1} using equation (1), yield equation (19).

B.1.2 Proof of Proposition 2

Point (i) derives immediately from the long-term Euler equation (21) and from the stationarity of household consumption that implies $\beta(1 + r_{t+1}) = 1$.

To establish the point (ii), we use the expression for λ_t^*, where we replace λ_t^* with its long-term value λ^{LT}. We obtain an implicit definition of the long-run capital stock k^{LT}:

$$\lambda^{LT} = \frac{\psi'(k^{LT}) + 1 - \delta - (1 + r_t)}{1 + a - \theta}$$

we then replace $1 + r_t$ with $1/\beta$. Then, we define the optimal capital stock as k^{opt}. Noting that,

k^{opt} is determined by $\psi'(k^{opt}) + 1 - \delta = (1 + r_t)$, we replace $1 - \delta - (1 + r_t)$ with $-\psi'(k^{opt})$. This yields point (ii).

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