Firm-Level Impact of Credit Guarantees: Evidence from Turkish Credit Guarantee Fund

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Ünal Seven
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Abstract. This paper studies the firm-level short-term impact of one of the largest credit guarantee programs in the world recently implemented in Turkey. Using a combination of firm-level administrative databases of tax registry, credit registry, and the credit guarantee fund (CGF) registry, we analyze the characteristics of the CGF supported firms and the program's impact on their employment, sales, and credit default probability. We find that the CGF program on average had a positive impact on the performance of treated firms, where the CGF supported firms were able to increase their employment by 17 percent, sales by 70 percent and reduce their credit default probability by 0.6 percentage point relative to their matched-control group. Evaluating our estimation results at variable averages shows that every 1 million TL credit generated via the CGF program preserved 2.7 extra employment and stimulated about 3 million TL in sales. We also observe an overall increase in firm indebtedness, which may adversely affect firms' financial health in the long-run. Moreover, our findings reveal that the program impact is heterogeneous across firm size and sector groups. We use this heterogeneity to perform counter-factual policy exercises indicating that redesigning the program with such priorities can bring substantial efficiency gains.

Keywords: Credit Guarantee Schemes; SME Lending; Impact Analysis

JEL classifications: G21, G3, L25

Özet. Bu çalışmada, yakın zamanda Türkiye'de uygulanan dünyanın en büyük kredi garanti programlarından birinin firma düzeyindeki kısa vadeli etkileri incelenmektedir. Firma mali tablolarına ilişkin idari kayıtlar, Risk Merkezi kredi kayıtları ve Kredi Garanti Fonu (KGF) mikro veri tabanları birleştirilerek, KGF destekli firmaların özellikleri ve programın istihdam, satış ve kredi temerrüt olasılıkları üzerindeki etkisi analiz edilmektedir. Analiz sonuçları, KGF programının desteklenen firmaların performansına, ortalamada, olumlu bir etkisinin olduğunu göstermektedir. Bulgular, KGF desteği alan firmaların (deney grubu), almayan ikizlerine kıyasla (kontrol grubu), istihdamlarını yüzde 17, satışlarını yüzde 70 artırdığını, kredi temerrüt olasılıklarını ise 0,6 yüzde puan azalttığını göstermektedir. Tahmin sonuçları ilgili değişken ortalamaları üzerinden değerlendirildiğinde, her 1 milyon TL'lik KGF kredisinin yaklaşık 2,7 ilave istihdam ve 3 milyon TL satış sağladığı sonucuna ulaşılmaktadır. Öte yandan, uzun vadede firmaların mali sağlığını olumsuz etkileyebilecek firma borçluluğunda da genel bir artış gözlenmektedir. Ayrıca bulgular, programın etkisinin firma büyüklüğü ve sektör grupları arasında heterojen olduğunu ortaya koymaktadır. Etkilerin heterojenliğini kullanarak oluşturulan karşıolgusal (counter-factual) analizler, programın belirli önceliklerle yeniden tasarlanmasının önemli verimlilik kazanımları getirebileceğini göstermektedir.

Anahtar kelimeler: Kredi Garanti Programları; KOBİ Kredileri; Etki Analizi

JEL sınıflandırması: G21, G3, L25

Non-Technical Summary

Credit Guarantee Schemes are widely used government policy tools to support small and medium size enterprises' (SMEs) credit access. In addition to their application in normal times, during times of aggregate shocks that may lead to economic contractions (e.g., current pandemic era), many governments also apply this facility to ease domestic credit conditions, especially for SMEs. In the same token, following the geopolitical developments of 2016, Turkey expanded its Credit Guarantee Fund (CGF) program in 2017 to mitigate the adverse effects of the increased uncertainty. In December 2016, the program size was first expanded to 20 billion TL, followed by a further increase to 250 billion TL in March 2017. Nearly 298 thousand loans were issued under the program, adding up to 208 billion TL loan volume in 2017. Using a combination of firm-level administrative databases of tax registry, credit registry, and the CGF registry, we analyze the characteristics of the CGF supported firms and the program's impact on their employment, sales, and credit default probability in the two years after the program.

Our unique data set allows us to identify several observable firm characteristics that we use to match the CGF supported firms with their closest pairs via coarsened and exact matching (CEM) methodology. Firm riskiness is challenging to observe directly from firm characteristics, yet crucial to consider in the matching. To do this, we developed a forward-looking risk scoring tool to account for firm ex-ante riskiness in our matching strategy. The matched-pairs are then used in a difference-in-difference setup to estimate the average program impact on treated firms' performance, such as employment, sales, and credit default probability, as well as several balance sheet items, including fixed capital investment, intangible capital investments and firm indebtedness.

Our estimations lead to several interesting findings and essential insights on the program's short-term impact on firms' performance. We find that the CGF program on average had a positive impact on the performance of treated firms, where the CGF supported firms were able to increase their employment by 17 percent, sales by 70 percent and reduce their credit default probability by 0.6 percentage point relative to the control group in the two years after the program. Evaluating these results at variable averages shows that every 1 million TL credit, generated via the CGF program, preserved 2.7 extra employment, and stimulated about 3 million TL in sales, and reduced the average credit default probability by nearly 6.5 percent. Our findings also document that the program impact is heterogeneous across firm size and sector groups. Among different size groups, the program's positive impact on SMEs is much more substantial than other size groups. On the sectoral heterogeneity, the CGF program is more effective in preserving employment in labor-intensive industries (e.g., service) and more effective in generating sales in sectors that serve more to the domestic economy (e.g., wholesale and trade). The manufacturing industry indicates an intermediate case, where the employment and sales impact of the program is comparable. Exploiting the program's size and sector impact heterogeneity, we show that substantial efficiency gains are attainable by redesigning the program priorities.

Our results also reveal that the program's positive impact on long-term assets (e.g., intangible

capital) appears weaker than its effects on short-term assets, which is crucial for firms' long-term growth and sustainability. Additionally, an increase in overall indebtedness among the CGF supported firms is also evident from our results that may adversely affect their credit default probabilities in the long-run. Considering these results, complimenting the CGF program with other government policies aiming to support productivity while monitoring indebtedness can be critical to ensure growth and successful deleveraging of the CGF supported firms in the long-run.

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1 Introduction

Improving credit access of firms with resource shortages is a difficult policy question that is usually raised for small and medium-sized enterprises (SMEs). As bank debt remains the primary source of external finance for most SMEs in many countries, particularly the emerging ones, most public policy initiatives have consequently centered on bank lending. Traditional banking practices, generally placing strong reliance on hard information (e.g., reliable financial statements) and collateral capacity in risk assessment, limit SMEs' credit access. With a capacity to improve collateral capacity, public guarantee schemes have recently emerged as a popular policy tool in many developed and developing countries. Using a combination of firm-level administrative databases of tax registry, credit registry, and the credit guarantee fund (CGF) registry, we study the Turkish CGF program implemented in 2017. In particular, we first analyze the characteristics of the CGF supported firms and then study the program's impact on various firm performance indicators in the short-run. The Turkish CGF program implemented in 2017 was a unique experience. It stood out as the biggest guarantee program implemented globally in the same year with roughly 7.6 percent GDP share credit stimulus coverage. This coverage was double the second-largest guarantee program's size, implemented in Japan in the same year, Figure 1.

Figure 1: GDP Share of CGF Credits in 2017 (Selected Countries)
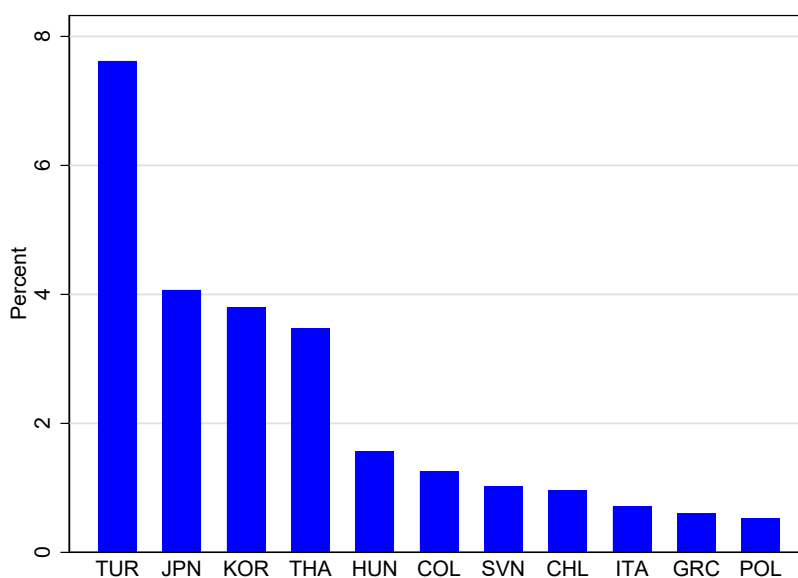
Source: OECD (2019).
Notes: Only the countries with at least 0.5 percent GDP share are presented.

Domestic credit markets in Turkey had been experiencing a tightening since the shrinking in global liquidity in 2013, which further toughened with the increase in domestic uncertainty due to the geopolitical developments in 2016. The credit growth was recorded to be negative along with the lowest GDP growth experienced in 2016 for the first time since the Global Financial

Crisis (GFC) in 2009. To bring back the economy in 2017, the Turkish government implemented one of the biggest credit guarantee programs in the world that reached almost 20 percent of its total existing firm credit stock as of 2016. Using novel administrative databases, we analyze the firm-level impact of this giant program in this paper. We first analyze the differences between the CGF supported and non-supported firms' characteristics, including sector, size, and ex-ante risk distributions. Building on this background, we then match the CGF supported firms (the treatment group) with control firms based on their observable characteristics via Coarsened and Exact Matching (CEM) methodology.[1] Given our data's richness, we select the control firms based on revenue size, asset, capital and debt structures, ex-ante riskiness, industry, and year. This level of detailedness of our data is rather rare in other similar studies, which is essential to construct a reliable control group that will mostly determine the quality of identifying the program impact. Using matched pairs, we then employ a Difference-in-Differences (DiD) framework to provide an in-depth evaluation of the firm-level impact of the CGF program on the ex-post performance of the CGF supported firms in terms of employment, sales, and credit default probability, as well as several balance sheet items.

We find that the CGF program created a significant redistribution of credits in 2017 towards smaller-sized firms (e.g., micro and SMEs) and particularly benefited wholesale and trade, manufacturing, and construction industries. In terms of their ex-ante risk attributes, we did not find any significant divergence between the CGF supported and non-supported firms. This is to say that we do not observe any strong tendency towards allocating more CGF resources to risky firms given the government guarantees (i.e., moral hazard problem). More specifically, our findings show that the CGF program had substantial positive impact on firm performance in the post-program years. According to the results, the CGF supported firms on average preserved 17 percent more employment, generated 70 percent more sales, and experienced 0.6 percentage point less credit default than their matched pairs in 2018. Evaluating these estimates at their sample averages implies that an extra 1 million TL loan generated via the CGF program preserved roughly 2.75 more employment, generated about 3 million more sales, and reduced the average credit default probability by nearly 6.5 percent in 2018. These findings are robust to various checks, including additional controls and sub-sample considerations. Our findings also document that the program impact is heterogeneous across firm size and sector groups. In particular, the program's positive impact on medium-size firms is much larger than other size groups. On the sectoral heterogeneity, the CGF program is more effective in preserving employment in labor-intensive industries (e.g., service) and more effective in generating sales in sectors that serve more to the domestic economy (e.g., wholesale and trade). The manufacturing sector shows an intermediate case, where the employment and sales impact of the program is comparable. Our counter-factual analysis shows that substantial efficiency gains are possible by redesigning the program based on the program's size and sectoral impact heterogeneity.

We also provide further estimation results on the program's impact on various firm asset

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[1]Coarsened and Exact Matching methodology enables us to find "statistical twins", one with and one without the treatment. We discuss the methodology in Section 5.

types and liabilities. The results indicate that the program's positive impact on long-term assets appears to be weaker compared to short-term assets, such as inventories. This is perhaps expected given the initial purpose for expanding the CGF program in 2017 was to mitigate the temporary negative impact of the geopolitical developments of 2016. In that regard, the program seems to be successful in reversing the domestic economy's negative trend to positive by empowering firm performance through large liquidity injection. However, considering its weaker support for firms' long-term growth perspectives (e.g., intangible capital such as R&D), the CGF program may be complemented with other government programs aiming to support productive capital, including investment subsidies and incentives. An increase in overall firm indebtedness due to the CGF program is also evident from our results, which may adversely affect firm credit default probabilities in the long-term. This is especially the case for micro firms, as our results show that the CGF supported micro firms experienced an increase in their credit default probability in 2018. Monitoring firms' indebtedness and ensuring appropriate debt management practices through mentoring services can significantly mitigate long-term credit default risks.

Over the last two decades, credit guarantee schemes (CGS) are being expanded in size and volumes in many countries (OECD, 2019). Therefore, the economic impact of credit guarantee programs has been examined in a variety of theoretical and empirical studies; however, no consensus exists among researchers. One strand of theoretical literature suggests that credit guarantee programs may reduce credit rationing under asymmetric information à la Stiglitz and Weiss (1981) and result in funding profitable projects that would not be realized without government intervention (Mankiw, 1986; Gale, 1990, 1991). Another strand in the theoretical literature suggests that government intervention may increase information problems and worsen credit conditions (Chaney and Thakor, 1985; Aghion and Bolton, 1997). However, firm-level credit guarantee scheme evaluation literature is brief and to the point. In pioneer papers, Instrumental Variable (IV) and DiD methods are often used. For example, Kang and Heshmati (2008) used IV and OLS methods for the Korean program KOTEC, one of the largest CGS globally, and found that the scheme partially improved loan availability and employment level of the firms. Zecchini and Ventura (2009) applied DiD for Italian data and confirmed that the credit guarantee program leads to higher leverage and lower debt cost for firms. In France, Lelarge et al. (2010) assessed the SOFARIS program's impacts using OLS and DiD methods and found positive effects of the program on firm growth, external finance availability, and negative effect on interest payments in the newly created firms.

In the last decade, other causal inference methods such as Propensity Score Matching (PSM), CEM, and Regression Discontinuity Design (RDD) are integrated into existing methods. In that respect, Hancock et al. (2007) employed state-level US data for the period of 1990-2010 and found that Small Business Administration (SBA) loans had a positive impact on employment, but the impact on firms' default probability was moderate. Hancock et al. (2007) also found that SBA programs helped stabilize the economy by offsetting the slowdown in business and the financial sector's capital pressures. Uesugi et al. (2010) applied the PSM method for Japanese credit guarantee programs and emphasized progress in credit availability. Uesugi et al. (2010) also showed

that banks' financial structure is important in liquidity persistence. Ono et al. (2013) used PSM and found that although Japan's Emergency Credit Guarantee Program significantly improved credit availability for SMEs, there was no significant impact on investment, employment, or profitability. De Blasio et al. (2014) used RDD techniques for Italy and found that the Fondo di Grazia program's loans had no impact on investment and interest rate charged by the banks and mixed impact on sales. Moreover, their results suggested that the program decreased the loan repayment likelihood of eligible firms. Using firm-level data drawn from fiscal receipts over the years 1992–1999, Bach (2014) estimated the effect of eligibility for the CODEVI program, the French loan guarantee program, on bank finance availability with a DiD approach. Bach (2014) found that the program substantially increases debt financing without substitution between subsidized and unsubsidized finance while returns on subsidized debt are significantly above its market cost. He also found that the program did not cause a surge in default risk. Brown and Earle (2017) analyzed linked databases on all SBA loans and lenders and on all U.S. employers to estimate the impact of access to finance on firm-level employment growth. They employed PSM methodology and used fixed effects and IVs based regressions. They showed that, on average, 3-3.5 jobs were created for each million dollar loan supplied via the SBA program. Their results also suggested that estimated impacts were stronger for younger and larger firms. More recently, Bertoni et al. (2019a) used PSM and IV-2SLS to study a sample of 512 entrepreneurial ventures that received a government-sponsored participative loan from a Spanish government agency between 2005 and 2011. Bertoni et al. (2019a) found evidence that government-sponsored participative loans significantly boosted the beneficiaries' employment and sales. Similarly, Bertoni et al. (2019b) investigated the economic effects of guaranteed loans granted under the EU programs MAP and CIP in Italy, the Benelux, and the Nordic countries from 2002 to 2016 using the CEM and PSM. Bertoni et al. (2019b) found that guaranteed loans positively affect the growth in assets, sales, employment, and the share of intangible assets. Using the PSM estimator and the DiD regressions on a sample of 38,000 Italian SMEs in the period 2007-2009, Caselli et al. (2019) showed that the magnitude of the effect varies across firm sizes and sectors, where micro-and small-sized firms benefit more from the support of the Central Guarantee Fund in Italy.

In addition to firm-level impacts, the CGS, especially when implemented in large scale, may also have macroeconomic implications. Studies assessing the general macroeconomic implications of CGS are rather scarce, where more research is clearly needed (OECD, 2013). Papers in this literature generally focus on programs' impact on financial sustainability (i.e., sustainability of public support), financial additionality (i.e., increase in funds towards SMEs), and economic additionality (i.e., contributions to the economy via increase in sales, employment, investment, etc.). For instance, Hennecke et al. (2019) and Schmidt and Elkan (2010) adopted a similar modeling approach to study the costs and benefits associated with the CGS programs implemented in Germany, finding that the programs have contributed positively to the country's employment and GDP. While our study contributes to the main stream of the related literature by looking at the firm-level impact of the CGF program in the short-run, considering the large scale of Turkish experience, the program may have adverse effects on financial stability, price stability, macro im-

balances, and productivity especially in the mid- to long-run. Identifying these effects requires a richer general equilibrium framework. Such a study should also account for the program impact on the resource allocation of public funds, as well as accommodating financial and real sectors, which is beyond the scope of our paper. In that regard, our study should be considered as the first step towards that direction. To highlight the potential steps forward, we briefly discuss the general equilibrium implications and macroeconomic effects of the CGF program in the subsequent sections.

The remainder of the paper is organized as follows. In Section 2, we present the functioning and evolution of the Turkish CGF. In Section 3, we briefly describe our data and present the main databases. In Section 4, we discuss the main differences between the CGF supported and non-supported firms in terms of their size, sector, and risk profile, as well as the construction of our risk assessment model. Section 5 discusses the impact analysis, including the details of our identification strategy and our estimation results. We present several robustness checks along with the potential caveats in evaluating our results in Section 6. Section 7 presents further extensions of our main estimates. We provide detailed counter-factual policy analysis in Section 8. Section 9 discusses the macroeconomic implications of the CGF program. Finally, Section 10 concludes.

2 Institutional Background

The CGF was established in 1991 as a state-funded program with the primary mandate of improving credit access conditions for SMEs. The CGF operates as a joint-stock company, shareholders of which include chambers, non-government organizations, banks, and public agencies.[2] The CGF issues guarantees via bank loans either through its equity or through the Treasury support funds. In doing so, the CGF provides a guarantee for borrowers, aiming to improve borrowers' collateral quality and to reduce the damage on lenders in the case of default. In other words, CGF acts as a guarantor for credit-constrained firms that face difficulty in obtaining loans due to insufficient collateral. With the CGF guarantees, firms, particularly SMEs, can better access credit at a lower cost and longer maturities. The low-risk nature of CGF backed loans also brings certain benefits for the loan issuing banks, allowing them to share their credit risk and strengthen their regulatory capital. The risk weight[3] for the CGF backed loans is usually close to zero or at least lower than non-CGF backed loans, which supports the issuing banks' capital adequacy ratio. In what follows, we discuss the development of the CGF program and discuss its recent policy context in Turkey.

The tightening in global liquidity following the Fed taper tantrum policy in 2013 sharpened the decline in credit growth, particularly in FX, in the Turkish domestic credit market (Figure 2). In addition to this global tightening, Turkey experienced a severe geopolitical shock in 2016. The shock increased domestic uncertainty and further tightened the domestic credit conditions

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[2]CGF is exempt from corporate tax and value-added tax in its transactions for providing loan guarantees.
[3]The risk weights are determined by the Banking Regulation and Supervision Agency (BRSA) of Turkey.

(CBRT, 2016). Real credit growth was recorded to be negative in 2016 for the first time since the GFC in 2009. The negative credit growth was apparent in both FX and TL credits in this year. Given the high reliance of Turkish industries on credit finance (Akcigit et al., 2020), the annual real GDP growth recorded the lowest rate in 2016 since the GFC, although it remained positive. Many firms experienced an instant slowdown in business, while the financial sector's credit issuance appetite was rather low. To restore expectations and avoid a potential risk of a sudden stop in the economy, the Turkish government provided significant liquidity to the markets via the CGF program by multi-doubling its size in 2017. With the implementation of the CGF program in 2017, we observe an instant reversal in TL credit growth, while FX's negative trend continued.[4] Moreover, the real GDP growth in 2017 bounced back to 7.5 percent.

Figure 2: Real Annual Credit Growth Contribution by Credit Denomination and Real GDP Growth
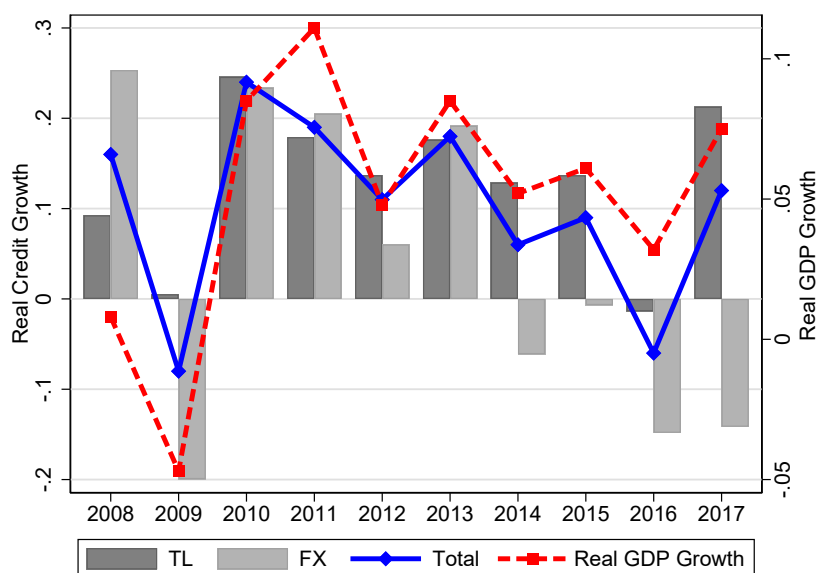
Source: Authors' calculation from the CR and Turkish Statistical Institute (TSI) databases.
Notes: The figure shows the real annual credit growth contribution by credit denomination and real GDP growth over the last decade.

Until the end of 2016, CGF had mostly run on a small scale and issued credit guarantees only from its limited equity. In December 2016, the Turkish Treasury signed the first protocol with the CGF to increase its guarantee capacity up to the first 20 billion TL, which was then further upgraded to 250 billion TL in March 2017 with additional protocols.[5] Smaller scale packages

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[4]Most of the CGF backed loans were issued in TL – i.e., the share of CGF backed TL loans in 2017 was about 85 percent, and the remaining 15 percent was denominated in FX – the CGF program seems to be successful in reversing the negative trend in especially TL credit growth. However, high volatility in TL during these years would also add to the negative growth in FX credits and hence, might have contributed to the instant increase in TL credit growth.

[5]With the new protocols, some of the tighter conditions in the earlier protocols were also removed. For instance, the condition that the beneficiary firms must not have outstanding non-performing loans (NPLs) in the regulation was also relaxed in this package. Credits in Turkey are classified into five groups, where the first two groups are performing loans, and the last three groups are non-performing loans with at least 90 days and more overdue loan payments. The new regulation allowed only the firms with 3rd and 4th group NPLs to apply for the CGF program,

continued to be implemented in the following years; however, the 2017 package has been the biggest guarantee program not only in the history of Turkey but also in the world. Figure 3 summarizes the official numbers for the CGF program in Turkey. While the number of credit issuance and volume were tiny before 2017, there was a significant expansion of the program in 2017. The CGF program of 2018 was also important, but it was not comparable to the program's size in 2017. Hence, the current study focuses on the evaluation of the CGF program in 2017.

Figure 3: Size of Credit Guarantee Fund

a) Number of Firms

b) Total Amount (TL)
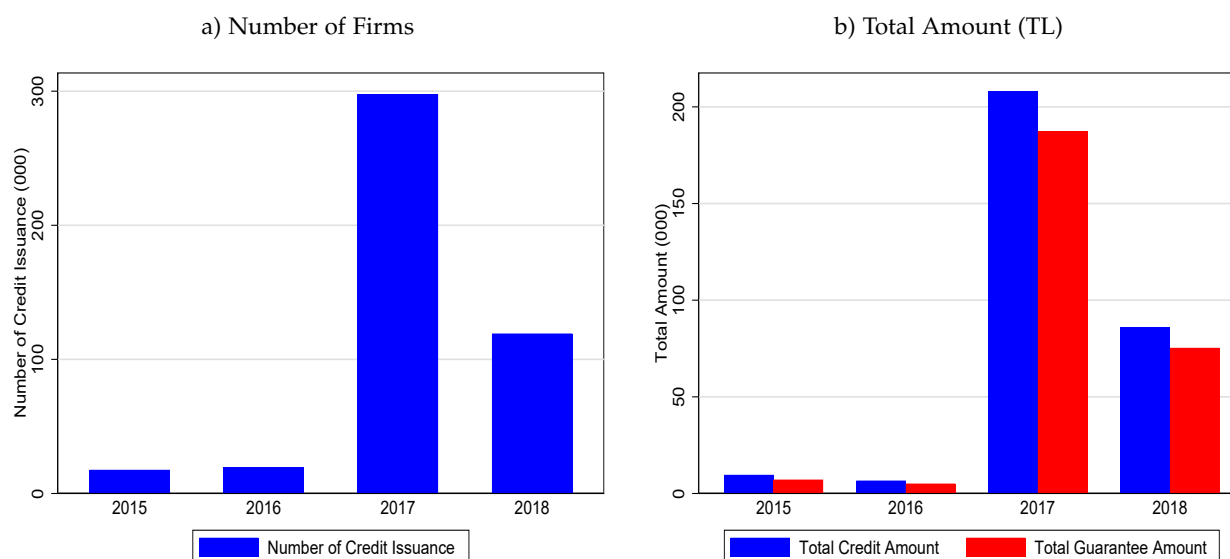
Source: CGF Activity Report in 2018.
Notes: The number of credits issued represents the total number of credit issuance, including multiple credits by any firm.

The CGF expanded its operational capacity in 2017 by using two separate streams of assessment procedures for guarantee issuance: the portfolio guarantee system (PGS), and the portfolio limit system (PLS). Under the PGS, the SME group guarantee limit was 12 million TL, and the group limit for large firms was 50 million TL.[6] The PLS, on the other hand, was designed specifically for large firms where the group limit was 250 million TL. Under the PGS, banks followed their internal credit risk assessment[7] and the CGF authorities did not make an additional risk assessment, while under the PLS, the CGF authority also undertook its risk assessment in order to make a final decision on the guarantee application. Moreover, the CGF followed a different guarantee coverage for different firms, based on their size and export status. The guarantee coverage in the 2017 program was 90% for SME loans, 85% for large firm loans, and 100% for

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while the last group would still not be allowed to benefit from the program. The details of the current NPL definitions in Turkey can be found in decree numbered 29750 in the Official Gazette dated 22/06/2016, and the details of the CGF program regarding the NPL classification can be found in decree numbered 9969 in the Official Gazette dated 10/03/2017.

[6]Limits were imposed on the company holdings or groups, not on individual firms. Basically, there was one global limit for the group company, and the total lending to firms within the same group could not exceed the global limit.

[7]Banks in Turkey follow Basel requirements in terms of their risk assessment methodology that must also be approved by the regulatory agency, BRSA.

exporter loans. Details of the 2017 CGF program are summarized in Table 1.[8]

Table 1: Main characteristics of the CGF program in 2017

Characteristics	PGS	PLS
Total Guarantee Limits	12 million TL for SMEs 50 million TL for large firms	200 million TL for large firms
Risk Assessment	Based on banks' internal risk assessment	In addition to banks' internal assessment, CGF also conducts its risk assessment
Assessment Duration	Final assessment completed in 2 days	No duration limit on assessment
Maturity	For working capital loans: maximum 5 years, with a grace period of maximum 1 year. For investment loans: maximum 10 years, with a grace period of maximum 3 year.	
Guarantee Coverage	For SMEs 90% , for large firms 85% and for exporters 100%, of the total loan amount	

Source: CGF.

The moral hazard problem is a potential challenge for guarantee programs in general (Boot and Thakor, 1994; Aghion and Bolton, 1997). In order to avoid moral hazard problems, the CGF program of 2017 imposed an additional limit on each issuing bank's non-performing loan (NPL) rate of its CGF portfolio. This is to say that the Turkish Treasury will pay off the non-performing CGF balance based on the guaranteed schedule as long as the issuing bank's CGF portfolio NPL rate remains below 7 percent. If a bank's NPL rate of its CGF portfolio exceeds 7%, then the bank has to bear the remaining credit risk fully. Regarding the fee and commission expenses, the issuing bank demands a one-off guarantee commission from the beneficiary firm at a rate of 0.03% of the guarantee amount for each guarantee payment at the time of a letter of guarantee requested. Moreover, the bank cannot charge any additional fees other than the costs to be paid for procedures to be performed by third parties (e.g., appraisal, insurance, etc.) and the one-off guarantee commission to be paid to the CGF.

Typically, SMEs are charged higher interest rates than large firms due to the risks associated with SME lending (e.g., generally higher NPL ratio, information asymmetry, lower collateral value, etc.). The interest rate spread between these two groups of firms offers important insights regarding SMEs' credit conditions. A narrowing interest rate spread generally indicates more favorable lending conditions for SMEs. Given their low-risk profile, the CGF backed loans were generally issued at a lower interest rate with a three to six months grace period, which significantly lowered the average borrowing cost and extended the maturity, especially for SMEs. In that respect, the CGF program significantly contributed to the relaxation of firms' credit conditions in 2017. Accordingly, the average interest spread between SMEs and large firms reduced (Figure 4), while the average maturity of TL loans significantly extended (Figure 5) in 2017.[9]

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[8]For a more detailed discussion on the CGF program design, see CBRT (2017).

[9]Further discussion on the interest cost and maturity impact of the CGF program can be found in Gungor & Sumer (2018).

Figure 4: Average Interest Rate for TL Corporate Loans by Firm Size
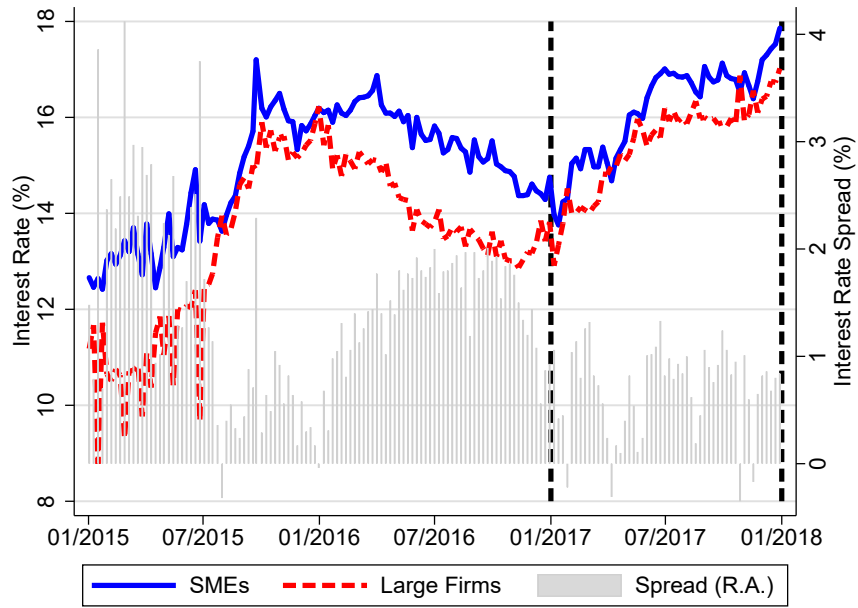
Figure 5: Original Maturity Distribution for TL Corporate Loans
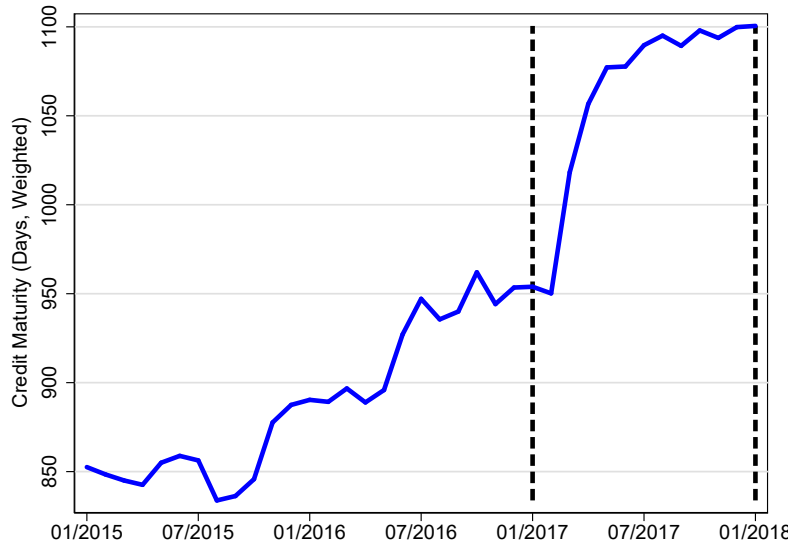
Several studies show a strong relationship between firm size and credit access (see Berger and Udell, 1992, among others) that also appears to be Turkey's case (Kurul and Tiryaki, 2016). Moreover, the literature also shows evidence that specific sector characteristics, such as export orientation and fixed capital formation, contribute to firms' credit access. Considering the liter-

ature findings, we present real credit growth across firm size[10] and sector groups in Figure 6. According to Figure 6a, real credit growth of small and medium-sized firms has been following a rapidly declining trend since 2013 (i.e., the post-Fed taper tantrum period) that became negative for all firm sizes in 2016. In turn, the negative trend returned to positive for all the firm size groups, especially the SMEs, with the implementation of the CGF program in 2017. These trends imply that SMEs had been particularly hit in the post-Fed tapering era, while the additional geopolitical shocks in 2016 further tightened their credit access. Similarly, we observe a declining trend in the credit of all the sectors, particularly the manufacturing sector, since 2013. In 2016, manufacturing, wholesale and trade, and service sectors recorded high negative growth rates, suggesting that firms in these sectors become particularly credit-constrained. With the CGF program in 2017, the credit growth for all the sectors, especially manufacturing, wholesale and trade, service, and construction sectors, recorded highly positive rates.

Figure 6: Real Annual Credit Growth Contribution by Firm Size and Sector

a) by Size

b) by Sector
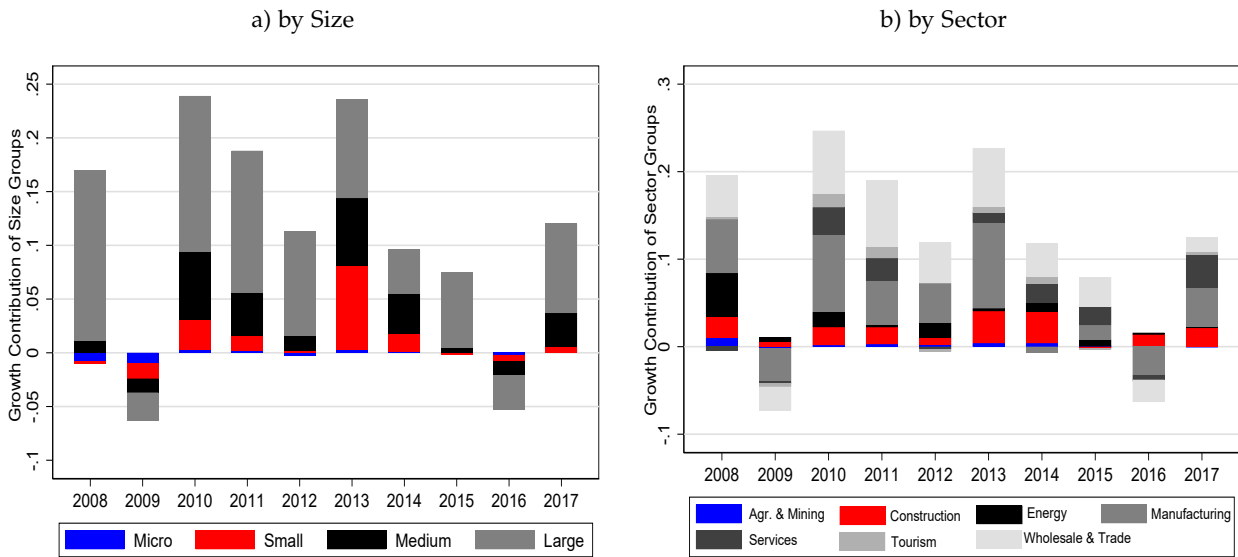
Source: Authors' calculation from the Credit Registry (CR) and Firm Tax Registry (FTR) databases.
Notes: Firm size is based on the official KOSGEB definition.

Overall, following the geopolitical shocks in 2016, the CGF program was used as a restoring policy device to provide liquidity to the domestic credit market in 2017. The program seemed to have achieved significant ease in domestic credit conditions given that the real credit growth for all firm size and sector groups bounced back to high positive rates in 2017 from high negatives in 2016. More specifically, SMEs appear to have particularly benefited from the program given the high positive real credit growth rate recorded in 2017, which came after a credit tightening period since 2013. Similarly, the manufacturing sector, which had been experiencing a severe reduction in credit growth since 2013, especially experienced a significant easing in credit access in 2017.

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[10]Firm size is based on the official KOSGEB definition, as described in Table A5.

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3 Data

We utilize several administrative databases that are made available to the CBRT by the relevant government bodies. These are Firm Tax Registry (FTR) of the Treasury and Finance Ministry, Credit Registry (CR) of the Banks Association of Turkey, and the Credit Guarantee Fund (CGF) database. FTR contains yearly balance sheets and income statements for virtually all Turkish firms, both private and state-owned, from 2006 until 2018, which is the most recent year available. We only focus on the non-financial private legal entities (e.g., incorporated businesses) in the FTR, where we exclude the finance and public sectors and the unincorporated business (i.e., sole-proprietorship or partnership businesses). CR records all credit institutions' exposures to Turkish firms monthly, providing detailed information on all firm-bank credit relations. The CGF database records all firm-level credit information in 2017 at a monthly frequency. We discuss further details of each data set below.

3.1 Tax Registry

We use balance sheets and income statements of only the non-financial private legal entities in the analysis, given that most unincorporated businesses only report simplified tax records.[11] The raw administrative data was initially revised by the Turkish Statistical Institute (TSI), especially with respect to firm sector classifications to ensure the quality of sector identifications. The TSI also provided firm-level employment data that was originated from the social security records. Moreover, legal entities cover most SMEs and all of the large firms, and some of the micro firms. Among legal entities, we exclude firms that reported incomplete or incoherent data from the analysis, such as observations with negative fixed assets, negative current assets, negative total assets, and negative net sales. We also impose a one percent winsorizing on each of these variables at a given year and NACE Rev-2 digit sector level in the analysis.

3.2 Credit Registry

Credit Registry provides further details of all firm-bank credit relations, including type, maturity, currency denomination of all the credit relations, as well as, lending institution branch level information. We use credit registry in the analysis mainly for two purposes: first, we obtain non-CGF firm-bank credit relations in 2017 and 2018, and also, the credit distributions in other years outside 2017. Second, we utilize the CR database to develop a risk scoring tool to measure firm riskiness. The critical variable we compiled from the CR database is the default event – i.e., defined as the existence of 90 days overdue loan payment (e.g., non-performing loans (NPL)) for each firm in a given year. We also use several other characteristics of firm-bank credit relations, such as the age of credit relation, the number of bank relations, and credit default history in estimating risk scoring.

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[11]The vast majority of unincorporated businesses operate under simplified tax regimes and thus, are not obliged to report regular balance sheets and income statements for tax purpose.

3.3 Credit Guarantee Fund Registry

The CGF registry contains information on all the firm-bank level guaranteed credit transactions, including loan size, maturity, bearing interest rate, location, and guarantee level issued under the CGF program. We specifically use the information on the beneficiary firm, loan amount, and issuance date from the CGF database in the analysis. About half of the firms that benefited from the CGF program in 2017 were unincorporated businesses, although their volume is only about 10.2 percent of the CGF backed loans in 2017 (Figure 7), which is similar to their average share in total firm credits (10 percent according to the credit registry) in 2017. The vast majority of the CGF back loans were issued to legal entities by volume that correspond to 90 percent of the program. Further breakdown of these figures by sector is presented in Figure 8. The figure shows that the share of unincorporated businesses in terms of volume is less than 16 percent in all sectors, except in agriculture & mining. This is mainly because most of the firms, especially in agriculture, are family businesses owned by farmers. Our coverage of this sector by volume is about 58 percent. Moreover, more than 70 percent of the CGF supported firms in the construction, energy, and manufacturing sectors are legal entities and thus, covered in the analysis. The share of the CGF supported legal entities in the service, tourism, and wholesale and trade sectors is above 50 percent. Our sample coverage of the CGF supported firms in the agriculture & mining sector is only 15 percent.

Figure 7: CGF Credits by Firm Type
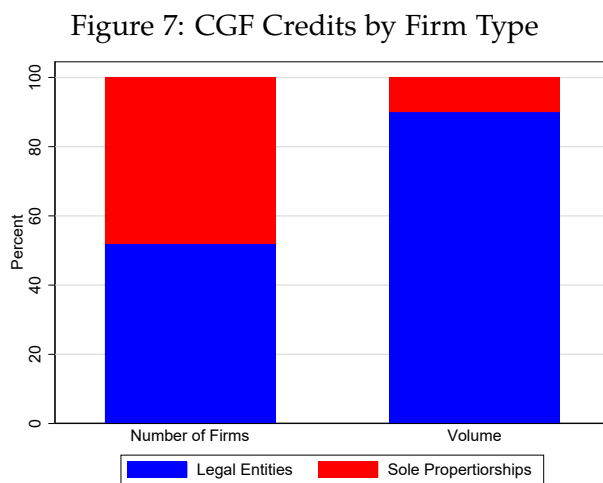
Source: Authors' calculation from the CGF database.

Figure 8: CGF Credit Distribution by Firm Type and Sector

a) Volume
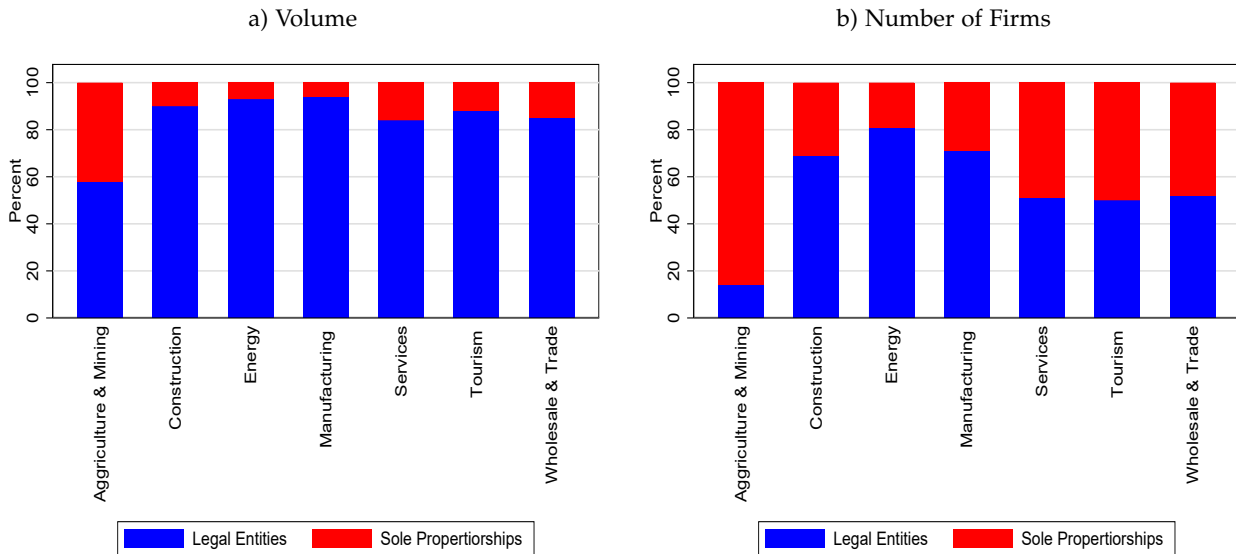
b) Number of Firms

Overall, we focus on legal entities in the study, which implies that our sample covers about 52 percent of the CGF supported firms and 88 percent of the CGF backed loans in 2017.

4   How Different are the CGF Supported Firms?

To highlight the main characteristics of CGF supported firms (e.g., size, sector, riskiness, etc.), we first provide a descriptive analysis on the distributional comparisons of the CGF supported firms to those not supported under the CGF program (non-CGF firms). In particular, we show distributions of the CGF and non-CGF loans by firm size, sector, and risk groups. To establish ex-ante risk scores, we also develop a risk scoring model following the relevant literature.

4.1   Size and Sector Distributions

We present and discuss the size and sector distributions of our final CGF data in this section. To make comparisons, we also present the same distributions for average total lending between 2013 and 2016 and non-CGF loans in 2017, as benchmarks, in Figure 9. More specifically, Panel (a) of the figure displays the size distributions, and Panel (b) shows the sector distributions. The CGF program seems to increase credit access of micro, small and medium-sized firms, given that the CGF credit shares of these size groups were much higher than the presented benchmarks. Moreover, large firms received a smaller share of CGF backed loans relative to their benchmark shares. For instance, the large firm share of the CGF backed loans in 2017 was about 45 percent, which might seem noticeably high. However, considering their share of non-CGF loans in 2017 being more than 75 percent, and in the pre-CGF program periods (between 2013 and 2016), their average share being higher than 70 percent, the CGF program achieved a redistribution of

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credits from large firms towards SMEs. Figure 9b also displays the sectoral distributions of the CGF backed loans and relevant benchmarks. The CGF backed loan shares of the manufacturing, tourism, and wholesale and trade sectors appear to be higher than their shares from non-CGF loans in 2017 and from loans issued in the pre-CGF period (between 2013 and 2016). In contrast, services and energy sectors obtained much smaller shares from the CGF program than the benchmarks.[12] The remaining two sectors, agriculture & mining and construction sectors, received similar shares from the CGF program to their general benchmarks. Overall, the CGF program seems to induce a moderate credit redistribution towards manufacturing, tourism, and wholesale and trade sectors.

Figure 9: Sample Loan Distributions

a) Loan Distribution by Firm Size

b) Loan Distribution by Sector
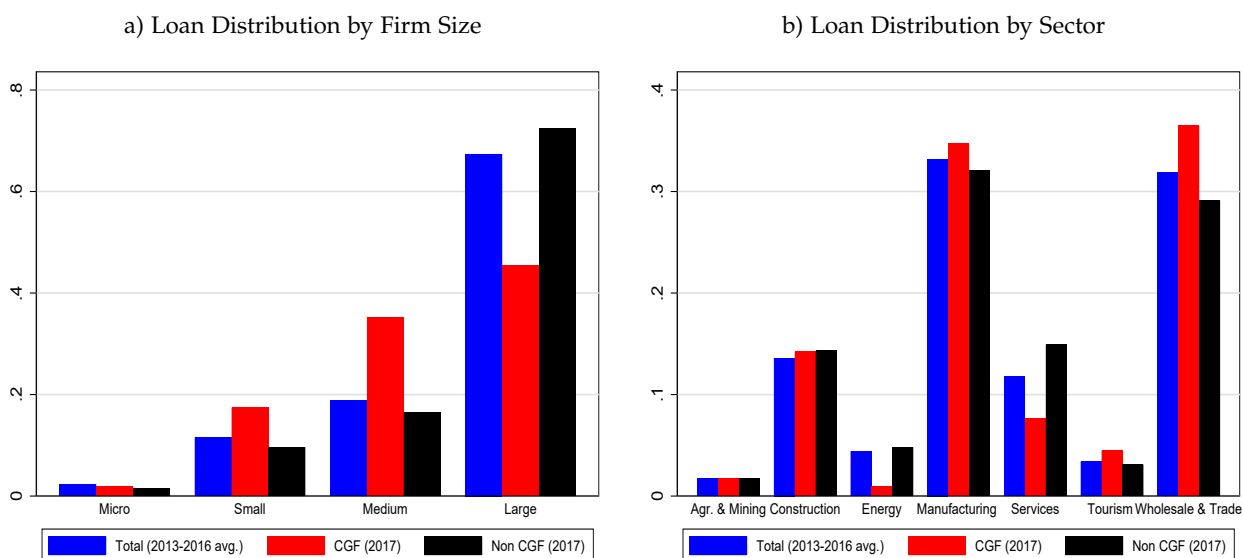
Source: Authors' calculation from the CGF and CR databases.
Notes: Each column in (a) shows the share of credit (CGF and Non CGF) given to each size group, excluding the non-matched CGF supported firms. Each column in (b) shows the share of credit (CGF or Non CGF) given to each sector. Agr. & Mining represents the agriculture & mining sector.

Figure 10 presents credit concentration by firm size percentiles where the firm size is measured by total assets. As before, we also present the same distributions for average total lending between 2013 and 2016 and non-CGF loans in 2017 in the figures as benchmarks. More specifically, Panel (a) of the figure shows the general distributions for all firms. Panels (b) and (c) zoom in to the distributions, where the former shows the distributions below 50th percentile and the latter displays the distributions above 79th percentile. The general distribution figure, Panel (a), shows that the CGF backed loan distribution is more skewed towards relatively smaller size firms, which implies granting greater credit access to micro and SMEs. The zoomed distributions also confirm the general picture, where small and micro firms (e.g., less than 10th percentiles of the total asset distribution) received significantly higher shares from CGF loans compared to non-CGF loans, as shown in Panel (b), and largest firms, (e.g., the top one percentile), received lower

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[12]This is perhaps because firms in the energy sector tend to demand more FX loans than TL, while the CGF program mainly provided TL liquidity. According to the Credit Registry, as of December 2016, roughly 90 percent of the energy sector's outstanding credit balance is in FX.

shares from CGF loans that are roughly half of their share from non-CGF loans in 2017, Panel (c). These data facts indicate that the CGF program partially reduced the credit concentration in 2017.

Figure 10: Credit Concentration by Firm Size

a) All Firms
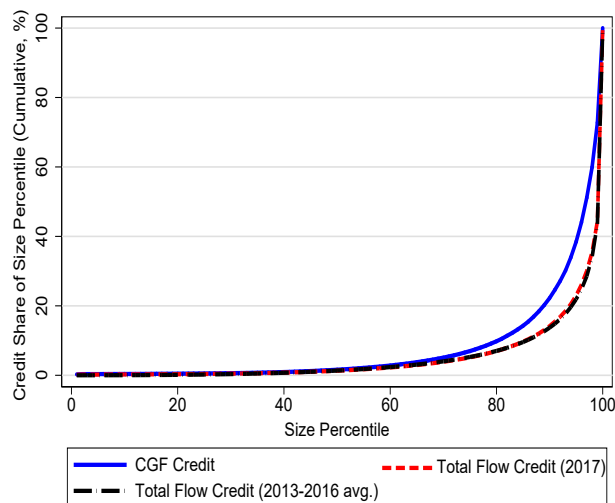
b) Small Firms (Asset Size Below 50th percentile)
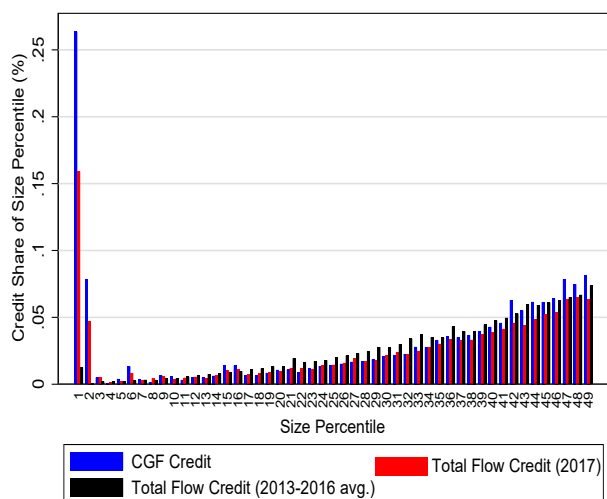
c) Large Firms (Asset Size Above 79th percentile)
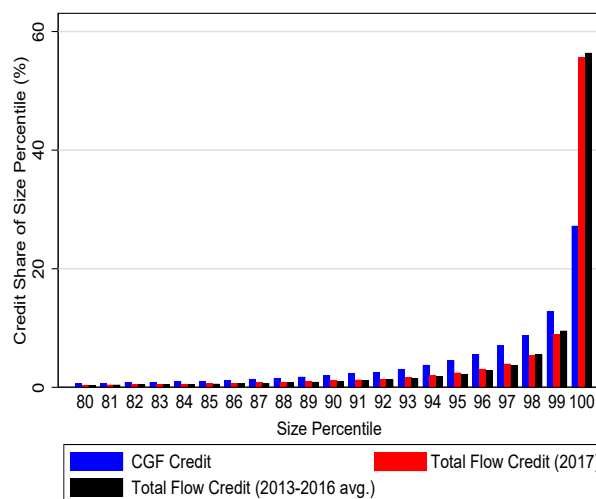
Source: Authors' calculation from the CGF, FTR, and CR databases.
Notes: Panel (a) presents the cumulative distribution of credit share with respect to the firm size based on the total asset. Panels (b) and (c) show the credit share of each size percentile for small (below 50th percentile) and large firms (above 79th percentile), respectively.

4.2 Ex-Ante Risk Distributions

As briefly discussed above, the moral hazard problem is a potential challenge for guarantee programs in general (Boot and Thakor, 1994; Aghion and Bolton, 1997), where the participating lending institutions may also consider issuing credits to risky borrowers given the state guar-

antees. CGF programs generally include various check-and-balance conditions, as done in the Turkish case, which included certain credit worthies and payback capacity of borrowers, as well as NPL limits on the lending institution's CGF backed loan portfolio. However, it is still worth investigating how sufficiently these conditions ensure the CGF credit portfolio risk remains at acceptable levels. Given our data's richness, we first develop a scoring tool to assess ex-ante firm credit default riskiness. Using these scores, we then present ex-ante credit default risk distributions for the CGF supported and non-supported firms in 2017.

The risk scoring tool follows the related credit risk scoring literature (e.g., Antunes et al., 2016 and Martinho and Antunes, 2012), where we employ a simple logit model to estimate the ex-ante probability of default (PD). The default event is defined as past-due payment of more than 90 days on any credit obligation in a given year, which coincides with the Basel II default definition. We first construct firm-level financial history data from the CR database to estimate the default probabilities, containing a panel of firms with credit default and credit relation history between 2006 and 2017. We also construct a second-panel data set on firm characteristics and a set of performance indicators using FTR for the same period. We then match the two data sets using a firm tax identifier. To capture ex-ante risk scores, we regress firm default status in $t+1$ over financial history and non-financial firm characteristics in t. The model predicts firm risk scores in $t+2$ (that is unknown at time $t+1$) by applying the estimated coefficients to firm characteristics in $t+1$.[13] Our purpose of focusing on ex-ante risk scores – rather than directly looking at firm default status in 2017, which we already have data on – is to assess the riskiness of firms from creditors' perspective. This approach is more relevant to account for creditor behavior, such as a tendency among creditors to put potentially more risky firms under the CGF program given the state guarantees.

After predicting risk scores for firms in our sample, we divide scores into percentiles, from the lowest to the highest, to show the total amount of credit given to firms in each risk-percentile group. When firms are ranked according to the risk groups, we observe that the credit distributions of 2017 do not show a significant difference either between the CGF and the non-CGF loans, or compared to previous years, namely the 2013-2016 average, in terms of default risk (Figure 11). The only difference between the CGF loans and the rest seems to be the coverage of around-zero risky firms, which tend to be the largest firms in the economy, and as discussed above, the large firm coverage is limited in the CGF program. Given the CGF program's lower coverage of large firms, it has a relatively broader coverage of firms in the second-lowest decile (i.e., from 10th to 20th percentiles). Moreover, there appears to be a clear negative relationship between risk score percentiles and credit share that would be expected in a regular risk management framework. Given these results, creditors have no prior systematic selection, such as

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[13]This is a classical approach in firm scoring that is also used by many financial institutions in accordance with Basel requirements. The main point of ex-ante risk scoring comes from the fact that, for instance, banks did not have firm balance sheets of 2017 when firms applied for the CGF program in 2017. Therefore, banks had to run their risk models with default events in 2016 on firm characteristics in 2015, and then, with the predicted coefficients and balance sheet information of 2016, banks can assign risk scores to firms for 2017. Further details of our risk scoring methodology, including data, variable selection, estimation, and performance evaluation, are presented in Section A of the Online Appendix.

pushing relatively riskier firms among the legal entities to be under the CGF program.

Figure 11: Credit Risk Distribution
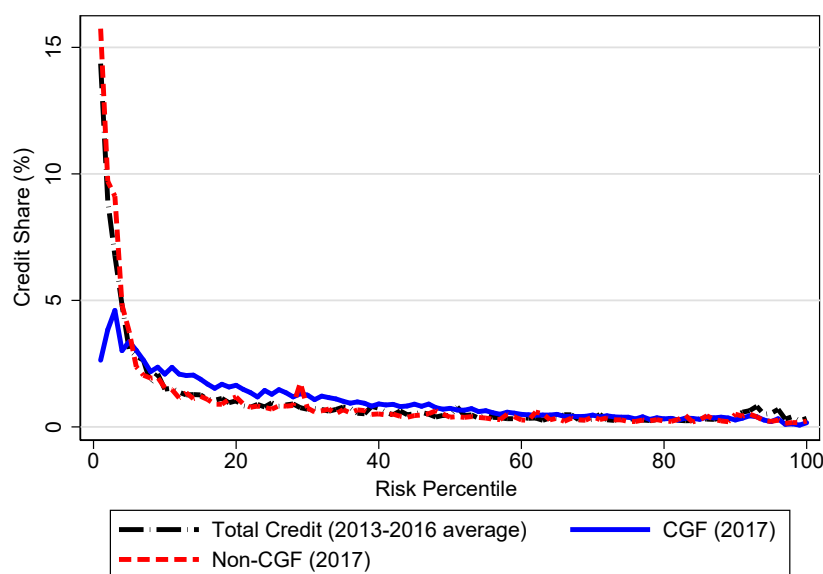
So far, we have shown that the CGF and non-CGF loans do not seem to differ much in terms of their risk distributions. We further investigate the differences in risk distributions for the legal entities by evaluating the impact of the revision to the program in 2017. In mid-March of 2017, two main revisions took place: (1) the CGF program size was increased for more than ten folds, from 20 billion TL to 250 billion TL, and (2) the condition that the beneficiary firms must not have outstanding NPLs to be qualified for the CGF program was partially relaxed[14]. The large increase in the program's size and the relaxation in eligibility criteria raised concerns on the riskiness of the CGF loan pool - e.g., the loan issuing banks may tend to push riskier borrowers under the CGF program. If this is the case, one would expect to see a significant increase in the CGF loan pool's average riskiness relative to the non-CGF loan pool in the post-policy period.

In Figures 12 and 13, we present the distributions of monthly loan issuance by credit type (e.g., CGF vs non-CGF loans), firm size, and sector in 2017.[15] In particular, Figure 12 shows the monthly shares of loans issued under the CGF program and outside the program (non-CGF loans) in 2017. The figure implies that the general monthly credit issuance under the CGF program follows a similar trend to the non-CGF loan issuance, except in the last quarter, as the CGF program reaches its capacity limits. Moreover, the figure also shows a significant jump in the credit issuance under the CGF program following the policy change in mid-March, where

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[14]See Footnote 5.

[15]Firm size is based on the official KOSGEB definition.

most of the CGF loans were issued in April and May of 2017. However, it is not clear whether this is due to the increase in program size or the eligibility criteria' relaxation. According to Figure 13b, the share of large firms increased significantly following the March revision, while the share of micro and SMEs significantly decreased. In fact, large firms continued to account for roughly 50 percent of the CGF issued loans after the March revision that used to be less than 30 percent before the revision. On the other hand, following the revision in March, the manufacturing sector started to receive a larger share of monthly CGF flows, while the portion of the loans going to the wholesale and trade sector started to shrink (Figure 13a).

Figure 12: Monthly Credit Issuance by Credit Type in 2017
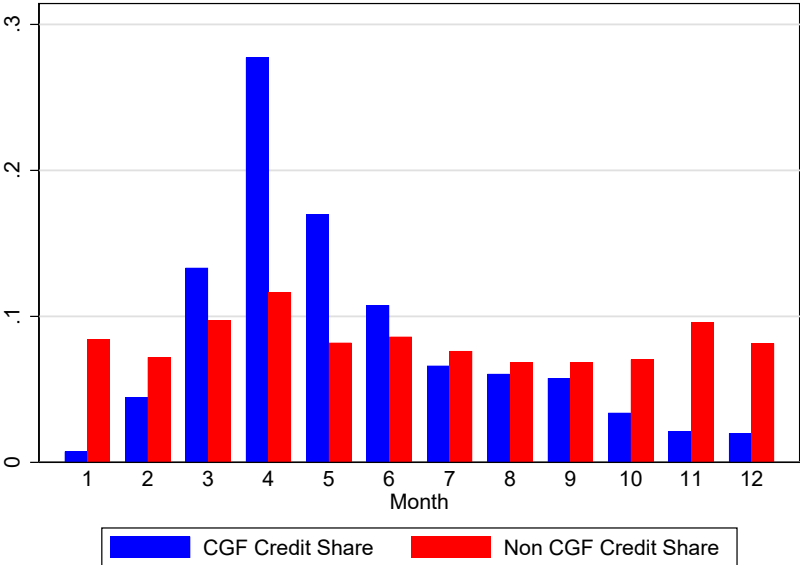
Source: Authors' calculation from the CGF, FTR, and CR databases.
Notes: The figure presents the distribution of monthly loan issuance by credit type.

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Figure 13: Monthly CGF Credit Distribution by Sector and Size in 2017

a) by Sector

b) by Size
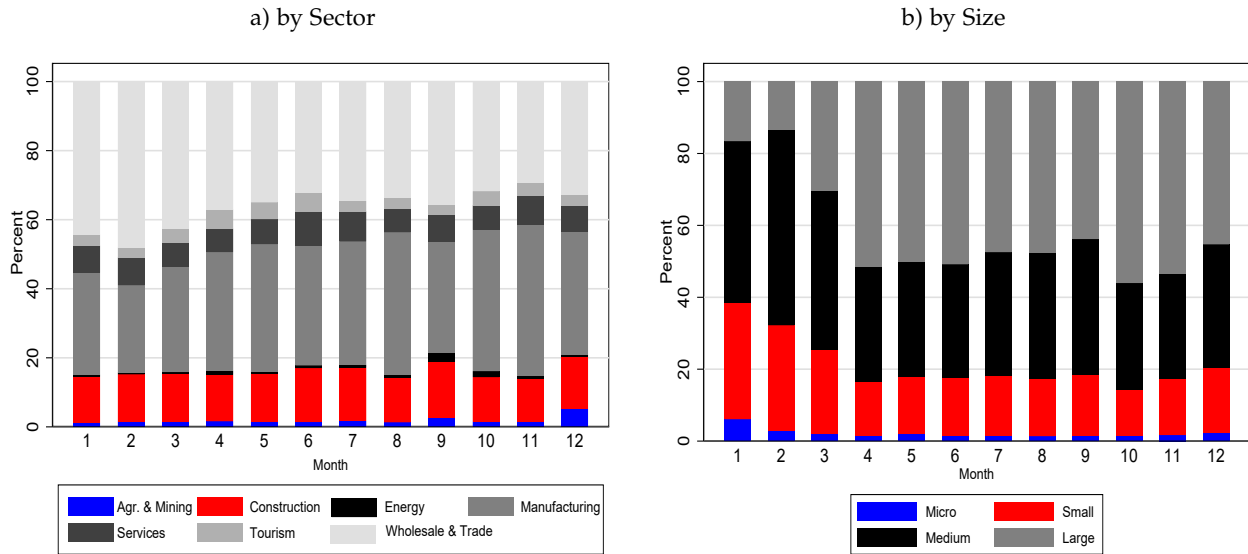
Source: Authors' calculation from the CGF, FTR, and CR databases.
Notes: Panels (a) and (b) present the monthly CGF credit distribution by sector and size, respectively. Firm size is based on the official KOSGEB definition.

Furthermore, Figure 14a presents the weighted average of ex-ante risk scores for the CGF and non-CGF loans issued each month. The figure shows that the risk score differential between the two groups was large in the first quarter and equates in April and May and then enlarges again in the following four months. The share of firms with NPLs before receiving CGF loan support, Figure 14b, records less than 0.01 percent of average monthly loans in the first quarter and then begins to increase following the March revision and finally reaches 1 percent of monthly landing in May. Nevertheless, the cumulative share of loans issued to firms with outstanding NPLs before receiving CGF support does not exceed 0.5 percent of total loans created under the CGF program in 2017, which is unlikely to cause a large jump in the riskiness of the CGF portfolio.

Figure 14: Risk Scores and Non-Performing Loans in 2017

a) Weighted Average Risk Scores by Credit Type

b) Non-Performing Loan Shares of Monthly CGF Issuance
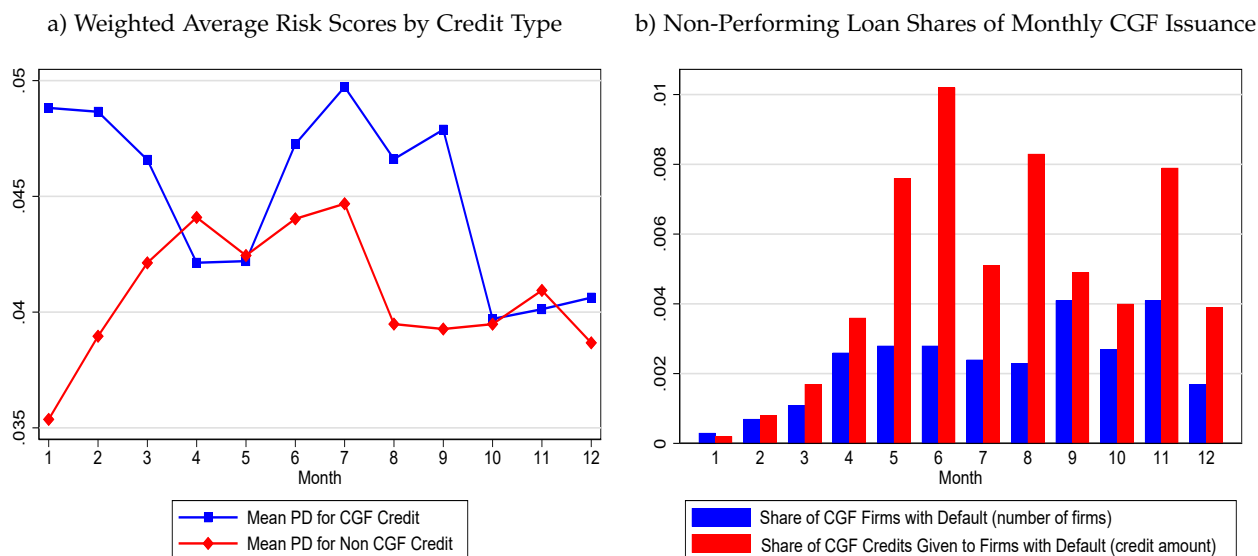
Source: Authors' calculation from the CGF, FTR, and CR databases.
Notes: Panel (a) presents the weighted average risk scores (PDs) by credit type while Panel (b) shows the non-performing loan shares of monthly CGF issuance in 2017.

Overall, the figures show that although the relaxation of eligibility criteria with respect to NPLs may contribute to the divergence on average risk scores between the CGF and non-CGF loans, it is unlikely to explain the divergence fully, given the share of firms with NPLs before benefiting from the program is less than 0.5 percent. Perhaps, the shifts in size and sector allocation of the CGF loans following the revision might have also contributed to the divergence. We will further explore this in the subsequent sections.

5 Impact Analysis

In the second part of the analysis, we estimate a conditional difference-in-differences model whereby we first match each treated firm with a control firm. As the CGF provision was not a random process, rather subject to several layers of screening by the credit-issuing banks and the CGF regulations, implementing the estimation without matching would produce bias results. In what follows, we first explain the details of our matching methodology and then present our estimation strategy. We conclude the section with a detailed discussion of our estimation results.

5.1 Matching: Establishing a Control Group

Following the initial cleaning, our sample of legal firms receiving loans via the CGF program (the treatment group) reduces to 86,000 observations in 2017. Given that we have access to the entire population of legal firms that existed in the same years, we have a large sample for selecting our control group. In the matching, we require both treatment (i.e., the CGF supported) and

control (i.e., non-supported) firms to exist in both years, 2016 and 2015.[16] We conduct one-to-one matching using the coarsened exact matching methodology of Iacus et al. (2012) with no replacement. The matching is implemented based on observable firm characteristics, including total assets, tangible assets, financial debt (i.e., outstanding credit balance), and total sales in 2016 and 2015. Additionally, we also employ predicted risk scores, developed in Section 4.2, in the matching to control for firms' ex-ante riskiness in 2016. Main sectors are preserved in the matching.[17] In each variable, we employ 10 groups.[18] We present the summary statistics before and after matching in Tables 2 and 3, and the balancing test results for the variables used in the matching are shown in Table 4.

Table 2: Summary Statistics (Treatment Firms and the Rest) Before Matching

| | 2015-2016 | | | | 2017-2018 | | | |
| | CGF | | Rest | | CGF | | Rest | |
Variables	N	Mean	N	Mean	N	Mean	N	Mean
Total Assets	169,762	14.65	1,009,954	12.93	168,369	15.06	903,411	13.15
Total Sales	169,762	14.36	1,009,954	10.24	168,369	14.85	903,411	10.42
Tangible Assets	169,762	12.55	1,009,954	9.54	168,369	13.03	903,411	10.03
Financial Debt	169,762	10.62	1,009,954	3.85	168,369	12.43	903,411	4.06
Risk Scores	169,375	0.06	1,004,858	0.12	167,906	0.10	898,080	0.17
Employment	169,762	2.39	1,009,954	1.38	168,369	2.46	903,411	1.37
Inventory	169,762	11.94	1,009,954	7.95	168,369	12.49	903,411	8.30
Liquid Assets	169,762	10.92	1,009,954	9.43	168,369	11.20	903,411	9.47
Land & Buildings	169,762	5.04	1,009,954	2.22	168,369	5.76	903,411	2.54
Machinery & Equipment	169,762	5.48	1,009,954	3.11	168,369	5.99	903,411	3.40
Vehicles	169,762	9.98	1,009,954	5.61	168,369	10.39	903,411	5.95
Default	169,762	0.00	1,009,954	0.05	168,369	0.04	903,411	0.06

Notes: N denotes the number of firms. The mean values (in TL for monetary variables) in the table are annual averages. All variables except risk scores and default are in logarithmic form. Default is one for firms with non-performing loans and zero otherwise.

Tables 2 and 3 show summary statistics of the key variables before and after the matching, respectively. Table 2 shows that the CGF supported firms are relatively larger in assets, sales, and employment. Their financial debt (i.e., outstanding credits) is larger with relatively lower risk scores. However, after matching, such differences significantly reduce, Table 3. Asset size, sales, employment, credit balance, and default probability are merely the same in the matched sample in the pre-2017 years, while we observe some differences in 2017 and 2018 that will be further explored in the following section.

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[16]In an alternative sample (henceforth *Sample 2*), we also included firms that existed only in 2016, not in 2015.

[17]Main sectors are agriculture and mining, construction, energy, manufacturing, services, tourism, and wholesale and trade.

[18]With the exceptions of predicted risk score (default probability) that is employed with five groups, and total sales that is employed with 20 groups in 2016 and 10 groups in 2015. This differentiation in the number of groups is just for improving the matching quality.

Table 3: Summary Statistics (Treatment Firms and the Rest) After Matching

Variables	2015-2016 CGF N	CGF Mean	Rest N	Rest Mean	2017-2018 CGF N	CGF Mean	Rest N	Rest Mean
Total Assets	127,500	14.46	127,500	14.49	126,504	14.84	121,921	14.62
Total Sales	127,500	14.26	127,500	14.26	126,504	14.66	121,921	14.06
Tangible Assets	127,500	12.46	127,500	12.49	126,504	12.88	121,921	12.62
Financial Debt	127,500	9.98	127,500	9.89	126,504	11.91	121,921	9.20
Risk Scores	127,338	0.05	127,334	0.05	126,182	0.10	121,479	0.11
Employment	127,500	2.32	127,500	2.32	126,504	2.38	121,921	2.21
Inventory	127,500	11.63	127,500	11.23	126,504	12.15	121,921	11.31
Liquid Assets	127,500	10.78	127,500	10.91	126,504	11.04	121,921	10.91
Land & Buildings	127,500	4.61	127,500	4.50	126,504	5.26	121,921	4.78
Machinery & Equipment	127,500	5.24	127,500	5.40	126,504	5.71	121,921	5.60
Vehicles	127,500	9.94	127,500	9.51	126,504	10.28	121,921	9.52
Default	127,500	0.00	127,500	0.02	126,504	0.03	121,921	0.06

Notes: N denotes the number of firms. The mean values (in TL for monetary variables) in the table are annual averages. All variables except risk scores and default are in logarithmic form. Default is one for firms with non-performing loans and zero otherwise.

According to Table 4, the initial bias between the treatment and the control groups seems to be reduced significantly by our matching. In particular, we either obtain statistically insignificant mean difference test results for the difference between the CGF supported (treatment) and non-supported (control) firms, or the test statistics dramatically declined along with an above 97 percent reduction in the percentage bias. In the base sample, we have ended up with 63,750 matches.[19] In addition to the variables used in the matching, we also report balancing test results for two other main variables that were not employed in the matching; total liabilities and employment.[20] After the matching, we also observe a significant reduction in the bias for both variables.

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[19]In the alternative sample, *Sample 2*, where we also included firms that only existed in 2016, our sample reached to 67,446 matches.

[20]In the matching, we used financial debt and total sales instead of total liabilities and employment.

Table 4: Matching Performances: Balancing Tests for Treatment Firms and Matched Control Firms

Covariates		N		Mean			T test	
		Treated	Control	Treated	Control	Percentage bias reduction	t-statistics	p-value
Total Assets in 2016	Unmatched	84,881	504,977	14.80	12.95		-205.82	0.00
	Matched	63,750	63,750	14.59	14.59	99.80	0.42	0.67
Total Sales in 2016	Unmatched	84,881	504,977	14.62	10.26		-220.12	0.00
	Matched	63,750	63,750	14.45	14.43	99.45	-1.91	0.06
Tangible Assets in 2016	Unmatched	84,881	504,977	12.78	9.63		-188.20	0.00
	Matched	63,750	63,750	12.65	12.65	99.89	0.24	0.81
Financial Debt in 2016	Unmatched	84,881	504,977	11.05	3.86		-346.95	0.00
	Matched	63,750	63,750	10.32	10.18	98.11	-4.39	0.00
Risk Scores in 2016	Unmatched	84,692	502,315	0.06	0.12		88.61	0.00
	Matched	63,701	63,701	0.05	0.06	96.72	4.94	0.00
Total Assets in 2015	Unmatched	84,881	504,977	14.51	12.90		-204.06	0.00
	Matched	63,750	63,750	14.34	14.39	96.98	5.31	0.00
Total Sales in 2015	Unmatched	84,881	504,977	14.10	10.21		-195.19	0.00
	Matched	63,750	63,750	14.08	14.09	99.58	1.04	0.30
Tangible Assets in 2015	Unmatched	84,881	504,977	12.32	9.44		-168.12	0.00
	Matched	63,750	63,750	12.28	12.32	98.31	2.84	0.00
Financial Debt in 2015	Unmatched	84,881	504,977	10.18	3.84		-302.87	0.00
	Matched	63,750	63,750	9.64	9.60	99.31	-1.34	0.18
Out of Sample Tests:								
Total Liabilities in 2016	Unmatched	84,881	504,977	14.35	12.13		-196.68	0.00
	Matched	63,750	63,750	14.09	14.10	99.52	1.01	0.31
Employment in 2016	Unmatched	84,881	504,977	2.44	1.37		-242.80	0.00
	Matched	63,750	63,750	2.35	2.32	97.33	-4.05	0.00

Notes: N denotes the number of firms. All variables except risk score (PD) are in logarithmic form.

For further inference, we also present full distributions of total assets (a stock variable) and total sales (a flow variable) for the treatment and control groups in 2016 with samples before and after the matching in Figure 15. As an outside-matching criteria variable, we also present the same distributions for total liabilities. The distributions visually emphasize the quality of our matching, where the pairs almost entirely overlap.[21] Distributions of the variables before and after the matching in only one year does not provide much information for the trends outside the years used in the matching. We therefore display the trends for total assets, total sales, and total liabilities in the panels of Figure 16 in years between 2006 and 2018.[22] After the matching, our treatment and control groups, on average, follow similar trends until the CGF program implemented in 2016.

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[21]Distributions of all other variables, used in the matching, present a similar picture and hence, not reported here. They are nevertheless available upon request.

[22]Trends of all other variables, used in the matching, present a similar picture and hence, not reported here. They are nevertheless available upon request.

Figure 15: Matching Performance: Distributions

Log Total Assets

a) Before Matching

b) After Matching

Log Total Sales

a) Before Matching

b) After Matching

Log Total Liabilities

a) Before Matching
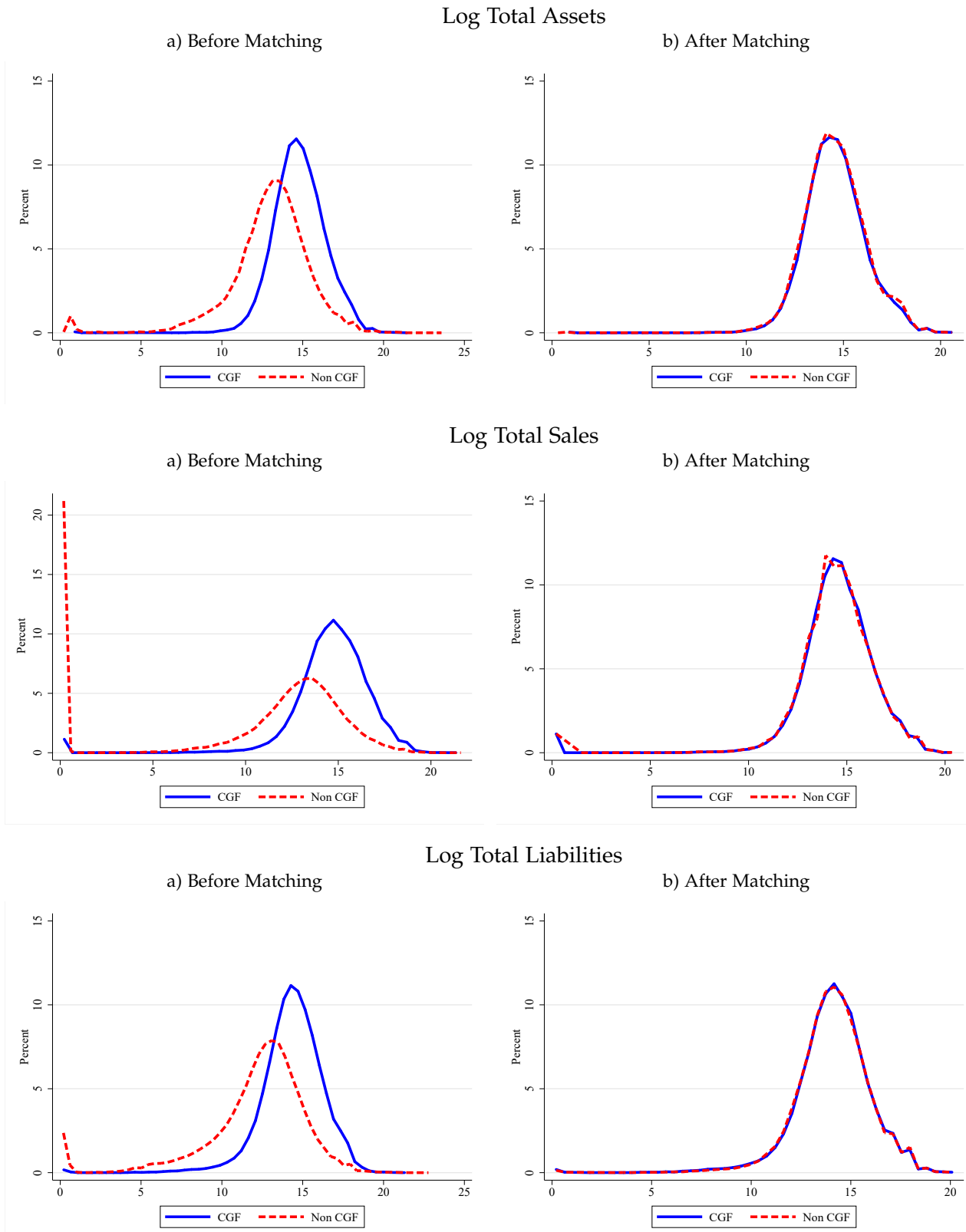
b) After Matching

Source: Authors' calculation from the CGF and FTR databases. The sample is from 2016.

Figure 16: Matching Performance: Trends

Log Total Assets
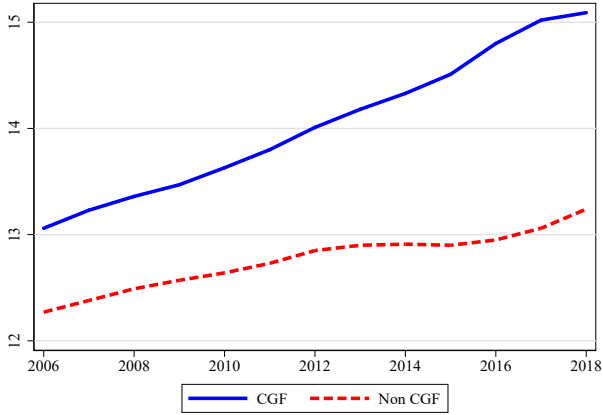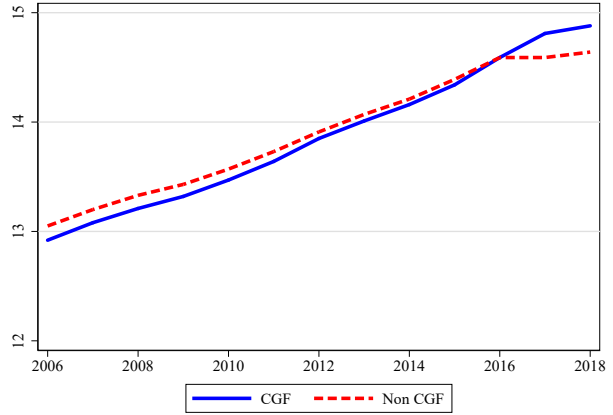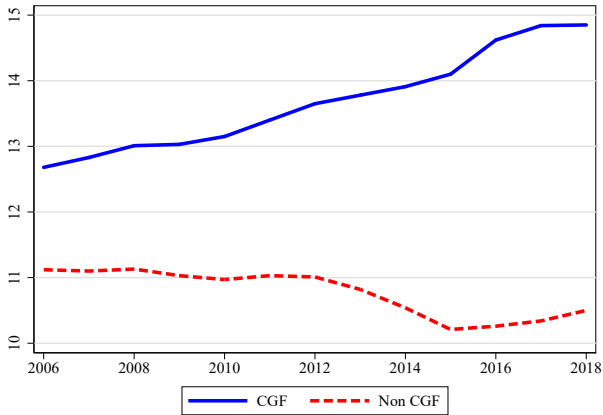
a) Before Matching

b) After Matching

Log Total Sales

a) Before Matching
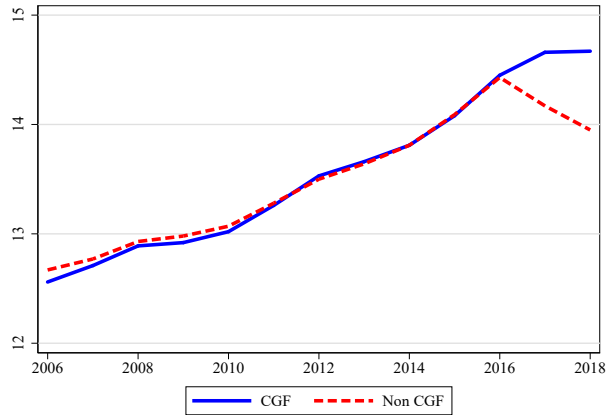
b) After Matching

Log Total Liabilities

a) Before Matching
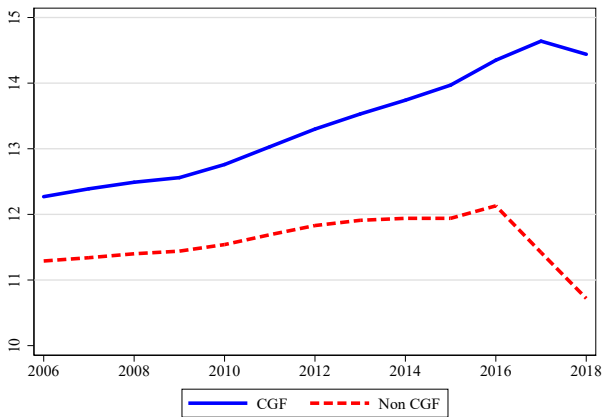
b) After Matching
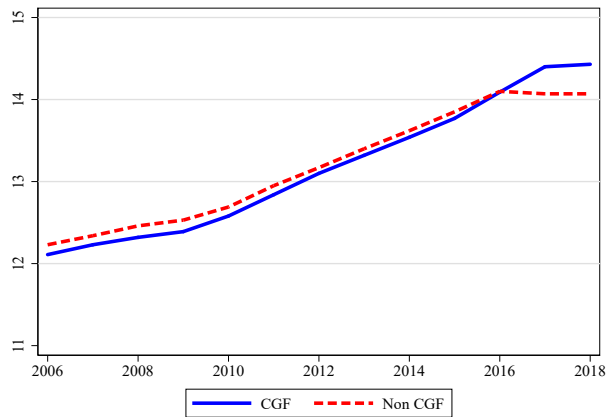
Source: Authors' calculation from the CGF and FTR databases.

5.2 Estimation: Difference-in-Differences Analysis

Using the matched sample, we estimate the following regression equation:

$$y_{it} = \alpha treat_i * post_t + \beta post_t + d_t + pair_j + sector_i * d_t + region_i * d_t + e_{it} \tag{1}$$

where subscript i denotes firm, j denotes the matched pairs, and t denotes the year. The outcome of interest, y_{it}, covers various firm performance measures, including employment, sales, and credit default, along with several balance sheet items. All the dependent variables are in log levels, except the credit default that is a binary variable (i.e., one for firms with 90 days overdue credit payment; otherwise, zero). We implement two different timing specifications: very short-run and short-run. The very short-run specification captures the immediate impact of the CGF program in 2017, while the short-run specification captures the impact in 2018 relative to 2016. More specifically, in the first specification, $post_t$, the post-policy variable is one for 2017; otherwise, it is zero for the control years 2016 and 2015. In the second specification, $post_t$ is equal to one for 2018 and zero for 2016, where we employ only the two years in the specification to capture the program's effect in a longer time horizon. In principle, firms may utilize their CGF backed loans in 2017, while some firms may continue to use their approved credit line (with CGF support) or apply for new credit in 2018, as the CGF program continued to run in 2018. However, given the aim of this paper is to evaluate the impact of the largest CGF program, which was implemented in 2017, we only keep the firms receiving CGF backed loans for the first time in 2017 and may continue to use their credit lines or apply for a new one in 2018. In other words, we exclude firms that receive CGF support for the first time in 2018. In both specifications, the treatment variable ($treat_i$) takes the value of one if the firm received CGF backed loan in 2017, otherwise zero. We also control for pair fixed effects and time dummies in all specifications.[23] $pair_j$ is a fixed effect identifying each matched pairs, treated firm, and its matched control. The parameter α is our coefficient of interest, which shows the impact of receiving CGF backed loan in 2017 on the firm performance in 2017 and/or in 2018 relative to the control group. To control overtime industry and province-specific shifts (e.g., demand shifts), we include sector-time and province-time fixed effects in all specifications.

In addition to the binary treatment, we also estimate the model with continuous treatment, whereby the treatment is changed from a binary (i.e., zero/one) variable to a continuous one. In a nutshell, the binary treatment is multiplied by the CGF backed loan amount (in logs) in the respective years. More specifically, in the first specification (i.e., very short-run), the continuous treatment is the CGF backed loan amount received in 2017. However, in the second specification (i.e. short-run), the continuous treatment is the sum of the CGF backed loans received in 2017 and the additional loans in 2018. Again, firms that received CGF support for the first time in 2018 are excluded from all specifications. During the CGF program years, regular credit operations outside the program continued. This implies that some firms might have also received

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[23] In the short-run specification, time dummies drop as there is only one treatment and one control year.

other loans besides the CGF program, given that the program has balance limits and relatively lower coverage of certain credit types.[24] To account for this, we test the robustness of our main estimates to controlling for non-CGF loans received in respective years. Failing to control non-CGF loans may overstate the CGF program's impact, as firms could use CGF and non-CGF loans as compliments or substitutes to finance different firm activities based on their cost, maturity, and repayment schedule. For instance, relatively longer maturity CGF backed loans may be used to finance longer-term activities (such as inventories or investment), while shorter maturity non-CGF loans can be used to finance working capital - e.g., payment of salaries. Overall, both loan types will provide support for firm activities and thus, would be expected to affect firm performance. Finally, we also estimate the baseline model with firm fixed effects instead of the pair fixed effects.

5.3 Results: Difference-in-Differences Analysis

We present and discuss all the estimation results in this section. Results are displayed in Tables 5 - 11. Each table has two panels: the very short-term (Panel A) and the short-term (Panel B) impact of the program. The very short-term results account for the program's impact only in 2017, which is presumably less than one year. Mainly because about 50 percent of the CGF guaranteed loans were issued in the first four months of 2017 (Figure 12), and hence, the program would have some initial impact in 2017. The short-term results show the program's impact in a relatively long time horizon, from the control year, 2016, to 2018. The implied impact of the program in 2018 would thereby account for the program impact in roughly one and half year time horizon.

Results in each panel are reported for three groups of variables; the main variables: employment, total sales, and firm credit default; the main balance sheet variables: inventories, tangible assets, and liquid assets; further breakdown of the tangible assets: land and buildings, machinery and equipment, and vehicles. Finally, we present three specifications for each variable: baseline results, the inclusion of non-CGF loans, and employing firm fixed effects instead of pair fixed effects. The binary and continuous treatment results are presented in separate tables, whereby Tables 5, 8, and 10 display binary treatment results and Tables 6, 9 and 11 display the continuous treatment results. All the continuous dependent and independent variables are in log levels, while the credit default is in binary form - e.g., equals to one for firms with the non-performing credit balance in a given year; otherwise, zero.

Our main sample requires firms to survive in the post-treatment years, as exiting firms do not report financial documents, and thus, drop out of the sample. However, we relax this condition by imputing zeros to exiting firms' performance indicators in the robustness section. Secondly, in the credit default estimations, we exclude firms (and their matched pairs) with outstanding NPL balance in the control and treatment years before receiving CGF support. Mainly because, the ex-ante risk scores employed in the matching to control for firm riskiness relies on firms'

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[24]For instance, the CGF program had lending limits, see Table 1, and also, lower coverage of FX denominated credits, see Footnote 4.

observable financial and non-financial characteristics in 2016 to predict their ex-ante risk scores for 2017. However, this approach does not rule out two potential sources of bias, which may be especially important for the CGF program's impact on firm credit default in the treatment years. The first bias is the actual credit defaults in the control years, and the second bias is the firms with outstanding NPL balance before receiving the CGF support. Dropping these two groups of firms from the credit default estimation sample ensures that (1) we matched firms with similar ex-ante risk profiles and (2) no default history exists in our sample before the treatment.

Employment

The columns (1) – (3) of Tables 5 and 6 present the results for the impact of the program on firm employment. According to the results, the CGF supported firms, on average, preserved more employment than their pairs in the treatment years. This effect is statistically significant and consistent across different specifications. According to the baseline estimates in Column (1), the CGF supported firms preserved 15.8 percent more employment in the very short-run relative to their pairs (Panel (A)), while the magnitude of this effect slightly increases to 17.3 percent (Panel (B)) in the short-run. Controlling for non-CGF loans in the same years (Column (2) of both panels) reduces the magnitude of the CGF effect only marginally, while the statistical significance and economic importance remain strong. In Column (3) of both panels, we present the results with firm fixed effects (instead of pair fixed effects), in case our comprehensive matching methodology leaves out some non-random time-invariant variation between the treatment and control groups. Results remain consistent with only a marginal reduction in magnitude.

Table 5: The Effect of the CGF Program on Firm Performance: Binary Treatment for Main Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Employment	Employment	Employment	Sales	Sales	Sales	Default	Default	Default
Panel A: Very Short-Run									
POSTxCGF	0.15782***	0.14416***	0.14071***	0.49114***	0.44944***	0.42702***	-0.03063***	-0.03026***	-0.02965***
	(0.00290)	(0.00286)	(0.00295)	(0.01082)	(0.01051)	(0.01170)	(0.00089)	(0.00089)	(0.00088)
CGF	-0.01321***	-0.04457***		0.00605***	-0.08968***		-0.00005	0.00095***	
	(0.00382)	(0.00390)		(0.00175)	(0.00280)		(0.00004)	(0.00009)	
Non CGF credit		0.02311***	0.02871***		0.07056***	0.10920***		-0.00073***	-0.00186***
		(0.00049)	(0.00042)		(0.00147)	(0.00203)		(0.00006)	(0.00008)
Observations	372,330	372,330	372,330	372,330	372,330	372,330	361,416	361,416	361,416
R-squared	0.80192	0.80488	0.94015	0.71577	0.72250	0.75970	0.19199	0.19259	0.35528
Panel B: Short-Run									
POSTxCGF	0.17306***	0.15239***	0.14660***	0.70930***	0.64126***	0.60465***	-0.00640***	-0.00591***	-0.00336**
	(0.00382)	(0.00378)	(0.00376)	(0.01521)	(0.01456)	(0.01521)	(0.00133)	(0.00133)	(0.00132)
CGF	0.00871**	-0.03298***		0.02112***	-0.11613***		-0.00018*	0.00090***	
	(0.00412)	(0.00429)		(0.00201)	(0.00422)		(0.00010)	(0.00022)	
Non CGF credit		0.02700***	0.03452***		0.08886***	0.13644***		-0.00069***	-0.00427***
		(0.00069)	(0.00073)		(0.00225)	(0.00357)		(0.00013)	(0.00021)
Observations	235,800	235,800	235,800	235,800	235,800	235,800	230,272	230,272	230,272
R-squared	0.78492	0.78791	0.93536	0.63349	0.64053	0.75828	0.27773	0.27785	0.51901

Notes: The table presents the regression results for the effect of the CGF program on firm performance in a binary setting. Each panel is a separate regression. Each column presents a regression of column heading on the variables listed in each panel. Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables except Default are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Although the binary treatment results provide an overall picture of the program impact, they

say little about the relationship between the CGF backed loan amount and firm employment. We explore this dimension in the first three columns of Table 6, where the treatment is now continuous. According to the very short-run results, a one percent increase in CGF loans preserved 0.012 percent more employment. The same exercise in the short-run, Panel (B), produces only a slightly higher impact, a 0.013 percent increase in employment. As before, controlling for the non-CGF loans and firm fixed effects does not change the main conclusion.

Table 6: The Effect of the CGF Program on Firm Performance: Continuous Treatment for Main Variables

Dependent Variables:	(1) Employment	(2) Employment	(3) Employment	(4) Sales	(5) Sales	(6) Sales	(7) Default	(8) Default	(9) Default
Panel A: Very Short-Run									
POSTxCGF	0.01193***	0.01119***	0.01100***	0.03671***	0.03446***	0.03327***	-0.00229***	-0.00227***	-0.00224***
	(0.00022)	(0.00022)	(0.00023)	(0.00082)	(0.00080)	(0.00088)	(0.00007)	(0.00007)	(0.00007)
CGF	-0.00094***	-0.00334***		0.00058***	-0.00675***		-0.00002***	0.00006***	
	(0.00030)	(0.00031)		(0.00014)	(0.00021)		(0.00000)	(0.00001)	
Non CGF credit		0.02319***	0.02895***		0.07101***	0.10995***		-0.00077***	-0.00192***
		(0.00049)	(0.00042)		(0.00146)	(0.00203)		(0.00006)	(0.00008)
Observations	372,330	372,330	372,330	372,330	372,330	372,330	361,416	361,416	361,416
R-squared	0.80192	0.80492	0.94019	0.71569	0.72256	0.75979	0.19184	0.19252	0.35525
Panel B: Short-Run									
POSTxCGF	0.01299***	0.01159***	0.01119***	0.05390***	0.04926***	0.04675***	-0.00032***	-0.00029***	-0.00012
	(0.00029)	(0.00029)	(0.00029)	(0.00113)	(0.00109)	(0.00113)	(0.00010)	(0.00010)	(0.00010)
CGF	0.00085***	-0.00228***		0.00140***	-0.00896***		-0.00007***	0.00001	
	(0.00032)	(0.00033)		(0.00017)	(0.00032)		(0.00001)	(0.00002)	
Non CGF credit		0.02696***	0.03473***		0.08937***	0.13720***		-0.00073***	-0.00430***
		(0.00069)	(0.00073)		(0.00224)	(0.00357)		(0.00013)	(0.00021)
Observations	235,800	235,800	235,800	235,800	235,800	235,800	230,272	230,272	230,272
R-squared	0.78497	0.78797	0.93539	0.63354	0.64073	0.75845	0.27766	0.27779	0.51899

Notes: The table presents the regression results for the effect of the CGF program on firm performance in a continuous setting. Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables except Default are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

So far, the discussion provides a technical overview of the program impact, where evaluating the estimates at some reference values can bring a more intuitive understanding of the impact. All the reference mean values used in the evaluation are presented in Table 7. For instance, evaluating the short-term employment impact of the CGF program with binary treatment, 17.3 percent more employment, at the mean employment in 2016 (i.e., 29.4 employees) implies an average increase in employment for 5.1 workers in 2018. Considering the average total CGF backed loans per firm being around 1.9 million TL (i.e., loans received in 2017 and additionally in 2018), the implied monetary value for extra employment is roughly 370 thousand TL. In other words, on average, a CGF supported firm preserved one employment in the short-run with every 370 thousand TL loan backed by the CGF program. Following the same exercise for the continuous treatment estimates in the short-run, we obtain similar results, where receiving an average CGF support implies 5.07 extra employment. This corresponds to roughly 375 thousand TL per extra employment at the mean CGF backed loan amount, which is almost identical to the amount obtained from the binary estimates.

Table 7: Summary Statistics for Evaluating the Monetary Impact of CGF Program

Groups	Employment	Net Sales (TL)	CGF Loan (TL)	Log (CGF Loan)	Default*	CGF Loan (TL)*
Panel A: Samples						
Main Sample (Sample 1 Without Filling)	29.7277	8,041,853	1,900,368	13.1318	0.0525	1,873,520
Sample 1 With Filling	29.4420	8,007,751	1,891,305	13.1380	0.0509	1,865,491
Sample 2 Without Filling	28.6315	7,730,147	1,844,216	13.1078	0.0522	1,817,498
Sample 2 With Filling	28.2833	7,685,197	1,831,971	13.1116	0.0505	1,805,972
Panel B: Sectors						
Agriculture & Mining	24.7922	6,205,479	1,984,643	13.4576	0.0481	1,979,288
Construction	24.0845	3,637,492	1,469,536	13.0735	0.0720	1,438,021
Energy	76.6158	15,811,098	4,632,290	14.0382	0.0353	4,739,057
Manufacturing	47.9288	13,535,572	3,302,894	13.4522	0.0481	3,245,630
Services	48.6620	4,589,208	1,194,232	12.8139	0.0429	1,186,240
Tourism	36.4432	3,354,719	2,221,998	12.9377	0.0539	2,194,594
Wholesale & Trade	14.2148	8,921,696	1,547,608	13.1154	0.0507	1,534,136
Panel C: Size						
Micro	3.1399	826,801	287,316	12.1057	0.0466	287,408
Small	12.4523	3,582,127	778,171	13.0117	0.0543	776,573
Medium	51.8505	16,469,682	3,041,200	14.3397	0.0558	3,030,481
Large	298.0270	70,156,368	19,694,438	16.0750	0.0547	19,590,850

Notes: Each column presents the mean values of the related variable for CGF supported firms in each group for year 2016 and Short-Run equation. "Short-Run" equation covers the impact of the program in 2018.
* We exclude the firms with at least one default event prior to receiving CGF loan in 2017, hence, we have a smaller sample for the regressions with default outcome, though the total number of such firms is not much. Moreover, in order to make ex-post estimations in terms of firm default, we present the mean default rate for CGF and non-CGF firms in 2018 different than the other variables.

Total Sales

The columns (4) – (6) of Tables 5 and 6 present the results for the impact of the program on firm sales. The results show that the CGF supported firms significantly increased their sales relative to their pairs. According to the binary treatment results, displayed in the respective columns of Table 5, the CGF supported firms on average increased their sales by 49 percent in the very short-run and 71 percent in the short-run. The continuous treatment results, presented in Table 6, implies a one percent increase in CGF loan support stimulated sales for 0.037 percent in the very short-run and 0.054 percent in the short-run. These results remain robust to controlling for non-CGF loans, as well as employing firm fixed effects instead of pair fixed effects.

Evaluating the binary estimates at the mean values of the variable (Table 7) implies that the CGF supported firms on average increased their sales roughly 3 TL more than their matched pairs in 2018 (in the short-run) for every 1 TL CGF backed loan provided.

Credit Default

The columns (7) – (9) of Tables 5 and 6 show the estimates for the impact of the program on firm credit default probability. The CGF program appears to reduce a firm's credit default probability in the very short-run, while the magnitude of the reduction fades in the short-run. More specifically, firms that are supported by the CGF program experienced a 3 percentage point less credit default in the very short-run relative to the control group. In the short-run, the impact reduces to 0.6 percentage point less credit default. Our results with continuous treatment show that a one percent increase in CGF backed loans leads to a 0.3 percentage point reduction in firm default

probability in the very short-run and a 0.03 percentage point reduction in the short-run. Controlling for non-CGF loans or exploiting firm fixed effects only marginally changes the magnitude of the estimates, while the results remain qualitatively the same.

Moreover, we evaluate our binary results in the short-run at mean credit default probability in 2018 (Table 7). We find that a 0.6 percentage point reduction implies a 12 percent decrease in the average credit default probability of the CGF supported firms in 2018. Given the average CGF backed loan amount in 2018 was 1.9 million TL, our results suggest that roughly 1 million TL CGF support brought about a 6.5 percent reduction in the average credit default probability of the CGF supported firms in 2018.

Main Balance Sheet Items: Inventories, Tangible Assets and Liquid Assets

One of the expected outcomes of the CGF program was an increase in inventories, mainly because the geopolitical shocks in the second half of 2016 in Turkey created distortions on domestic supply and suppressed the demand due to increased uncertainty. The CGF supported firms presumably experienced relatively less distortion on their financial management, and hence, were able to continue with production even though they may not find appropriate demand for their products. In turn, they would be expected to experience a temporary increase in their inventories. On the other hand, tangible assets contain long-term capital, including land and buildings, machinery and equipment, and vehicles. One would expect firms are postponing their investments in response to increased uncertainty. However, given that many capital assets are also perceived as collateral and also provide a cushion to currency shocks[25] especially during times of high uncertainty, some of the CGF supported firms might have still considered investing in these assets. Finally, firms may also respond to uncertainty by increasing their precautionary funds in liquid form, suggesting a positive relationship between the CGF support and liquid assets. These theoretical arguments demand further empirical investigation, which is presented in this section.

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[25]Most of the machinery and equipment type capital, and vehicles are imported from abroad in Turkey, and thus, their prices are pegged to foreign currency prices.

Table 8: The Effect of the CGF Program on Firm Performance: Binary Treatment for Main Balance Sheet Items

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Inventory	Inventory	Inventory	Tangible Assets	Tangible Assets	Tangible Assets	Liquid Assets	Liquid Assets	Liquid Assets
Panel A: Very Short-Run									
POSTxCGF	0.43803***	0.38915***	0.38798***	0.28893***	0.25860***	0.24072***	0.34052***	0.33630***	0.32418***
	(0.01701)	(0.01698)	(0.01709)	(0.00931)	(0.00919)	(0.01005)	(0.01032)	(0.01031)	(0.01035)
CGF	0.33647***	0.22425***		-0.03425***	-0.10387***		-0.08360***	-0.09329***	
	(0.01779)	(0.01782)		(0.00282)	(0.00330)		(0.00870)	(0.00877)	
Non CGF credit		0.08271***	0.08404***		0.05131***	0.08219***		0.00714***	0.02706***
		(0.00251)	(0.00226)		(0.00119)	(0.00161)		(0.00123)	(0.00117)
Observations	372,330	372,330	372,330	372,330	372,330	372,330	372,330	372,330	372,330
R-squared	0.62514	0.62798	0.83732	0.83013	0.83311	0.86747	0.55867	0.55875	0.76889
Panel B: Short-Run									
POSTxCGF	0.35870***	0.28714***	0.30072***	0.29037***	0.25409***	0.23301***	0.18695***	0.17616***	0.15742***
	(0.02102)	(0.02106)	(0.02102)	(0.01158)	(0.01133)	(0.01181)	(0.01273)	(0.01274)	(0.01279)
CGF	0.43778***	0.29344***		-0.01769***	-0.09086***		-0.08056***	-0.10233***	
	(0.02010)	(0.02038)		(0.00321)	(0.00413)		(0.01011)	(0.01033)	
Non CGF credit		0.09344***	0.07752***		0.04737***	0.07539***		0.01410***	0.03825***
		(0.00356)	(0.00387)		(0.00162)	(0.00254)		(0.00183)	(0.00216)
Observations	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800
R-squared	0.61585	0.61850	0.85246	0.77589	0.77788	0.86065	0.55865	0.55888	0.79597

Notes: The table presents the regression results for the effect of the CGF program on main balance sheet items in a binary setting. Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

The binary and continuous estimation results for the main balance sheet items (inventories, tangible assets, and liquid assets) are presented in Tables 8 and 9. As before, the very short-term estimations are displayed in Panel A, and the short-term estimations are in Panel B of the respective tables. According to the results in Table 8, the CGF supported firms on average experienced a 44 percent increase in their inventories relative to their pairs in the very short-run. However, the results indicate that the increase in inventories, motivated by the CGF program, was temporary, as the estimated coefficient falls to 35 percent in the short-run specification. This is in line with our earlier expectation, where the increase in inventories appears to be temporary, given some of the effect diminishes as the demand recovers in the short-run. The program's impact is estimated to be positive for the tangible asset, whereby the CGF supported firms, on average, increased their tangible assets about 29 percent more than their pairs in the very short-run. The effect remains to be the same in the short-run estimates. Liquid assets are also affected positively by the program, as CGF supported firms increased their liquid assets by 34 percent more than their pairs in the very short-run, while the effect drops to half in the short-run. The continuous treatment results, presented in Table 9, are qualitatively similar and remain statistically significant. These results are also robust to controlling for non-CGF loans and employing firm fixed effects instead of pair fixed effects in the specifications.

As before, evaluating the short-term results at the sample averages (Table 7), we obtain that every 100 TL loan issued under the CGF program generated roughly 35 TL in inventories, 38 TL in tangible assets, and only 3.5 TL in liquid assets.

Table 9: The Effect of the CGF Program on Firm Performance: Continuous Treatment for Main Balance Sheet Items

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Inventory	Inventory	Inventory	Tangible Assets	Tangible Assets	Tangible Assets	Liquid Assets	Liquid Assets	Liquid Assets
Panel A: Very Short-Run									
POSTxCGF	0.03282***	0.03016***	0.03011***	0.02112***	0.01949***	0.01853***	0.02688***	0.02665***	0.02598***
	(0.00126)	(0.00126)	(0.00127)	(0.00070)	(0.00069)	(0.00075)	(0.00078)	(0.00078)	(0.00078)
CGF	0.02547***	0.01683***		-0.00243***	-0.00775***		-0.00644***	-0.00719***	
	(0.00132)	(0.00132)		(0.00022)	(0.00025)		(0.00066)	(0.00067)	
Non CGF credit		0.08366***	0.08473***		0.05150***	0.08263***		0.00734***	0.02758***
		(0.00250)	(0.00226)		(0.00119)	(0.00161)		(0.00123)	(0.00117)
Observations	372,330	372,330	372,330	372,330	372,330	372,330	372,330	372,330	372,330
R-squared	0.62508	0.62800	0.83734	0.83008	0.83310	0.86749	0.55878	0.55887	0.76902
Panel B: Short-Run									
POSTxCGF	0.02767***	0.02278***	0.02375***	0.02200***	0.01953***	0.01809***	0.01463***	0.01391***	0.01263***
	(0.00155)	(0.00155)	(0.00154)	(0.00086)	(0.00084)	(0.00087)	(0.00095)	(0.00095)	(0.00096)
CGF	0.03274***	0.02183***		-0.00144***	-0.00694***		-0.00612***	-0.00773***	
	(0.00148)	(0.00150)		(0.00025)	(0.00031)		(0.00076)	(0.00078)	
Non CGF credit		0.09415***	0.07779***		0.04749***	0.07566***		0.01389***	0.03835***
		(0.00355)	(0.00386)		(0.00161)	(0.00254)		(0.00182)	(0.00216)
Observations	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800
R-squared	0.61585	0.61856	0.85249	0.77589	0.77791	0.86068	0.55868	0.55891	0.79600

Notes: The table presents the regression results for the effect of the CGF program on main balance sheet items in a continuous setting. Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Breakdown of Tangible Assets: Land and Buildings, Machinery and Equipment, Vehicles

This section briefly discusses the CGF program's impact on the further breakdown of tangible assets, including land and buildings, machinery and equipment, and vehicles. As before, the binary and continuous estimation results are presented in Tables 10 and 11 along with the very short term and the short-term results shown in Panels A and B. The CGF program generally has a positive impact on all these three asset classes. However, the size of the impact across asset types, as well as the very short-run and the short-run attributions differ significantly. More specifically, the CGF supported firms on average invested 34 percent more in land and buildings, 22 percent more in machinery and equipment, and 41 percent more in vehicles than their pairs in the very short-run. In the short-run, the impact on land and buildings remains mostly similar to that of the impact in the very short-run; the program effect on machinery and equipment increases moderately; and finally, the impact on vehicles drops to 31 percent. Vehicle purchases seem to be relatively high in demand only in the very short-run among other asset types. These results are qualitatively the same as the continuous treatment results in Table 11 and robust across different specifications and controls.

Table 10: The Effect of the CGF Program on Firm Performance: Binary Treatment for the Breakdown of Tangible Assets

Dependent Variables:	(1) Land & Buildings	(2) Land & Buildings	(3) Land & Buildings	(4) Machinery & Equipment	(5) Machinery & Equipment	(6) Machinery & Equipment	(7) Vehicles	(8) Vehicles	(9) Vehicles
Panel A: Very Short-Run									
POSTxCGF	0.33821***	0.32265***	0.31379***	0.21926***	0.20987***	0.20195***	0.40993***	0.35178***	0.34472***
	(0.01589)	(0.01593)	(0.01609)	(0.01140)	(0.01145)	(0.01139)	(0.01588)	(0.01583)	(0.01629)
CGF	-0.02747	-0.06319**		-0.15491***	-0.17647***		0.37274***	0.23926***	
	(0.02554)	(0.02599)		(0.02477)	(0.02515)		(0.01850)	(0.01855)	
Non CGF credit		0.02633***	0.04155***		0.01589***	0.03171***		0.09839***	0.11008***
		(0.00272)	(0.00171)		(0.00270)	(0.00139)		(0.00264)	(0.00221)
Observations	372,330	372,330	372,330	372,330	372,330	372,330	372,330	372,330	372,330
R-squared	0.69822	0.69837	0.93207	0.70557	0.70563	0.96091	0.65924	0.66285	0.87586
Panel B: Short-Run									
POSTxCGF	0.35804***	0.32999***	0.31305***	0.25597***	0.23603***	0.22224***	0.30802***	0.22846***	0.22220***
	(0.01976)	(0.01992)	(0.01999)	(0.01409)	(0.01430)	(0.01412)	(0.02002)	(0.02005)	(0.02028)
CGF	-0.01065	-0.06724**		-0.14193***	-0.18216***		0.40844***	0.24797***	
	(0.02772)	(0.02871)		(0.02619)	(0.02703)		(0.02032)	(0.02067)	
Non CGF credit		0.03663***	0.05643***		0.02604***	0.04342***		0.10389***	0.11081***
		(0.00384)	(0.00297)		(0.00379)	(0.00243)		(0.00370)	(0.00374)
Observations	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800
R-squared	0.69044	0.69065	0.93302	0.69873	0.69885	0.96002	0.63218	0.63520	0.87470

*Notes: The table presents the regression results for the effect of the CGF program on the breakdown of tangible assets in a binary setting. Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.*

Table 11: The Effect of the CGF Program on Firm Performance: Continuous Treatment for the Breakdown of Tangible Assets

Dependent Variables:	(1) Land & Buildings	(2) Land & Buildings	(3) Land & Buildings	(4) Machinery & Equipment	(5) Machinery & Equipment	(6) Machinery & Equipment	(7) Vehicles	(8) Vehicles	(9) Vehicles
Panel A: Very Short-Run									
POSTxCGF	0.02777***	0.02696***	0.02645***	0.01711***	0.01662***	0.01621***	0.02879***	0.02566***	0.02527***
	(0.00124)	(0.00124)	(0.00125)	(0.00088)	(0.00088)	(0.00088)	(0.00117)	(0.00117)	(0.00120)
CGF	-0.00072	-0.00335*		-0.01140***	-0.01300***		0.02999***	0.01980***	
	(0.00199)	(0.00203)		(0.00190)	(0.00193)		(0.00139)	(0.00140)	
Non CGF credit		0.02551***	0.04198***		0.01559***	0.03203***		0.09872***	0.11077***
		(0.00271)	(0.00171)		(0.00269)	(0.00139)		(0.00264)	(0.00221)
Observations	372,330	372,330	372,330	372,330	372,330	372,330	372,330	372,330	372,330
R-squared	0.69828	0.69842	0.93210	0.70557	0.70563	0.96092	0.65929	0.66295	0.87584
Panel B: Short-Run									
POSTxCGF	0.02849***	0.02669***	0.02543***	0.02014***	0.01883***	0.01784***	0.02169***	0.01629***	0.01582***
	(0.00153)	(0.00154)	(0.00155)	(0.00108)	(0.00109)	(0.00108)	(0.00148)	(0.00148)	(0.00149)
CGF	0.00075	-0.00328		-0.01036***	-0.01328***		0.03239***	0.02036***	
	(0.00214)	(0.00222)		(0.00199)	(0.00205)		(0.00152)	(0.00154)	
Non CGF credit		0.03475***	0.05657***		0.02521***	0.04357***		0.10385***	0.11137***
		(0.00382)	(0.00296)		(0.00378)	(0.00243)		(0.00369)	(0.00374)
Observations	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800
R-squared	0.69052	0.69071	0.93305	0.69874	0.69885	0.96003	0.63225	0.63529	0.87468

*Notes: The table presents the regression results for the effect of the CGF program on the breakdown of tangible assets in a continuous setting. Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.*

Building on the earlier estimates on tangible assets - i.e., a 100 TL CGF support generating an additional 38 TL tangible assets in the short-run - we can now identify the distribution of this additional investment across different asset classes. As before, we evaluate the coefficient

estimates at their mean values in 2016 (Table 7). Our calculations show that 17 TL of this amount was spent on land and buildings, 9 TL was invested in machinery and equipment, and finally, 7 TL was spent on vehicles.[26] Although the CGF program effect on vehicle assets appears to be large in percentage-wise (41 percent), once we evaluate it at the mean vehicle asset stock, the monetary value of the increase is the smallest among other tangible asset types.

Overall

Our findings from all the above presented results are summarized in Figure 17, where we present the average impact of a 1 million TL loan issued under the CGF program on our dependent variables. An extra 1 million TL loan generated via the CGF program on average preserved 2.7 employment, generates 3 million in sales, and leads to a 6.5 percent decrease in average credit default probability in 2018. The program impact on relatively short-lived assets, such as liquid and vehicle assets, appears to be the least among other asset types.

Figure 17: Average Monetary Impact of CGF Supported Loans (per 1 million TL of CGF loan)

a) Main Variables   b) Balance Sheet Items
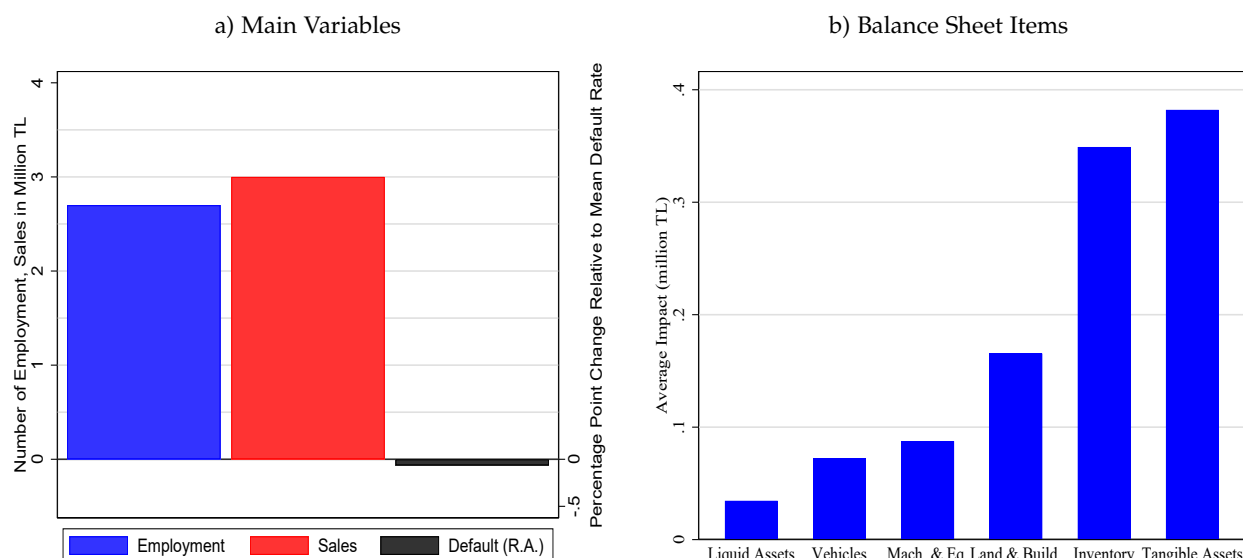
Source: Authors' calculations.
Notes: The figures present the average monetary impacts of receiving 1 million TL of CGF loan. Mach. & Eq. represents machinery and equipment while Land & Build. represents the land and buildings.

6 Robustness Checks and Potential Caveats

In this section, we discuss the robustness of our results to various considerations. We also present an overview of the potential caveats that are worth considering while interpreting our results.

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[26]Only the main assets classes under tangible assets are presented here, where the remaining 5 TL may be attributed to the other classes under tangible assets.

6.1 Robustness Checks

We note that our main specification is already robust to controlling for several fixed effects, NACE Rev. 2 Classification level sector–time and province–time fixed effects. These fixed effects are particularly important to account for various sector and province-specific time-varying shifts, such as demand shifts that may be created by the CGF program. To further strengthen the identification, we also included non-CGF loans in our main specification, as well as re-estimated the main specification with firm fixed effects instead of pair fixed effects. Since we have already presented and discussed these robustness checks above, we focus on other potential concerns in this section.

Our main sample, used in the baseline analysis, requires firm survival both in the matching/control and treatment years. In other words, firms that did not report balance sheets are "treated" as exiters in our base sample (*Sample* 1). In the discussion above, we have already stated that the share of exiting firms is small. However, to remove this restriction from our estimates, we impute zeros to the employment and sales of exiting firms in 2017 and in 2018 that form our new sample, *Sample 1 with filling*. This is a well-applied method in the empirical literature (e.g., Brown and Earle, 2017). However, we do not apply the same idea to credit default, where assuming credit default for an exiting firm (i.e., assigning one for the credit default of exiting firms) may actually not always be the case in reality, as firms may not have outstanding credit or had already liquidated the outstanding credit balance through the bankruptcy process. By the same token, we construct another sample (*Sample 2*), where we add firms that were around only in 2016 (not in 2015) to our matching methodology. As done for *Sample 1*, we present our main results for *Sample 2* with a requirement on survival in 2017 and in 2018 (i.e., *Sample 2 without filling*) and also, without a requirement on survival (i.e., *Sample 2 with filling*).

For brevity, we discuss only the robustness of our estimates for the main dependent variables of employment, sales, and credit default from the binary treatment specification in this section and report the related tables in the Appendix. However, the full set of results for all the variables along with binary and continuous treatment specifications are available in the Online Appendix.

Robustness Test 1: Sample 1 with Filling

Table A1 presents the results from the binary treatment with *Sample 1 with filling*. According to the results, the main dependent variables' estimated effects are slightly higher than those without the imputation; however, the significance levels and signs do not change in all specifications. Given our credit default results, the CGF program has a positive impact on firm survival. Thereby, the exiting firms tend to be the control firms in the matched pairs, as the CGF supported firms tend to default less and survive more. In turn, putting the exiting firms back to the estimation with zero imputations for their employment and sales seems to slightly increase the CGF program's impact on employment and sales. The statistical significance and the sign of the estimates, however, are preserved across all the specifications.

Robustness Test 2: Sample 2 without Filling

Table A2 shows the results for the binary treatment specification with *Sample 2 without filling*. The number of the matched CGF firms with controls increases to 67,446 in this sample, as we no longer require firms to exist in both years, 2016 and 2015, to be included in the matching. The estimated treatment effects for all variables do not change across all specifications, suggesting that our baseline results are robust to different sample selections.

Robustness Test 3: Sample 2 with Filling

Table A3 displays the results for the binary treatment specification with *Sample 2 with filling*. The results for the estimated treatment effects for all variables do not change across all specifications, suggesting that our baseline results are robust to imputing zeros for the exiting firms in *Sample 2*.

Robustness Test 4: Excluding Firms in Energy and Agriculture and Mining Sectors

Firms in the energy sector usually tend to be large and use FX denominated credits to finance large scale investment projects, given the very nature of the sector that highly relies on imported capital goods.[27] As a result, energy sector firms coverage of the CGF program is relatively small. On the contrary, firms in the agriculture and mining sector, especially the agriculture, generally tend to be micro family firms, whose coverage is limited in our sample given the exclusion of unincorporated businesses from the analysis. Overall the CGF program coverage of these sectors is only 3 percent, and thus, excluding these sectors from the analysis should not affect our results. However, such sector-specific characteristics are mostly captured by the sector-specific fixed effects in our baseline specification; we still find it useful to note that our main results are robust to the exclusion of firms in these sectors from the analysis. For brevity, we do not report results, as they are very similar to the main ones discussed above.[28]

6.2 Potential Caveats

The results presented so far provide an overview of the average immediate impact of the CGF program at the firm-level in the short-run. However, considering the program's size and comprehensive coverage, it will presumably generate sizable general equilibrium effects. Moreover, firm-level estimates do not account for potential re-distributional effects - e.g., re-distribution of employment across firms after the program implementation. For instance, new employment generated by a CGF supported firm may be a firm's layoff, particularly a firm in the control group. Such redistribution may reduce the overall macro impact of the CGF program. Secondly, our results do not account for firm-to-firm spillovers. However, we know that fiscal policy multiplies through the interactions of agents in an economy. That suggests some of our results may

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[27]See Footnote 12.
[28]These results are available upon request.

amplify once the firm-to-firm interactions are considered. In the next section, we provide a brief discussion to shed light on these dimensions.

Due to data restrictions, we had to exclude unincorporated businesses from the analysis. Although their size is relatively small both in the CGF program and in the Turkish economy, they may be especially important for our risk analysis and firm credit default results. Mainly because micro firms are usually more vulnerable to shocks and, thus, riskier. However, we cannot provide a direct analysis on this concern, which remains a caveat for our results. Therefore, some of the results may overstate the actual impact.

Moreover, our analysis covers one full year (2018) in the post-CGF program and the year of 2017, which contains both the program implementation and impact. Therefore, the observed positive impacts along with the negative ones may amplify, and hence, the program's long-term impact is subject to further research.

7 Further Extensions and Discussions

In this section, we provide results from various sub-samples, additional dependent variables, and aggregations. The sub-sample estimates include firm size (e.g., micro, small, medium, and large) and sectors (e.g., main seven sectors). Using the sector-specific results, we also motivate a discussion on the potential spillover impact of the CGF program through sectoral linkages. As additional dependent variables, we provide further results on the program impact on intangible assets (e.g., R&D capital), firm indebtedness, and exits. We then aggregate our data to the province and NACE Rev-2 Classification level and provide further results from the aggregate regressions, which we use to discuss the program's re-distributional effects.

7.1 Estimations by Firm Size Groups

We re-estimate our main results on the employment, sales, and firm credit default for four different firm size groups separately: micro, small, medium, and large. The size groups are determined based on the official definition.[29] We summarize the short-term impact of the CGF program from binary treatment estimations in Figure 18, while the estimation results are presented in the Appendix, Table A4.

The results show that the medium-sized firms appear to experience the largest impact on their employment relative to their pairs (Table A4). On average, the CGF supported medium-sized firms recorded almost 20 percent more employment than their pairs. In contrast, the employment impact of the program appears to be the smallest among the large firms. The CGF program impact on sales is the largest among the CGF supported micro firms, while the magnitude of the impact on the CGF receiving small and medium-sized firms is similar. This is to say that the CGF supported micro-firms recorded about 81 percent higher sales than their pairs in 2018. This number is 70 percent for small firms and 71 percent for medium-sized firms. However,

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[29]See Table A5 for the official definitions of SMEs prior to 2018.

the CGF supported large firms experienced the least increase in sales, 35 percent, relative to their pairs. The CGF program impact on credit default varies across size groups. On average, the CGF supported micro and large firms experienced a moderate increase in credit default probability in 2018 relative to their non-CGF pairs. On the contrary, the CGF supported SMEs recorded a reduction in their credit default probability relative to their pairs. In particular, the credit default probability for the CGF supported small and medium-sized firms is estimated to be 1.4 and 1.3 percentage points less than their pairs. These results are consistent across the three specifications.

So far, we have only discussed our results on the program's average impact on the treated (the CGF supported) firms relative to their pairs that did not receive CGF support in 2017. However, since each size group has different levels of average employment, sales, credit default rates, and the CGF backed loan amounts, the implied impact and cost of the program would be different across the size groups than the average percentage impact presented above. Using the variable averages for the four size groups, presented in Table 7, we evaluate the cost of a unit increase/decrease in employment, sales, and credit default for an average firm in each group. For instance, given the estimated average program impact on the employment of the CGF supported micro firms is 18 percent, the implied increase in employment for an average micro firm (with an average employment of 3.14) occurs 0.57 employment. As the average CGF backed loan amount for this group is 287,316 TL, we compute the cost of extra employment for micro firms as 504,063 TL. Similarly, we compute the monetary cost of a unit increase/decrease in employment, sales, and credit default probability for all the size groups. Using this information, we present the overall impact of a 1 million TL loan generated via the CGF program in terms of employment, sales, and credit default probability for the four size groups in Figure 18. According to the figure, 1 million TL loan generated via the CGF program preserved the most employment (3.5 employment) and sales (3.8 million sales) among the medium firms, and it is the least among the large firms. An extra 1 million TL loan generated via the CGF program reduced credit default probability for small firms up to 30 percent (of the mean credit default probability in 2018 for small firms), while it increased the default probability for micro firms up to 45 percent.

Figure 18: Average Monetary Impact of CGF Supported Loans by Size Groups (per 1 million TL of CGF loan)

a) Employment and Sales

b) Credit Default
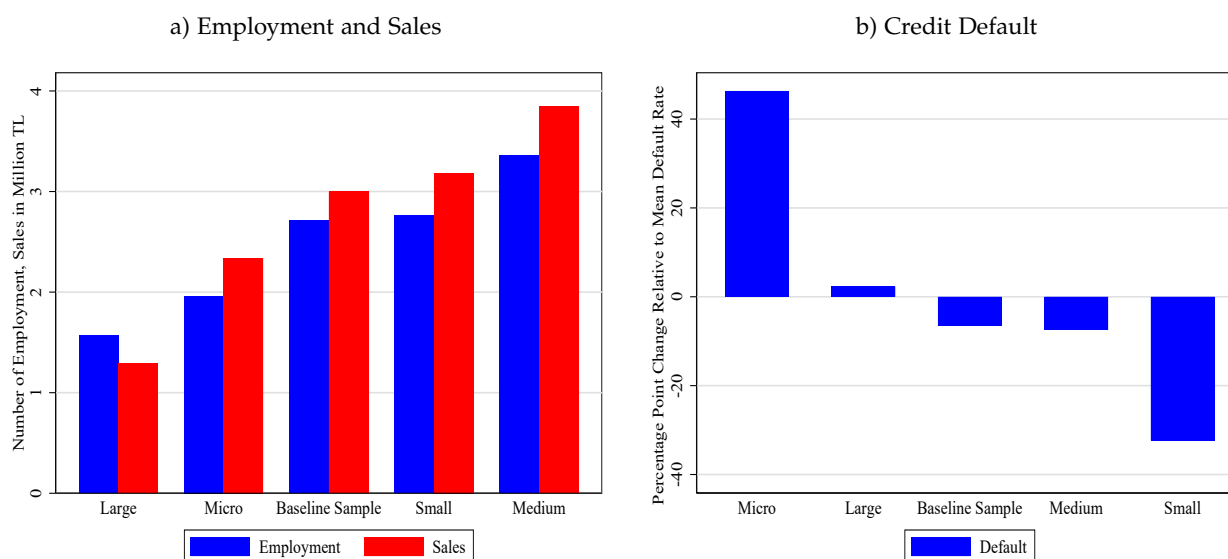
Source: Authors' calculation from the CGF, FTR and CR databases.
Notes: In panel (a), the first bar shows the number of preserved employment while the second bar represents the amount of sales generated for receiving 1 million TL of CGF loan for each size group. In panel (b), each bar shows the percentage point change in default rate relative to the mean default rate by receiving 1 million TL of CGF loan. We follow the KOSGEB's definition for firm size.

In general, large firms are relatively less credit constrained than micro and SMEs, which may explain at least some of the heterogeneity in program impact across size groups. Therefore, extending new credit lines to large firms may not directly improve their credit access but rather substitute their non-CGF credits (Banerjee and Duflo, 2014). Some of the limiting attributes of the CGF program towards large firms, such as balance limits and favoring TL lending instead of FX, might have also contributed to this result. Considering their large scale, supporting large firms' credit access may be beyond the scope of CGF. Alternatively, bond guarantee programs may provide stronger liquidity for large firms, as implemented in some Asian countries, such as Malaysia. Corporate bonds issued under such a guarantee program are generally rated at higher grades than regular corporate bonds, and thus, can generate significantly larger funds at relatively lower cots and longer maturities for large firms. More importantly, bond finance requires the issuing firms to be more transparent in reporting, which can also reduce potential moral hazard problems associated with credit guarantees. On the contrary, SMEs had been experiencing a sharp decline in credit access since 2013 until implementing the CGF program in 2017. By removing some of the credit constraints, the CGF program seems to impact SMEs performance positively.

7.2 Estimations by Firm Sector Groups

In this section, we re-estimate our baseline model with sector-specific sub-samples. The results for the main variables - e.g., employment, sales, and credit default - from the binary treatment

specification in the short-run are presented in the Appendix, Table A6, while the overall impact of the program for an average CGF supported firm across the main sectors is summarized in Figure 19.[30]

The estimation results indicate significant differences across sectors (Table A6). The CGF supported firms in the construction sector preserved 27 percent more employment than their pairs, while this effect for the remaining sectors is between 14 - 18 percent. In terms of sales, the CGF supported firms in the construction also recorded the highest increase relative to their pairs. Similar to employment, the CGF supported firms in the remaining sectors experienced an increase of a similar magnitude in their sales. Moreover, the CGF supported firms in the manufacturing and construction sectors recorded a significant reduction (around 1.25 percentage point) in credit default probability. The CGF supported firms in the wholesale and trade sector recorded a moderate reduction in credit default probability (0.5 percentage point) relative to their pairs. However, the impact is statistically insignificant in the remaining two service sectors, tourism and services.

Given the considerable variation in the means of employment, sales, credit default probability, and the CGF backed loan amount across sectors (Panel B of Table 7), evaluation of the above-discussed estimates at the variable means would allow a better comparison of the program impact across sectors. Following the simple back-of-the-envelope calculation discussed in the previous section, we present the impact of an extra 1 million TL loan generated via the CGF program in Figure 19. Figure 19a shows that an extra 1 million TL loan generated via the CGF program preserved the most employment in the service sector and the least employment in the wholesale and trade sector. A negative correlation between the cost of preserving employment and the labor intensity is strongly evident from our results. In contrast, generating one extra TL in sales via the CGF program is the cheapest in the wholesale and trade sector and the most costly in the tourism sector. An extra 1 million TL loan via the CGF program leads to a higher reduction in credit default in construction and manufacturing sectors, 12 percent reduction in the former, and 7.5 percent reduction in the latter, Figure 19b.[31]

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[30] As our sample coverage of energy and agriculture and mining sector firms is limited, we report the results for these sectors in Table C1 of Online Appendix.

[31] As the program impact on credit default probability for the firms in services and tourism sectors is statistically insignificant, we excluded these sectors from the Figure.

Figure 19: Average Monetary Impact of CGF Supported Loans by Sector Groups (per 1 million TL of CGF loan)

a) Employment and Sales

b) Credit Default Probability*

Our results show that the CGF program was more effective in preserving employment in labor-intensive sectors, particularly the services sector, and generated more sales for sectors serving more to domestic markets, especially the wholesale and trade sectors. By the same token, the lower impact of the CGF support for the sales of firms in the tourism sector may be because most of their sales come from foreign tourists in the form of service exports. Given the significant slowdown in the construction sector in 2016, the CGF program appears to have a significant positive impact on the performance of the CGF supported construction firms, including a large decline in the credit default probability.

7.3 Impact of the Program on Intangible Capital and Indebtedness

The CGF program's impact on firms' intangible capital (i.e., patents, R&D activities) and indebtedness is particularly crucial to provide a perspective on the long-term implications of the CGF program. The former tells us about future firm productivity and growth potential, while the latter is informative about firms' future financial sustainability. Thereby, we estimate our main model with intangible capital, total assets, and liabilities as of the dependent variables and present our results for the three main specifications in Table A7. We briefly discuss our results in Figure 20, where we present the impact of the CGF program on firms intangible capital, total assets, and liabilities. According to the figure, the intangible capital impact of the program is quite small, where about a 1 million TL loan via the CGF program stimulates roughly 38.5 thousand

TL in intangible capital.[32] On the contrary, the program impact on total liabilities is much larger than the total assets among the CGF supported firms, which in turn implies an overall increase in firm indebtedness.[33]

Figure 20: Average Impact of the CGF Program on Intangible Capital, Total Assets and Liabilities
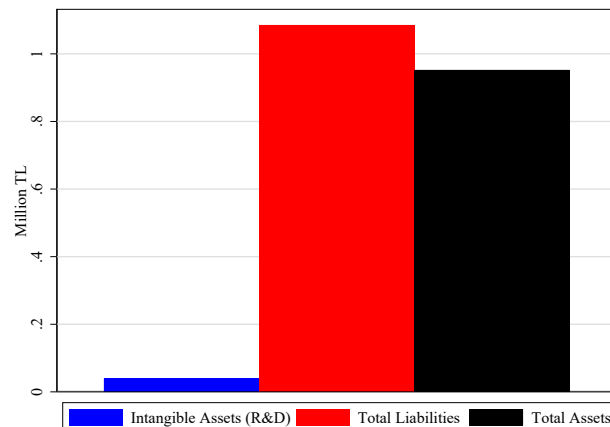
Source: Authors' calculations.
Notes: The figure presents the average impact of receiving an extra 1 million TL loan via the CGF program.

These results suggest that the CGF program's impact on long-term firm growth prospects seems to be relatively weak. This is perhaps not too surprising given that the CGF program was initially designed to improve firm resilience to the temporary negative shocks in the domestic economy. However, the CGF program's shortcomings can be reduced with other programs that aim to contribute directly to firm productive investments, such as the R&D grants, investment subsidies, and incentives. On the contrary, high indebtedness can threaten firms' financial health in the long-run, which appears to be particularly crucial for certain firm types. Given our results in Section 7.1, for instance, especially the CGF supported micro-firms appear to experience an acute increase in credit default probability in 2018. It is, therefore, worth stressing that firms' overall indebtedness should be closely monitored. Providing deleveraging incentives, and more importantly, making mentoring services available to firms, especially in the case of micro firms, can significantly contribute to their financial health and mitigate risks in the long-run.

7.4   Impact of the Program on Firm Exit

Various definitions of firms exit, e.g., filing bankruptcy, balance sheet reporting status, the decline in employment or sales to zero, etc., are used in the literature given that identifying year-on-year firm exit is a difficult one. This study defines year-on-year exit based on firms' financial statement

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[32]We also looked at the program impact on directly R&D expenditures, where the results show that an extra 1 million TL loan via the CGF program generates on average only 29 TL R&D expenditures in 2018.

[33]As an alternative indebtedness measure, we also re-estimated our model with leverage being the dependent variable. The results are qualitatively similar, where the CGF supported firms on average experienced an increase in total leverage relative to their matched pairs.

reporting status for tax purposes. According to the Turkish Tax Code, legal firms must report balance sheets as long as they legally remain in operation, and thus, it is legitimate to interpret not reporting balance sheet as firm exit.[34]

Moreover, we assign one to exiting firms (i.e., not reporting balance sheet) and zero for others in our base sample (*Sample 1 with filling*) in 2017 and 2018. We also report the results for the alternative sample (*Sample 2 with filling*)[35] for robustness. Table 12 shows the estimates for the program's impact on firm exit probability from binary treatment in the short-run for the two samples. The CGF program appears to have reduced firm exit probability in the short-run. More specifically, firms supported by the CGF program, on average, experienced a 4.3 percentage point less exit in the short-run relative to the control group. Results are similar across samples. Controlling for non-CGF loans (Columns 2 and 4 of Table 12) or exploiting firm fixed effects (Columns 3 and 6 Table 12) reduces the magnitude of the impact, while the results remain statistically significant and negative sign.[36] Evaluating the impact at the mean CGF loan size and exit rate, we find that an extra 1 million TL loan generated via the CGF program reduced mean firm exits in 2018 by about 65 percent.

Table 12: Short-Run impact of the CGF Program on Firm Exit: Binary Treatment

	Sample 1 with Filling			Sample 2 with Filling		
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variables:	Exit	Exit	Exit	Exit	Exit	Exit
POSTxCGF	-0.04252***	-0.03195***	-0.02672***	-0.04354***	-0.03284***	-0.02867***
	(0.00101)	(0.00088)	(0.00087)	(0.00100)	(0.00087)	(0.00087)
CGF	0.00011	0.01442***		0.00012	0.01326***	
	(0.00007)	(0.00033)		(0.00007)	(0.00030)	
Non CGF credit		-0.00921***	-0.01332***		-0.00848***	-0.01144***
		(0.00019)	(0.00027)		(0.00017)	(0.00024)
Observations	255,000	255,000	255,000	269,784	269,784	269,784
R-squared	0.29780	0.33501	0.57249	0.29608	0.32893	0.56360

Notes: The table presents the short-run impact of the CGF program on firm exit in a binary setting. Columns 3 and 6 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. "Short-Run" covers the impact of the program in 2018.

As discussed above, one of the motivations for the dramatic increase in the size of the CGF program in 2017 was to mitigate the negative effects of 2016 geopolitical events on the Turkish economy. By improving credit conditions for firms, especially SMEs, the program was designed to help firms survive through the temporary decline in the economy. According to the results, the CGF program achieves this goal by reducing firm exit probability in 2018. However, as discussed in the credit default probability section, one should note that the introduction of the

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[34]However, this is undoubtedly the last step of general sequential events that lead to the firm exit. In the earlier steps, such as declining employment, sales or assets to zero, credit default, and finally, filing bankruptcy, firms can technically recover.

[35]See Section 6 for the descriptions of the samples.

[36]As the results from the very short-run specification are very similar to the ones presented here; we do not report them.

debt restructuring program towards the end of 2017 and in 2018 – i.e., requiring CGF loan issuing banks to first offer a debt restructuring plan to the borrowing firms before declaring their loans non-performing – might have also contributed to the positive attribute of the CGF program towards the firm exit.

7.5 General Equilibrium Effects

Some sectors and firms are more centered in the business network than others. Thereby, preserving the business of these central actors would also create significant spillovers through the supply-chain networks. The results we provide in this analysis only consider the first-order impact of the CGF program, while adding the spillovers may amplify the program's impact. For instance, in Table 13, we present sector level domestic trade network.[37] According to the table, manufacturing and wholesale and trade sectors appear to be the most interlinked sectors to others, where the firms in these two sectors make about 73 percent of domestic trade and 82 percent of export sales. More specifically, the manufacturing sector is generally the producing sector, and the wholesale and trade sector is the leading distributing sector. Thereby, positive impact, motivated by the CGF program, on firms' performance –e.g., employment and sales – in these sectors will create significant positive spillovers to other sectors and thus amplify the impact.

Table 13: Cross-Sectoral Trade Network (Share in Domestic Sales, 2017)

Suppliers / Purchasers	Agriculture & Mining	Manufacturing	Energy	Construction	Wholesale & Trade	Tourism	Services	Sectoral Sales Share (in Domestic Sales)	Sectoral Export Share (in Export)
Agriculture & Mining	0.0022	0.0052	0.0005	0.0010	0.0054	0.0001	0.0007	0.0151	0.010
Manufacturing	0.0021	0.1075	0.0021	0.0154	0.1792	0.0020	0.0122	0.3204	0.455
Energy	0.0004	0.0044	0.0269	0.0010	0.0014	0.0003	0.0103	0.0448	0.000
Construction	0.0010	0.0067	0.0045	0.0271	0.0083	0.0009	0.0114	0.0600	0.028
Wholesale & Trade	0.0044	0.0850	0.0026	0.0279	0.2496	0.0066	0.0330	0.4090	0.355
Tourism	0.0001	0.0012	0.0001	0.0006	0.0013	0.0015	0.0044	0.0091	0.002
Services	0.0017	0.0222	0.0171	0.0085	0.0231	0.0017	0.0445	0.1188	0.145

Source: Authors' calculation from EIS database.
Notes: This table is created using the domestic and export sales reported in firms' income statements. Distribution of exports across sectors is done based on exporting firms' sector.

We have talked very little about the re-distributional effects of the CGF program so far. This is to say that a new hire of a firm (the CGF supported firm) may be an employee or another firm's layoff (control group). In other words, we may observe, for instance, an increase in employment, motivated by the CGF program at the firm- level; however, because of the possibility that the new hire may not come from the unemployment pool, rather from other firms, total employment may not increase in the country. Put it differently, despite the positive impact of the CGF program on employment, this result does not imply an increase in the overall employment in the country due to the re-distributional effects. This is a well-known shortcoming of any partial equilibrium policy analysis. To capture this, we estimated our main model at sector-province level to check if the positive and statistically significant impact of the CGF program prevails after accounting for

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[37]Utilizing VAT registry data, the Enterprise Information System (EIS) database provides the full network of the firm-to-firm domestic trade network in a given month for every transaction over 5,000 TL. Exploring the CGF program's firm-level spillovers through firm-to-firm trade networks is a future agenda item.

general equilibrium effects (GE). In identifying the GE effects, we assume that employees may frequently switch between firms, but the switch is less frequent across the broadly defined NACE Rev-2 classification level sectors in the same province or across provinces for a given sector.[38] The estimation results for employment and sales are presented in Table 14. The results show that a one percent increase in CGF program at the sector–province-level increases employment by 0.2 percent and sales by 3 percent. This is in line with our earlier expectations, where the impact is much lower at the macro-level due to the program's re-distributional impact. Nevertheless, the coefficient estimates remain statistically significant and economically consistent across different specifications, and hence, further reinforce the positive impact of the CGF program at the macro level.

Table 14: Province – Sector Level Aggregate Regressions

| | (1) | (2) | (3) | (4) |
Dependent Variables:	Employment	Employment	Sales	Sales
log CGF credit	0.00217*	0.00346***	0.03018***	0.03447***
	(0.00130)	(0.00127)	(0.00518)	(0.00512)
log non CGF credit		0.05390***		0.17931***
		(0.00606)		(0.02176)
Observations	10,303	10,303	10,303	10,303
R-squared	0.98472	0.98571	0.93990	0.94345

Notes: The table presents the results of the province-sector level aggregate regressions on the impact of CGF program. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. "Short-Run" impact model is presented at province – sector (NACE Rev-2 Classification) level. All the models contain, provinceXsector fixed effects.

8   Counter-Factual Policy Discussion

Our results show that the CGF program impact varies significantly across the firm size and sector groups. In terms of the size groups, our results show that medium-sized firms needed the least credit support to preserve one unit of employment and sales, and thus, it emerged as the most cost-effective firm size group. Among the sector groups, firms in the service sector preserved one employment with the least credit support, and similarly, the wholesale and trade sector was able to preserve one TL sales using the least credit support. Utilizing this heterogeneity, we provide a counter-factual analysis to show that substantial efficiency gains can be achieved by reallocating the resources based on cost-effectiveness across size and sector groups.

The counter-factual policy exercise for the size and sector groups are presented in Tables 15 and 16. In the tables, we provide three main sub-headings: the original CGF program allocation, the scenario allocation, and finally, the percentage change in the dependent variable with the new scenario relative to the original. The original program allocation shows the share and volume distribution of the total CGF backed loan amount in 2017 and 2018 across size and sector groups, as well as the implied employment and sale impact of the program based on the estimates

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[38]Further aggregations of the sample, to only sector or province level, significantly reduce the number of observations and, thus, the estimates' reliability.

presented above. Under the scenario allocation, we take one percent of the total loans generated via the CGF program from the least cost-effective group and redistribute the funds to the most cost-effective group. Finally, we present the change in the implied employment and sale effects under the scenario allocation relative to the original allocation. To provide an overall impact of the CGF program, we use the official total CGF backed loan volume for 2017 and 2018, 293 billion TL loans. The loan distribution across the size and sector groups comes from the sample utilized in our analysis.

Moreover, we present the counter-factual analysis results regarding the size groups in Table 15, where we take 1 percent of the total CGF loans from large firms (i.e., the least cost-effective group) and redistribute it to medium-size firms (i.e., the most cost-effective group). With the redistribution of only one percent of the total CGF loans (2.93 billion TL loan) from large firms to medium-size firms, without changing the total size of the CGF program, we can generate roughly a 0.74 percent increase in employment and a 1 percent increase in sales relative to the original program design.

Table 15: Counter-Factual Policy Analysis across Size Groups

| | Original CGF Program | | | | Scenario | | | | Change in | |
| | Credit Allocation | | Estimated Impact | | Credit Allocation | | Estimated Impact | | Estimated Impact | |
	Shares	Loans (Bn TL)	Employment (number)	Sales (Bn TL)	Shares	Loans (Bn TL)	Employment (number)	Sales (Bn TL)	Employment	Sales
Micro	0.019	5.67	11117.34	13.28	0.019	5.67	11117.34	13.28	0.000%	0.000%
Small	0.175	51.35	141841.14	163.52	0.175	51.35	141841.14	163.52	0.000%	0.000%
Medium	0.354	103.63	348929.46	398.58	0.364^a	106.56	358794.78	409.85	2.827%	2.827%
Large	0.452	132.35	208427.74	171.01	0.442^b	129.42	203813.57	167.21	-2.214%	-2.214%
Total	1.00	293	710315.68	746.38	1.00	293	715566.82	753.87	0.739%	1.003%

Notes: The impact analysis is based on "Short-Run Effect" estimations, which covers the impact of the program in 2018. Bn is billions. The official figure for the total volume of loans generated via the CGF program in 2017 and 2018, 293 Bn TL, is used in the analysis. The original program allocation across the size groups is computed based on the data utilized in the analysis. "a" implies a 1% increase in the CGF program share and "b" implies a 1% reduction in the CGF program share under the designed scenario. Firm size is based on official KOSGEB definition, as described in Table A5.

Considering sectoral heterogeneity in the cost of preserving an extra employment and generating an extra sale, we provide two scenarios in Table 16. More specifically, Scenario A focuses on generating more employment, and Scenario B considers generating more sales relative to the original program design. Under Scenario A, we take 1 percent of the total CGF loans from the wholesale and trade sector (i.e., the least cost-effective group in generating employment) and redistribute it to the most cost-effective sector, service sector firms. Our redistribution of only one percent of the total funds originally allocated to wholesale and trade sector (2.93 billion TL) to the service sector firms generates roughly 2 percent more employment; however, the program's total sale impact decreases 0.6 percent relative to the original distribution. Now, we repeat the policy exercise to improve the implied impact of the program on sales under Scenario B, whereby we take 1 percent of the CGF loans from the tourism sector (i.e., the least cost-effective group in generating sales) and redistribute it to the most cost-effective wholesale and trade sector firms in generating sales. Under Scenario B, we can generate 1 percent more sales; however, the program's

total employment impact decreases by 0.5 percent relative to the original allocation. By the same token, one can focus on intermediary cases where improving the program's employment and sales impact is feasible, which appears to be feasible by reallocating some of the resources to the manufacturing sector.

Table 16: Counter-Factual Policy Analysis across Sectors

| | Original CGF Program | | | | Scenario | | | | Change in | |
| | Credit Allocation | | Estimated Impact | | Credit Allocation | | Estimated Impact | | Estimated Impact | |
	Shares	Loans (Bn TL)	Employment (number)	Sales (Bn TL)	Shares	Loans (Bn TL)	Employment (number)	Sales (Bn TL)	Employment	Sales
Scenario A: Preserving More Employment										
Manufacturing	0.356	104.21	267202.48	245.78	0.356	104.209	267202.48	245.78	0.000%	0.000%
Wholesale and Trade	0.363	106.25	135181.10	407.10	0.353^b	103.322	131453.37	395.87	-2.758%	-2.758%
Construction	0.137	40.04	177163.88	112.79	0.137	40.039	177163.88	112.79	0.000%	0.000%
Services	0.075	21.87	143861.07	44.90	0.085^a	24.797	163137.39	50.92	13.399%	13.399%
Tourism	0.044	13.04	33682.89	11.56	0.044	13.035	33682.89	11.56	0.000%	0.000%
Agriculture and Mining	0.017	5.02	8255.08	15.68	0.017	5.019	8255.08	15.68	0.000%	0.000%
Energy	0.009	2.58	6894.12	16.12	0.009	2.578	6894.12	16.12	0.000%	0.000%
Total	1.00	293	772240.62	853.92	1.00	293	787789.20	848.71	2.013%	-0.610%
Scenario B: Preserving More Sales										
Manufacturing	0.356	104.21	267202.48	245.78	0.356	104.209	267202.48	245.78	0.000%	0.000%
Wholesale and Trade	0.363	106.25	135181.10	407.10	0.373^a	109.182	138908.84	418.32	2.758%	2.758%
Construction	0.137	40.04	177163.88	112.79	0.137	40.039	177163.88	112.79	0.000%	0.000%
Services	0.075	21.87	143861.07	44.90	0.075	21.867	143861.07	44.90	0.000%	0.000%
Tourism	0.044	13.04	33682.89	11.56	0.034^b	10.105	26111.83	8.96	-22.477%	-22.477%
Agriculture and Mining	0.017	5.02	8255.08	15.68	0.017	5.019	8255.08	15.68	0.000%	0.000%
Energy	0.009	2.58	6894.12	16.12	0.009	2.578	6894.12	16.12	0.000%	0.000%
Total	1.00	293	772240.62	853.92	1.00	293	768397.29	862.54	-0.498%	1.010%

Notes: The impact analysis is based on "Short-Run Effect" estimations, which covers the impact of the program in 2018. Bn is billions. The official figure for the total volume of loans generated via the CGF program in 2017 and 2018, 293 Bn TL, is used in the analysis. The original program allocation across the sector groups is computed based on the data utilized in the analysis. "a" implies a 1% increase in the CGF program share and "b" implies a 1% reduction in the CGF program share under the designed scenario.

Overall, our simple policy exercise shows that considering the heterogeneity in the program impact across the firm size and sector groups in re-designing the CGF program can bring about significant efficiency gains in terms of more employment and sales.

9 Discussion on Macroeconomic Implications

Our results indicate that the CGF program brought significant firm-level positive impact which manifested itself in sizable GDP growth performance in the post program years. This is not surprising given the bulk evidence on the positive relation between firm credit growth and GDP growth identified in other studies on the Turkish Economy (e.g., Yesil et al., 2021; Cepni et al., 2020). However, given the large size of the CGF program, it could have adverse effects on macro imbalances and price stability. For instance, an increase in aggregate demand, motivated by a credit expansion - e.g., the CGF program - may surge the general price level, distorting the price stability (e.g., Ogunc and Sarikaya, 2015). Similarly, considering the import dependence of the real sector firms in Turkey (e.g., Akgunduz et al., 2020; Akgunduz and Fendoglu, 2019), an increase in the aggregate demand may also boost intermediate good imports and hence, violate the external balance (e.g., Kara et al., 2014). Such imbalances, in turn, may render the local

currency vulnerable to financial shocks (e.g., Karabulut et al., 2010). While these macro studies suggest that rapid credit growths can lead to adverse macro effects via various channels that are presumably relevant in the case of the CGF program, one needs a richer general equilibrium framework to evaluate the overall program impact.

Credit expansions may have negative implications for financial stability (Mendoza and Terrones, 2008) via different channels, e.g., asset prices, excessive risk taking (e.g., Alessi and Detken, 2018). Although our results indicate that the CGF program on average reduced credit default probability for SMEs, the opposite impact is observed for micro firms. Considering the fact that our sample includes only incorporated firms, taking the unincorporated micro firms into account may exacerbate the adverse impact of the program on credit default probability. Additionally, we observe that the CGF supported firms increased their indebtedness more than their pairs. Therefore, growing firm indebtedness and the rise in credit default probability of micro firms may be a concern for financial stability in the mid- to long-run. While soundness of these credits should be closely monitored for the prudence of the financial system, further studies should also examine their potential spillovers and aggregate effects.

Credit expansions, especially when used as a counter-cyclical policy tool during economic contractions, may hinder the creative destruction mechanism to work effectively by allowing unproductive firms to survive (Schivardi et al., 2017). This hindrance can bring negative consequences for aggregate productivity and thus, economic growth especially in the long-run (Acemoglu et al., 2018). Our results indicate that the CGF supported firms on average have lower exit rates, which may raise concerns for credit misallocation, or zombification risk. As the main purpose of the CGF program was to reverse the economic slowdown in 2016, its design did not prioritize productive firms. This approach, in turn, might have contributed to the survival of unproductive firms, where a more effective program design should discourage unproductive firms, while encouraging the productive ones. Whether this approach can lead to a major destruction in the aggregate productivity especially in the long-run is subject to further research.

The aforementioned effects can be individually and/or mutually important. However, identifying the major program trade-offs (i.e., costs and benefits) in the short-run versus long-run needs a richer general equilibrium framework and longer data horizon. Such a study(s) should establish a broader understanding of the costs and benefits associated with the CGF program requires considering the perspectives of the CGF supported firms (borrowers), the government (the originator of the stimulus and provider of the guarantee), and more importantly, the financial institutions (intermediating the transactions).

10 Conclusions

Using novel administrative databases, this paper evaluates one of the biggest CGF programs in the world implemented recently in Turkey. We first matched our sample of the CGF supported firms with their close pairs via coarsened and exact matching method and then implemented

a difference-in-difference estimation to evaluate the program's impact on the performance of treated firms relative to their matched pairs. Our results show that the CGF supported firms, on average, preserved 17 percent more employment, generated 70 percent more sales, and experienced 0.6 percentage point less credit default than their matched pairs in 2018. Evaluating these estimates at their sample averages implies that an extra 1 million TL loan generated via the CGF program preserved roughly 2.7 more employment, generated about 3 million more sales, and reduced the average credit default probability by nearly 6.5 percent in 2018. Considering the official figure, a total of 293 billion TL loan volume generated via the CGF program in 2017 and 2018, and assuming linear applicability of our estimates to this figure, the implied overall program impact of the program on the Turkish economy in 2018 was roughly 794 thousands more employment and 879 billion TL more in sales.

Our results identify that the program impact is the highest among SMEs, where the cost of preserving one more unit of employment, sales, and reducing credit defaults on average is the cheapest. On the contrary, the results for cross-sector groups show that the cost of preserving one more employment is cheaper in more labor-intensive sectors (e.g., services), and the cost of generating one extra TL sales is cheaper in sectors that serve more to the domestic economy (e.g., wholesale and trade). Exploiting the program impact heterogeneity across size and sector groups, we provide counter-factual policy analysis. The results from the counter-factual analysis indicate that moving only one percent of the TL loans generated via the CGF program from the least cost-efficient size group (e.g., large size) to the most cost-effective size group (e.g., medium size) increases total employment and sales impact of the program roughly one percent. Cross-sectoral redesign of the program is less straight forward. Moving one percent of the total CGF loans from the least cost-effective (and the least labor-intensive) sector (e.g., wholesale and trade) to the most cost-effective (and the most labor-intensive) sector (i.e., service sector) increases the employment impact of the program for about 2 percent, although decreases its sales impact. Similarly, redistributing one percent of the total CGF loans from the tourism sector (serving least to the domestic sector) to the wholesale and trade sector increases the program's sales impact by about 1 percent, although decreases the employment impact of the program. The manufacturing sector appears to provide an intermediate case, where both employment and sales impact of the program can be improved by redesigning the program.

The program's impact on assets that can stimulate long-run firm growth via productivity enhancements seems relatively weak. This is perhaps not surprising given the aim of the CGF program in 2017 was to minimize the negative impact of the geopolitical developments on domestic real sector firms. Thereby, the CGF program seems to achieve its initial aim by restoring firm strength in the short-run via preserving employment and sales, although it contributes less to firms' long-term growth prospects. In this regard, the CGF type short-term-focused programs should not be considered as an alternative to the programs aiming to simulate productive capital investment. Our results also highlight an increase in firm indebtedness as a result of the CGF program. We observe a more acute increase in firm liabilities than assets. This finding coupled with the results that the CGF program's mitigating impact on credit default probability fades

over time, implying credit risks may increase in the long-run. One way to tackle this issue is to closely monitor firm indebtedness and ensure the necessary debt management practices are being implemented. In this regard, the micro firms should be closely monitored and mentored to sustain their financial resilience in the long-run.

This study evaluates the first order firm-level impact of the CGF program in the short-run. However, further research on the micro, macro, and distributional implications of the program is deemed necessary to identify the overall program impact. Presumably, an extensive program of this size can have implications for the banking sector and the financial network, while at the macro level, the potential impact on inflation, economic growth, financial stability, and productivity are also worth noting. These considerations will be further explored in our future research agenda.

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A Appendix

Robustness Results

Table A1: Robustness Test 1 (Sample 1 with Filling): The Effect of the CGF Program on Firm Performance, Binary Treatment for Main Variables

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variables:	Employment	Employment	Employment	Sales	Sales	Sales
Panel A: Very Short-Run						
POSTxCGF	0.21349***	0.18550***	0.17815***	0.86701***	0.75683***	0.70596***
	(0.00324)	(0.00306)	(0.00310)	(0.01401)	(0.01261)	(0.01336)
CGF	-0.00656*	-0.05032***		0.00496***	-0.16731***	
	(0.00380)	(0.00389)		(0.00180)	(0.00362)	
Non CGF credit		0.03226***	0.04021***		0.12698***	0.18496***
		(0.00054)	(0.00053)		(0.00199)	(0.00270)
Observations	382,500	382,500	382,500	382,500	382,500	382,500
R-squared	0.78782	0.79377	0.93157	0.65324	0.67313	0.72732
Panel B: Short-Run						
POSTxCGF	0.25488***	0.20304***	0.18897***	1.30779***	1.06315***	0.94342***
	(0.00441)	(0.00424)	(0.00418)	(0.02065)	(0.01877)	(0.01933)
CGF	0.02082***	-0.04934***		0.02234***	-0.30877***	
	(0.00405)	(0.00424)		(0.00220)	(0.00621)	
Non CGF credit		0.04516***	0.05682***		0.21313***	0.31082***
		(0.00074)	(0.00087)		(0.00321)	(0.00459)
Observations	255,000	255,000	255,000	255,000	255,000	255,000
R-squared	0.75148	0.76046	0.91535	0.53372	0.56371	0.71636

Notes: Columns 3 and 6 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table A2: Robustness Test 2 (Sample 2 without Filling): The Effect of the CGF Program on Firm Performance, Binary Treatment for Main Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Employment	Employment	Employment	Sales	Sales	Sales	Default	Default	Default
Panel A: Very Short-Run									
POSTxCGF	0.16280***	0.14604***	0.14013***	0.52275***	0.46912***	0.43531***	-0.02925***	-0.02881***	-0.02848***
	(0.00290)	(0.00286)	(0.00295)	(0.01095)	(0.01060)	(0.01199)	(0.00085)	(0.00085)	(0.00085)
CGF	-0.01195***	-0.04508***		0.00686***	-0.09917***		-0.00005	0.00092***	
	(0.00374)	(0.00382)		(0.00174)	(0.00281)		(0.00004)	(0.00008)	
Non CGF credit		0.02434***	0.03068***		0.07790***	0.12018***		-0.00071***	-0.00183***
		(0.00047)	(0.00042)		(0.00146)	(0.00201)		(0.00005)	(0.00008)
Observations	386,606	386,606	386,606	386,606	386,606	386,606	375,652	375,652	375,652
R-squared	0.80023	0.80363	0.93854	0.71675	0.72451	0.76369	0.19271	0.19330	0.35823
Panel B: Short-Run									
POSTxCGF	0.18134***	0.15376***	0.14372***	0.74945***	0.65293***	0.59747***	-0.00502***	-0.00452***	-0.00200
	(0.00381)	(0.00376)	(0.00380)	(0.01524)	(0.01452)	(0.01584)	(0.00129)	(0.00129)	(0.00128)
CGF	0.01063***	-0.03804***		0.02212***	-0.14820***		-0.00015	0.00080***	
	(0.00401)	(0.00418)		(0.00203)	(0.00441)		(0.00009)	(0.00020)	
Non CGF credit		0.03155***	0.04299***		0.11042***	0.17352***		-0.00061***	-0.00368***
		(0.00065)	(0.00073)		(0.00232)	(0.00358)		(0.00012)	(0.00019)
Observations	248,824	248,824	248,824	248,824	248,824	248,824	243,260	243,260	243,260
R-squared	0.78007	0.78448	0.93077	0.63278	0.64328	0.75487	0.27688	0.27698	0.51839

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables except Exit are in logarithmic form. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table A3: Robustness Test 3 (Sample 2 with Filling): The Effect of the CGF Program on Firm Performance, Binary Treatment for Main Variables

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variables:	Employment	Employment	Employment	Sales	Sales	Sales
Panel A: Very Short-Run						
POSTxCGF	0.21795***	0.18615***	0.17670***	0.90370***	0.77653***	0.71384***
	(0.00322)	(0.00304)	(0.00307)	(0.01397)	(0.01256)	(0.01350)
CGF	-0.00551	-0.05044***		0.00578***	-0.17393***	
	(0.00373)	(0.00381)		(0.00179)	(0.00358)	
Non CGF credit		0.03302***	0.04146***		0.13206***	0.19186***
		(0.00051)	(0.00051)		(0.00192)	(0.00261)
Observations	397,284	397,284	397,284	397,284	397,284	397,284
R-squared	0.78656	0.79298	0.93030	0.65811	0.67859	0.73401
Panel B: Short-Run						
POSTxCGF	0.26367***	0.20345***	0.18602***	1.35473***	1.07339***	0.94660***
	(0.00435)	(0.00418)	(0.00417)	(0.02048)	(0.01862)	(0.01966)
CGF	0.02140***	-0.05256***		0.02301***	-0.32254***	
	(0.00393)	(0.00411)		(0.00221)	(0.00611)	
Non CGF credit		0.04770***	0.06102***		0.22287***	0.31853***
		(0.00069)	(0.00080)		(0.00304)	(0.00423)
Observations	269,784	269,784	269,784	269,784	269,784	269,784
R-squared	0.74756	0.75830	0.91155	0.53937	0.57176	0.71695

Notes: Columns 3 and 6 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. "Short-Run" covers the impact of the program in 2018.

Further Extensions

Table A4: Short-Run impact of the CGF Program by Size Groups, Binary Treatment for Main Variable

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Employment	Employment	Employment	Sales	Sales	Sales	Default	Default	Default
Panel A: Micro									
POSTxCGF	0.17907***	0.15763***	0.15164***	0.81220***	0.71631***	0.66273***	0.00620**	0.00573**	0.00862***
	(0.00651)	(0.00645)	(0.00648)	(0.03359)	(0.03210)	(0.03409)	(0.00247)	(0.00248)	(0.00246)
CGF	-0.13637***	-0.17704***		0.01215**	-0.16975***		-0.00010	-0.00102**	
	(0.00629)	(0.00664)		(0.00495)	(0.00985)		(0.00024)	(0.00048)	
Non CGF credit		0.01795***	0.02273***		0.08032***	0.12317***		0.00040**	-0.00221***
		(0.00084)	(0.00096)		(0.00348)	(0.00541)		(0.00019)	(0.00031)
Observations	60,776	60,776	60,776	60,776	60,776	60,776	59,912	59,912	59,912
R-squared	0.55667	0.56318	0.84175	0.57095	0.57883	0.71484	0.27820	0.27827	0.51944
Panel B: Small									
POSTxCGF	0.17244***	0.15224***	0.14844***	0.69175***	0.62805***	0.59181***	-0.01362***	-0.01277***	-0.01003***
	(0.00517)	(0.00511)	(0.00506)	(0.02025)	(0.01947)	(0.02024)	(0.00184)	(0.00184)	(0.00182)
CGF	0.02011***	-0.02098***		0.02448***	-0.10503***		-0.00031**	0.00158***	
	(0.00547)	(0.00564)		(0.00271)	(0.00560)		(0.00013)	(0.00030)	
Non CGF credit		0.02895***	0.03389***		0.09124***	0.13950***		-0.00133***	-0.00546***
		(0.00099)	(0.00106)		(0.00322)	(0.00521)		(0.00019)	(0.00032)
Observations	126,772	126,772	126,772	126,772	126,772	126,772	123,728	123,728	123,728
R-squared	0.62505	0.63071	0.88275	0.50279	0.51219	0.67364	0.27880	0.27918	0.52096
Panel C: Medium									
POSTxCGF	0.19728***	0.16962***	0.16765***	0.70995***	0.65235***	0.62174***	-0.01251***	-0.01155***	-0.00925***
	(0.01137)	(0.01116)	(0.01099)	(0.03633)	(0.03476)	(0.03516)	(0.00348)	(0.00346)	(0.00345)
CGF	0.13941***	0.08611***		0.02629***	-0.08472***		-0.00004	0.00230***	
	(0.01253)	(0.01282)		(0.00566)	(0.00990)		(0.00037)	(0.00056)	
Non CGF credit		0.05495***	0.05537***		0.11444***	0.17611***		-0.00239***	-0.00704***
		(0.00311)	(0.00318)		(0.00817)	(0.01277)		(0.00045)	(0.00070)
Observations	37,128	37,128	37,128	37,128	37,128	37,128	35,956	35,956	35,956
R-squared	0.64629	0.65498	0.90290	0.52288	0.53398	0.69388	0.29418	0.29499	0.53236
Panel D: Large									
POSTxCGF	0.10396***	0.09153***	0.09812***	0.36259***	0.34827***	0.34433***	0.02449***	0.02453***	0.02353***
	(0.02187)	(0.02128)	(0.02099)	(0.05431)	(0.05244)	(0.05476)	(0.00642)	(0.00641)	(0.00642)
CGF	0.11551***	0.03677		0.00349	-0.08719***		0.00145	0.00307**	
	(0.02757)	(0.02814)		(0.01075)	(0.01663)		(0.00095)	(0.00126)	
Non CGF credit		0.09604***	0.08012***		0.11060***	0.17483***		-0.00198*	-0.00609***
		(0.00865)	(0.00911)		(0.01555)	(0.02596)		(0.00103)	(0.00152)
Observations	11,124	11,124	11,124	11,124	11,124	11,124	10,676	10,676	10,676
R-squared	0.72049	0.73236	0.93892	0.62747	0.63609	0.75873	0.30946	0.30985	0.54550

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables except Default are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Short-Run" covers the impact of the program in 2018.

Table A5: SME Classification

Criteria	Micro-Sized Enterprise	Small-Sized Enterprise	Medium-Sized Enterprise
Number of Employees	< 10	< 50	< 250
Annual Net Sales Income	< 3 Million TL	< 25 Million TL	< 125 Million TL
Annual Financial Balance Sheet	< 3 Million TL	< 25 Million TL	< 125 Million TL

Source: KOSGEB.

Table A6: Short-Run impact of the CGF Program by Sector Groups, Binary Treatment for Main Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Employment	Employment	Employment	Sales	Sales	Sales	Default	Default	Default
Panel A: Wholesale & Trade									
POSTxCGF	0.13849***	0.12265***	0.11730***	0.66271***	0.60353***	0.56077***	-0.00478**	-0.00412**	-0.00157
	(0.00496)	(0.00490)	(0.00485)	(0.02318)	(0.02220)	(0.02235)	(0.00206)	(0.00206)	(0.00204)
CGF	-0.02371***	-0.06051***		0.02149***	-0.11606***		-0.00013	0.00154***	
	(0.00603)	(0.00636)		(0.00300)	(0.00649)		(0.00014)	(0.00034)	
Non CGF credit		0.02320***	0.03095***		0.08670***	0.14732***		-0.00105***	-0.00514***
		(0.00098)	(0.00098)		(0.00350)	(0.00569)		(0.00020)	(0.00033)
Observations	94,500	94,500	94,500	94,500	94,500	94,500	92,528	92,528	92,528
R-squared	0.75462	0.75766	0.93696	0.60984	0.61737	0.74945	0.27470	0.27498	0.51788
Panel B: Manufacturing									
POSTxCGF	0.17639***	0.16086***	0.15107***	0.57448***	0.52362***	0.49379***	-0.01252***	-0.01221***	-0.01002***
	(0.00767)	(0.00751)	(0.00737)	(0.02800)	(0.02685)	(0.02696)	(0.00281)	(0.00280)	(0.00275)
CGF	-0.00835	-0.04062***		0.02005***	-0.08560***		0.00002	0.00077*	
	(0.00845)	(0.00870)		(0.00427)	(0.00793)		(0.00023)	(0.00046)	
Non CGF credit		0.02487***	0.03902***		0.08143***	0.12763***		-0.00058*	-0.00461***
		(0.00165)	(0.00171)		(0.00474)	(0.00747)		(0.00030)	(0.00050)
Observations	49,480	49,480	49,480	49,480	49,480	49,480	48,068	48,068	48,068
R-squared	0.82794	0.82982	0.95288	0.66515	0.67178	0.78570	0.27907	0.27914	0.52313
Panel C: Services									
POSTxCGF	0.16135***	0.13991***	0.13772***	0.53378***	0.48284***	0.46144***	-0.00407	-0.00383	-0.00188
	(0.01008)	(0.01010)	(0.00985)	(0.03580)	(0.03445)	(0.03485)	(0.00308)	(0.00308)	(0.00307)
CGF	0.03488***	-0.00719		0.02457***	-0.07539***		-0.00049	-0.00001	
	(0.01159)	(0.01205)		(0.00558)	(0.00997)		(0.00030)	(0.00056)	
CGF credit		0.02632***	0.02872***		0.06255***	0.08839***		-0.00030	-0.00273***
		(0.00185)	(0.00180)		(0.00473)	(0.00724)		(0.00029)	(0.00048)
Observations	36,200	36,200	36,200	36,200	36,200	36,200	35,396	35,396	35,396
R-squared	0.79025	0.79282	0.94385	0.62290	0.62770	0.75654	0.28364	0.28367	0.52243
Panel D: Construction									
POSTxCGF	0.26918***	0.22940***	0.22311***	1.13599***	1.01325***	0.96240***	-0.01231***	-0.01219***	-0.00887**
	(0.01301)	(0.01298)	(0.01309)	(0.04741)	(0.04542)	(0.05151)	(0.00383)	(0.00385)	(0.00380)
CGF	0.09640***	0.03503***		0.01971***	-0.16967***		0.00005	0.00026	
	(0.01186)	(0.01225)		(0.00624)	(0.01282)		(0.00034)	(0.00062)	
Non CGF credit		0.03725***	0.04268***		0.11493***	0.15790***		-0.00013	-0.00380***
		(0.00171)	(0.00205)		(0.00608)	(0.00956)		(0.00032)	(0.00052)
Observations	39,032	39,032	39,032	39,032	39,032	39,032	38,032	38,032	38,032
R-squared	0.65569	0.66308	0.86466	0.60049	0.60931	0.72304	0.28869	0.28870	0.52818
R-squared	0.89747	0.89989	0.96429	0.84335	0.86453	0.90309	0.37539	0.37572	0.58059
Panel E: Tourism									
POSTxCGF	0.15748***	0.14132***	0.13560***	0.58695***	0.52596***	0.50803***	0.00751	0.00890	0.01047*
	(0.01753)	(0.01749)	(0.01759)	(0.06771)	(0.06572)	(0.06716)	(0.00602)	(0.00606)	(0.00608)
CGF	-0.01352	-0.04739***		0.02493**	-0.10291***		-0.00014	0.00292**	
	(0.01567)	(0.01617)		(0.01022)	(0.01934)		(0.00064)	(0.00115)	
Non CGF credit		0.02140***	0.02874***		0.08079***	0.10024***		-0.00193***	-0.00502***
		(0.00287)	(0.00318)		(0.00957)	(0.01483)		(0.00060)	(0.00096)
Observations	12,248	12,248	12,248	12,248	12,248	12,248	12,020	12,020	12,020
R-squared	0.81768	0.81947	0.93338	0.58520	0.59207	0.73092	0.29100	0.29192	0.52726

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. Robust standard errors in parentheses. All dependent variables except Default are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Short-Run" covers the impact of the program in 2018.

Table A7: Long-Run Impact of the CGF Program, Binary Treatment Results for R&D and Indebtedness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Intangible Assets (R&D)	Intangible Assets (R&D)	Intangible Assets (R&D)	Total Liabilities	Total Liabilities	Total Liabilities	Total Assets	Total Assets	Total Assets
POSTxCGF	0.27233***	0.26021***	0.23646***	0.36789***	0.33855***	0.31784***	0.23234***	0.21036***	0.19665***
	(0.01647)	(0.01667)	(0.01653)	(0.01048)	(0.01040)	(0.01052)	(0.00870)	(0.00862)	(0.00872)
CGF	-0.13453***	-0.15898***		0.01134**	-0.04784***		0.00068	-0.04365***	
	(0.02665)	(0.02732)		(0.00535)	(0.00551)		(0.00259)	(0.00305)	
Non CGF credit		0.01583***	0.04787***		0.03831***	0.06536***		0.02870***	0.04677***
		(0.00399)	(0.00271)		(0.00154)	(0.00203)		(0.00107)	(0.00159)
Observations	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800	235,800
R-squared	0.60617	0.60622	0.93195	0.67125	0.67339	0.82039	0.72822	0.72985	0.83400

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. The table covers the impact of the program in 2018.

Online Appendix

A Risk Assessment

This section describes the details of our risk scoring methodology. We use information from the credit registry (CR) and comprehensive financial tax records (FTR) for the period 2006-2017 in the analysis. All firm-bank relationships below 1000 TL were excluded to clean insignificantly small or zero firm-bank relations. Firms with no bank relations are excluded in the estimated model, as we cannot assign financial history to these firms. We also exclude self-employed individual firms and legal firms with incomplete or incoherent data, such as observations with negative fixed assets, negative current assets, and negative net sales, to mitigate potential FTR reporting errors. Using the described data, we develop a method to select explanatory variables and then estimate a logit model to produce a financial score for each firm.

Logit analysis is a conditional probability technique that allows studying the relationship between a series of characteristics of an individual and the probability that is individual belongs to one of two groups defined as a prior. The Logit model used in our methodology represents the probability of default, a number between 0 and 1. A binary variable $default_{t+1}$ showing the status of the firm at time $t + 1$ is explained by a set of factors x_t. The probability of default is given by Equation (1):

$$Pr\{default_{t+1} = 1 | x_t\} = \frac{1}{1 + e^{-\beta x_t}} \tag{1}$$

where x_t is a vector of regressors in year t, including a constant and variables characterizing the firm and economy, β is a vector of coefficients. The main property of these β-coefficients is that the in-sample average of the predicted default rates, estimated by the equation, is equal to the observed average default rate. The z-score of each firm can be defined as the latent variable's estimated value, that is, $z_{t+1} = \beta x_t$. Hence, the z-score, z_{t+1}, is the probability of default during the period $t + 1$, conditional on the variables that characterize firms in the previous periods, summarized by x_t. The lower the z-score, the lower the estimated probability of default of the firm.

The default event is defined as past-due payment of more than 90 days on any credit obligation in a given year, which coincides with the Basel II default definition. Therefore, a firm is considered to be *in default* in the banking system if it fails to repay its debt in three consecutive months. As firms have multiple bank relations in the monthly Credit Registry, they may have multiple defaults in a given month and can technically be in and out of default status in a year. Since our primary firm financial information comes from tax records, which are in annual frequency, we need to annually adjust our monthly credit default event. Therefore, we define firm default in a given year if the firm shows at least one default event in any of its bank relations in one year term. Moreover, it is possible that some defaulted firms may stay in that status for more than a year term.[1] One way to control for the dynamic bias in the sample towards firms with repeated defaults is to exclude all observations belonging to the same firm after the first default event, â la Antunes et al. (2016). In this way, we impose a non-default status condition on firms in time t and estimate their default status in time $t + 1$.

The selection of the independent variables (x_t) is crucial for the model's performance, since

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[1]For instance, a firm that is identified to be in default as of November of 2016 for the first time may continue to be in that status in 2017.

they must be significant and relevant to differentiate between *good* and *bad* firms. We start with a sample of 52 financial variables, which are commonly used by the related literature. According to the literature, this set of variables includes several financial ratios of the firm, which have a strong discriminating power for credit risk. Some macroeconomic variables, including real effective exchange rate, inflation rate, and real GDP growth rate, are also considered. Additionally, we include three categorical variables such as the sector of firms based on NACE Rev. 2 Classification, legal status of each firm, and firm type (micro, small, medium, or large) for controlling fixed-effects related to the activity sector, legal status, and firm size, which might persist after controlling for the individual characteristics of the firms. We also control for the number of default event ($CR_{default}$) for each firm during the period of analysis to improve the model's prediction power. Moreover, we anecdotally know that if a firm gets credit once, this firm is more likely to get new credit in the next periods, indicating the intensity of appearance in credit registry system ($CR_{intense}$) might affect the probability of default. We expect the number of default events and intensity of appearance in the credit registry system to be positively and negatively associated with the probability of default. Table A1 describes the all variables used in the logit regressions.

All independent variables are divided into eight groups according to the aspect of the firm they measure. In the variable selection process, we aim to include at least one variable from each group of variables, namely at least one measure for each of the followings: liquidity position, financial position, turnover, profitability, BACH ratios, WGA ratios, size, and macroeconomic environment, taking the issue of collinearity into account. The variable selection process ends when none of the remaining variables in the set of potential variables can improve the AUROC criterion[2] given that they are statistically significant at the 1 percent level in the new regression and all of the previously included variables remain statistically significant. The next step in the setup of a firm rating system is to estimate the best model so that observed default rates of firms are consistent with the default rates used to define them. After several accuracy and robustness checks, our model predicts the probability of default based on 14 financial ratios, size (number of employees), the incidence in the CR system for each firm, total number of default events prior to time t, real effective exchange rate, GDP growth rate, and inflation rate. The sectoral, legal status, and firm type dummies are also found to be statistically significant determinants of the probability of default. All signs are as expected. Table A2 summarizes the signs of the estimated coefficients of our general model.[3]

It is important for a model to discriminate between bad and good (defaulting and non-defaulting) firms. In that respect, Panel (a) of Figure A.1 presents the histograms of estimated probabilities for defaulting and non-defaulting firms and realized default rates for firms in each risk group for the year 2017. There is a clear distinction between defaulting and non-defaulting firms regarding their estimated default probabilities, where estimated probabilities are concentrated around 1 for defaulting firms and around 0 for non-defaulting firms. Moreover, Panel (b) of Figure A.1 also presents another test for the estimated logit model's performance. When we divide the estimated default probabilities into ten groups (deciles), we see a positive and monotonic relationship between estimated probability and actual default rate. It is clear that the default rate is the highest for the firms in the 10th decile, namely that more than 62 percent of the firms that are classified as high risky firms according to previous years' balance-sheets went to bankrupt in 2017. In Figure A.2, we also present the ROC curves, which are derived from the

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[2]AUROC stands for "area under the Receiver Operator Characteristic" and measures the ability of a variable (or a model) to correctly classify the dependent variable for a particular sample. See Lingo and Winkler (2008) and Wu (2008) for the definition of this synthetic measure.

[3]Due to confidentiality reasons, we only report the sign and significance level of the coefficients.

estimated default model. According to the results, our selected model reaches ROC areas around 0.84 for 2015 and around 0.87 for 2016, which seem to have high predictive power according to the previous literature.[4]

Table A1: Definition of Variables Used in the Regressions

Group	Variables	Definitions
Liquidity position	Current Ratio	Current assets/Short term liabilities
	Quick(Acid-Test)Ratio	(Current assets-Inventories-prepayments and accrued income for the next months-other current assets)/Short term liabilities
	Cash Ratio	Liquid assets+marketable securities/Short-term liabilities
	Inventories to Current Assets	Inventories/Current Assets
	Inventories to Total Assets	Inventories/Total Assets
	Inventory Dependency Ratio	(Short term liabilities-Liquid assets-Marketable Securities) / Inventories
	Short-term receivables to Current Assets	(Short term trade receivables+Other short term receivables)/Current Assets
	Short-term receivables to Total Assets	(Short term trade receivables+Other short term receivables)/Total Assets
Financial position	Total liabilities to Total Assets	(Short term liabilities+Long term liabilities)/Total Assets
	Own funds to Total Assets	Own funds/Total Assets
	Own funds to Total Liabilities	Own funds/(Short term liabilities+Long term liabilities)
	Short-term liabilities to Total Liabilities	Short term liabilities/Total liabilities
	Long-term liabilities to Total Liabilities	Long term liabilities/Total liabilities
	Long-term liabilities to Long-term liabilities and Own funds	Long term liabilities/(Long term liabilities+Own funds)
	Tangible Fixed Assets to Long-term liabilities	Tangible fixed assets (net)/Long term liabilities
	Fixed Assets to Long-term Liabilities and Own funds	Fixed Assets/(Long term liabilities+Own funds)
	Bank loans to Total Assets	(Short term bank loans+Principal Installments and interest payments of long term bank loans+Long-term bank loans)/Total assets
	Short-term bank loans to Short-term Liabilities	(Short term bank loans+Principal Installments and interest payments of long term bank loans)/Short term Liabilities
	Current Assets/Total Assets	Current Assets/Total Assets
	Tangible Fixed Assets/Total Assets	Tangible Fixed Assets (Net)/Total Assets
	Exports/Net Sales	Exports/Net Sales
Turnover ratios	Inventory Turnover	Cost of goods sold/(Previous Year's Inventory+Current Year's Inventory)/2
	Receivables Turnover	Net Sales/(Short term trade receivables+Long term trade receivables)
	Working Capital Turnover	Net Sales/Current Assets
	Net Working Capital Turnover	Net Sales/(Current Assets-Short term liabilities)
	Tangible Fixed Assets Turnover	Net Sales/Tangible Fixed Assets
	Fixed Assets Turnover	Net Sales/Fixed Assets
	Total Assets Turnover	Net Sales/Total Assets
Profitability ratios	Profit before interest and tax to Total Liabilities	(Profit Before Tax+Financing Expenses)/Total Liabilities
	Net Profit to Total Assets	Net Profit/Total Assets
	Operating Profit to Assets used in carrying out the operations	Operating Profit/(Total Assets-Financial Fixed Assets)
	Cumulative Profitability Ratio	Reserves from Retained Earnings/Total Assets
	Operating profit to Net sales	Operating profit/Net Sales
	Gross Profit to Net Sales	Gross profit/Net Sales
	Net Profit to Net Sales	Net Profit/Net Sales
	Cost of Goods Sold to Net Sales	Cost of Goods Sold/Net Sales
	Operating Expenses to Net Sales	Operating Expenses/Net Sales
	Interest Expenses to Net Sales	Financing Expenses/Net Sales
	Profit before Interest and Tax to Interest Expenses	(Profit Before Tax+Financing Expenses)/Financing Expenses
	Net profit and Interest Expenses to Interest Expenses	(Net Profit+Financing Expenses)/Financing Expenses
BACH ratios	Other financial assets and cash and bank/Total Assets	(Cash+Bank+Marketable Securities)/Total Assets
	Days Sales Outstanding	360*(Trade receivables-customer prepayments)/Net Sales
	Days Payables Outstanding	360*(Trade payables-advances to suppliers)/Cost of goods sold
WGA ratios	Net worth/Total Assets	(Equity-Intangible Assets)/Total Assets
	Self financing ability	Retained earnings/Total Assets
	Net indebtedness ratio	(Interest bearing borrowings-cash and cash equivalents)/Total Assets
	Growth-Change in revenue	$(\text{Revenue}_t-\text{Revenue}_{t-1})/\text{Revenue}_{t-1}$
	Growth-Change in revenue and financial income	Revenue and Financial Income$_t$-Revenue and Financial Income$_{t-1}$/Revenue and Financial Income$_{t-1}$
	Growth-Change in equity	$(\text{Equity}_t-\text{Equity}_{t-1})/\text{Equity}_{t-1}$
Size	Sales	Log of Net Sales
	Assets	Log of Total Assets
	Number of employees	Log of Total Number of Employees
Other variables	$CR_{intense}$	The total number of years that a firm appears in the credit registry
	$CR_{default}$	The total number of default events prior to time t
	Real GDP growth	Real GDP growth rate
	Inflation	Inflation rate
	Real effective exchange rate	Real effective exchange rate
	SME dummy	Dummy takes values of 1, 2, 3, 4 for large, small, micro and medium firms, respectively.
	Legal status dummy	Dummies for showing the legal status of each firm.
	Nace2 dummy	NACE Rev. 2 Classification sectoral codes

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[4]The predictive power of a discrete-choice model such as the logit is measured through its sensibility and its specificity. The sensibility is the probability of correctly classifying an individual whose observed situation is *default*, while the specificity is the probability of correctly classifying an individual whose observed situation is *non-default* (ECCBSO, 2007).

Table A2: Estimating Probability of Default (Dependent variable: $Default_{t+1}$).

Variables	Sign of Coefficient	Significance Level
Current Assets to Short Term Liabilities	+	*
Short-term Receivables to Total Assets	+	*
Total Liabilities to Total Assets	+	*
Short-term Liabilities to Total Liabilities	+	*
Tangible Fixed Assets to Long Term Liabilities	-	*
Bank Loans to Total Assets	+	*
Current Assets to Total Assets	+	*
Exports to Net Sales	-	*
Fixed Assets Turnover	+	*
Net Profit to Total Assets	-	*
Operating Profit to Net Sales	+	*
Days Sales Outstanding	+	*
Retained Earnings to Total Assets	-	*
Net Indebtedness Ratio	+	*
CR_intense	-	*
CR_default	+	*
Log(Number of Employees)	-	*
Real Effective Exchange Rate	+	*
Real GDP Growth Rate	-	*
Inflation Rate	+	*
Pseudo R Square	0.1477	
Area under ROC Curve (year 2016)	0.8702	
Sector Fixed Effects	YES	
Legal Status Fixed Effects	YES	
Firm Type Fixed Effects	YES	

*Notes: * denotes the 1% significance level. To estimate the general model of estimating the probability of default, we construct a panel data set for the period 2006-2015. We then estimate the coefficients using the best fit model. We finally apply the estimated coefficients to the 2016 data and estimate the probability of default for 2017. Firm type fixed effect is the SME dummy, which distinguishes between micro, small, medium, and large firms, and follows the KOSGEB definition.*

Figure A.1: Performance Tests for Logit Model

a) PDs for Default vs. No-default Firms

b) Default Rates for Risk Deciles
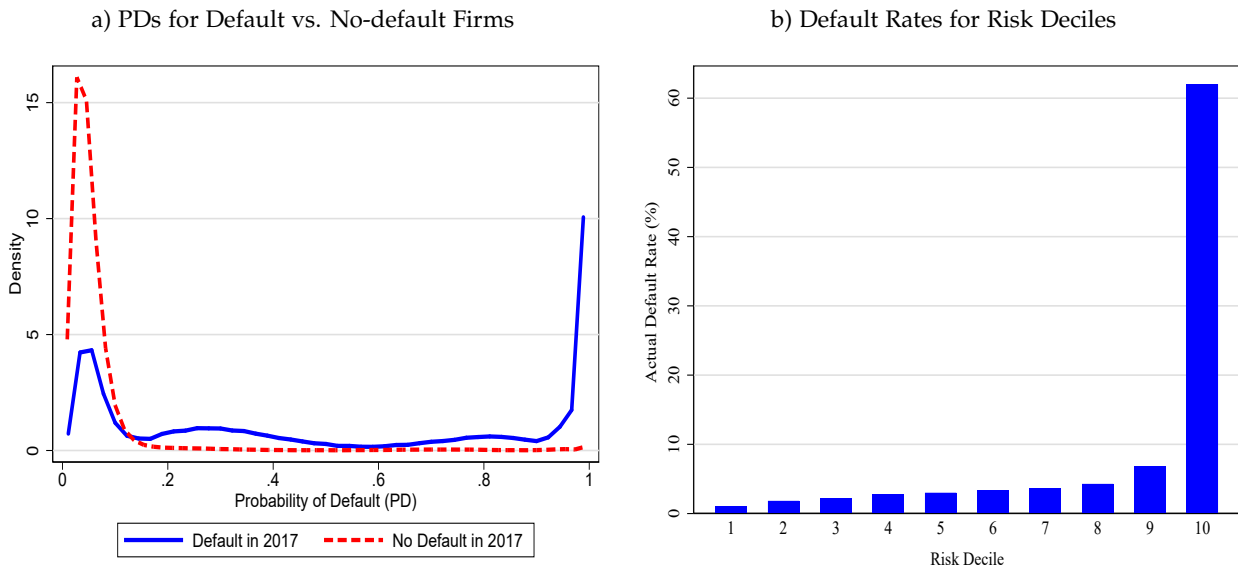
Source: Authors' calculation.
Notes: Default in 2017 is an indication of a realized default event in 2017 while No Default in 2017 represents the firms without a realized default event in 2017. Risk deciles are based on the estimated PDs for 2017, namely by using the data of 2016.

Figure A.2: ROC Curves for the Estimated Logit Model

a) ROC Curve for 2015

b) ROC Curve for 2016

Area under ROC curve = 0.8385

Area under ROC curve = 0.8702
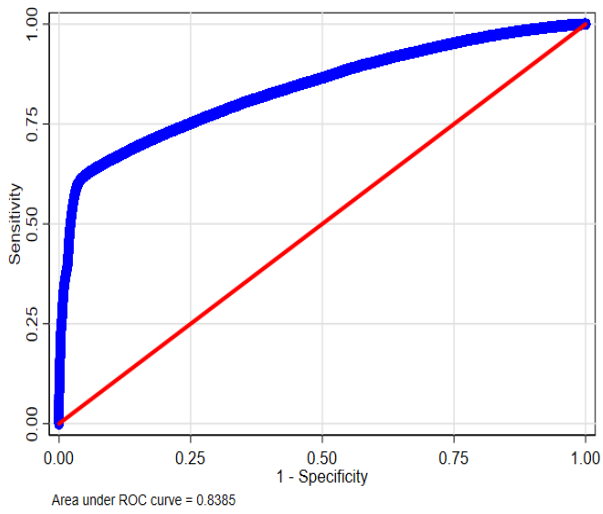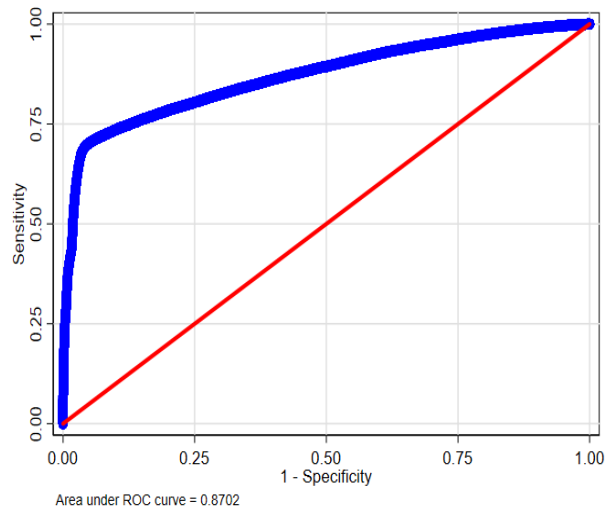
Source: Authors' calculation.

B   Robustness Results

Robustness 1: SAMPLE 1 FILLING TABLES

Table B1: Robustness Test 1: The Effect of the CGF Program on Firm Performance: Continuous Treatment for Main Variables

Dependent Variables:	(1) Employment	(2) Employment	(3) Employment	(4) Sales	(5) Sales	(6) Sales
Panel A: Very Short-Run						
POSTxCGF	0.01608***	0.01439***	0.01393***	0.06485***	0.05817***	0.05508***
	(0.00025)	(0.00023)	(0.00024)	(0.00105)	(0.00096)	(0.00102)
CGF	-0.00028	-0.00362***		0.00093***	-0.01226***	
	(0.00030)	(0.00031)		(0.00014)	(0.00027)	
Non CGF credit		0.03228***	0.04048***		0.12745***	0.18606***
		(0.00054)	(0.00053)		(0.00198)	(0.00270)
Observations	382,500	382,500	382,500	382,500	382,500	382,500
R-squared	0.78785	0.79384	0.93165	0.65315	0.67332	0.72755
Panel B: Short-Run						
POSTxCGF	0.01895***	0.01534***	0.01431***	0.09841***	0.08129***	0.07281***
	(0.00034)	(0.00032)	(0.00032)	(0.00155)	(0.00141)	(0.00145)
CGF	0.00209***	-0.00317***		0.00230***	-0.02263***	
	(0.00032)	(0.00033)		(0.00019)	(0.00046)	
Non CGF credit		0.04492***	0.05707***		0.21301***	0.31171***
		(0.00074)	(0.00087)		(0.00319)	(0.00458)
Observations	255,000	255,000	255,000	255,000	255,000	255,000
R-squared	0.75162	0.76057	0.91537	0.53386	0.56406	0.71662

Notes: Columns 3 and 6 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table B2: Robustness Test 1: The Effect of the CGF Program on Firm Performance: Binary Treatment for Main Balance Sheet Items

Dependent Variables:	(1) Inventory	(2) Inventory	(3) Inventory	(4) Tangible Assets	(5) Tangible Assets	(6) Tangible Assets	(7) Liquid Assets	(8) Liquid Assets	(9) Liquid Assets
Panel A: Very Short-Run									
POSTxCGF	0.74531***	0.63351***	0.61565***	0.61473***	0.52597***	0.48299***	0.62912***	0.58335***	0.55135***
	(0.01846)	(0.01787)	(0.01779)	(0.01221)	(0.01113)	(0.01158)	(0.01235)	(0.01172)	(0.01157)
CGF	0.34138***	0.16659***		-0.03247***	-0.17124***		-0.07916***	-0.15073***	
	(0.01757)	(0.01772)		(0.00282)	(0.00388)		(0.00860)	(0.00886)	
Non CGF credit		0.12884***	0.14808***		0.10229***	0.15089***		0.05275***	0.08824***
		(0.00266)	(0.00273)		(0.00174)	(0.00234)		(0.00164)	(0.00194)
Observations	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500
R-squared	0.61141	0.61843	0.82575	0.77948	0.79068	0.83703	0.52268	0.52717	0.73571
Panel B: Short-Run									
POSTxCGF	0.83292***	0.60720***	0.56281***	0.82769***	0.63750***	0.53892***	0.64810***	0.51239***	0.43119***
	(0.02374)	(0.02309)	(0.02292)	(0.01715)	(0.01565)	(0.01588)	(0.01658)	(0.01568)	(0.01560)
CGF	0.46443***	0.15893***		-0.01256***	-0.26998***		-0.06149***	-0.24516***	
	(0.01944)	(0.02009)		(0.00323)	(0.00587)		(0.00984)	(0.01071)	
Non CGF credit		0.19664***	0.23232***		0.16569***	0.24591***		0.11822***	0.18430***
		(0.00378)	(0.00464)		(0.00281)	(0.00403)		(0.00265)	(0.00351)
Observations	255,000	255,000	255,000	255,000	255,000	255,000	255,000	255,000	255,000
R-squared	0.57995	0.59193	0.82267	0.65574	0.67486	0.79729	0.48970	0.50281	0.74280

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table B3: Robustness Test 1: The Effect of the CGF Program on Firm Performance: Binary Treatment for the Breakdown of Tangible Assets

Dependent Variables:	(1) Land & Buildings	(2) Land & Buildings	(3) Land & Buildings	(4) Machinery & Equipment	(5) Machinery & Equipment	(6) Machinery & Equipment	(7) Vehicles	(8) Vehicles	(9) Vehicles
Panel A: Very Short-Run									
POSTxCGF	0.46414***	0.42010***	0.40051***	0.37464***	0.33801***	0.31697***	0.63187***	0.51595***	0.49459***
	(0.01642)	(0.01629)	(0.01628)	(0.01244)	(0.01223)	(0.01192)	(0.01683)	(0.01638)	(0.01666)
CGF	-0.00988	-0.07874***		-0.15087***	-0.20815***		0.38473***	0.20349***	
	(0.02518)	(0.02567)		(0.02441)	(0.02486)		(0.01829)	(0.01841)	
Non CGF credit		0.05076***	0.07271***		0.04222***	0.06830***		0.13360***	0.15747***
		(0.00271)	(0.00208)		(0.00269)	(0.00187)		(0.00267)	(0.00249)
Observations	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500
R-squared	0.69478	0.69536	0.92836	0.70117	0.70163	0.95590	0.65288	0.65971	0.86991
Panel B: Short-Run									
POSTxCGF	0.54816***	0.44988***	0.40238***	0.49770***	0.40551***	0.35101***	0.66032***	0.45313***	0.40100***
	(0.02036)	(0.02033)	(0.02019)	(0.01582)	(0.01569)	(0.01517)	(0.02166)	(0.02125)	(0.02129)
CGF	0.02397	-0.10905***		-0.12888***	-0.25365***		0.43976***	0.15934***	
	(0.02650)	(0.02755)		(0.02512)	(0.02608)		(0.01967)	(0.02024)	
Non CGF credit		0.08562***	0.12402***		0.08031***	0.12709***		0.18050***	0.22253***
		(0.00366)	(0.00357)		(0.00361)	(0.00332)		(0.00360)	(0.00408)
Observations	255,000	255,000	255,000	255,000	255,000	255,000	255,000	255,000	255,000
R-squared	0.68025	0.68154	0.92340	0.68583	0.68715	0.94708	0.61620	0.62571	0.85850

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table B4: Robustness Test 1: The Effect of the CGF Program on Firm Performance: Continuous Treatment for Main Balance Sheet Items

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Inventory	Inventory	Inventory	Tangible Assets	Tangible Assets	Tangible Assets	Liquid Assets	Liquid Assets	Liquid Assets
Panel A: Very Short-Run									
POSTxCGF	0.05592***	0.04912***	0.04804***	0.04556***	0.04019***	0.03756***	0.04855***	0.04578***	0.04381***
	(0.00137)	(0.00133)	(0.00133)	(0.00091)	(0.00084)	(0.00088)	(0.00093)	(0.00089)	(0.00088)
CGF	0.02617***	0.01273***		-0.00187***	-0.01248***		-0.00577***	-0.01125***	
	(0.00130)	(0.00131)		(0.00022)	(0.00029)		(0.00065)	(0.00067)	
Non CGF credit		0.12973***	0.14903***		0.10248***	0.15166***		0.05295***	0.08902***
		(0.00265)	(0.00273)		(0.00173)	(0.00235)		(0.00164)	(0.00195)
Observations	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500
R-squared	0.61136	0.61853	0.82581	0.77941	0.79072	0.83711	0.52289	0.52745	0.73601
hline **Panel B: Short-Run**									
POSTxCGF	0.06294***	0.04713***	0.04403***	0.06175***	0.04846***	0.04147***	0.04895***	0.03950***	0.03373***
	(0.00176)	(0.00171)	(0.00169)	(0.00128)	(0.00117)	(0.00119)	(0.00124)	(0.00118)	(0.00117)
CGF	0.03545***	0.01243***		-0.00015	-0.01949***		-0.00407***	-0.01783***	
	(0.00143)	(0.00147)		(0.00026)	(0.00043)		(0.00074)	(0.00080)	
Non CGF credit		0.19671***	0.23270***		0.16526***	0.24645***		0.11760***	0.18459***
		(0.00376)	(0.00463)		(0.00279)	(0.00402)		(0.00263)	(0.00351)
Observations	255,000	255,000	255,000	255,000	255,000	255,000	255,000	255,000	255,000
R-squared	0.58003	0.59212	0.82274	0.65576	0.67494	0.79737	0.48984	0.50292	0.74291

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table B5: Robustness Test 1: The Effect of the CGF Program on Firm Performance: Continuous Treatment for the Breakdown of Tangible Assets

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Land & Buildings	Land & Buildings	Land & Buildings	Machinery & Equipment	Machinery & Equipment	Machinery & Equipment	Vehicles	Vehicles	Vehicles
Panel A: Very Short-Run									
POSTxCGF	0.05592***	0.04912***	0.04804***	0.04556***	0.04019***	0.03756***	0.04855***	0.04578***	0.04381***
	(0.00137)	(0.00133)	(0.00133)	(0.00091)	(0.00084)	(0.00088)	(0.00093)	(0.00089)	(0.00088)
CGF	0.02617***	0.01273***		-0.00187***	-0.01248***		-0.00577***	-0.01125***	
	(0.00130)	(0.00131)		(0.00022)	(0.00029)		(0.00065)	(0.00067)	
Non CGF credit		0.12973***	0.14903***		0.10248***	0.15166***		0.05295***	0.08902***
		(0.00265)	(0.00273)		(0.00173)	(0.00235)		(0.00164)	(0.00195)
Observations	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500
R-squared	0.61136	0.61853	0.82581	0.77941	0.79072	0.83711	0.52289	0.52745	0.73601
Panel B: Short-Run									
POSTxCGF	0.06294***	0.04713***	0.04403***	0.06175***	0.04846***	0.04147***	0.04895***	0.03950***	0.03373***
	(0.00176)	(0.00171)	(0.00169)	(0.00128)	(0.00117)	(0.00119)	(0.00124)	(0.00118)	(0.00117)
CGF	0.03545***	0.01243***		-0.00015	-0.01949***		-0.00407***	-0.01783***	
	(0.00143)	(0.00147)		(0.00026)	(0.00043)		(0.00074)	(0.00080)	
Non CGF credit		0.19671***	0.23270***		0.16526***	0.24645***		0.11760***	0.18459***
		(0.00376)	(0.00463)		(0.00279)	(0.00402)		(0.00263)	(0.00351)
Observations	255,000	255,000	255,000	255,000	255,000	255,000	255,000	255,000	255,000
R-squared	0.58003	0.59212	0.82274	0.65576	0.67494	0.79737	0.48984	0.50292	0.74291

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Robustness 2: SAMPLE 2 NO FILLING TABLES

Table B6: Robustness Test 2: The Effect of the CGF Program on Firm Performance: Continuous Treatment for Main Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Employment	Employment	Employment	Sales	Sales	Sales	Default	Default	Default
Panel A: Very Short-Run									
POSTxCGF	0.01225***	0.01131***	0.01094***	0.03889***	0.03587***	0.03388***	-0.00219***	-0.00217***	-0.00216***
	(0.00022)	(0.00022)	(0.00023)	(0.00083)	(0.00081)	(0.00091)	(0.00006)	(0.00006)	(0.00006)
CGF	-0.00082***	-0.00336***		0.00075***	-0.00740***		-0.00002***	0.00006***	
	(0.00029)	(0.00030)		(0.00014)	(0.00021)		(0.00000)	(0.00001)	
Non CGF credit		0.02442***	0.03093***		0.07837***	0.12096***		-0.00075***	-0.00188***
		(0.00047)	(0.00041)		(0.00146)	(0.00201)		(0.00005)	(0.00008)
Observations	386,606	386,606	386,606	386,606	386,606	386,606	375,652	375,652	375,652
R-squared	0.80022	0.80366	0.93858	0.71664	0.72455	0.76376	0.19259	0.19325	0.35821
Panel B: Short-Run									
POSTxCGF	0.01355***	0.01169***	0.01100***	0.05662***	0.05009***	0.04633***	-0.00023**	-0.00019*	-0.00003
	(0.00029)	(0.00029)	(0.00029)	(0.00114)	(0.00109)	(0.00118)	(0.00010)	(0.00010)	(0.00010)
CGF	0.00104***	-0.00264***		0.00167***	-0.01127***		-0.00007***	0.00001	
	(0.00031)	(0.00033)		(0.00017)	(0.00034)		(0.00001)	(0.00002)	
Non CGF credit		0.03151***	0.04321***		0.11089***	0.17433***		-0.00064***	-0.00371***
		(0.00065)	(0.00073)		(0.00231)	(0.00358)		(0.00012)	(0.00019)
Observations	248,824	248,824	248,824	248,824	248,824	248,824	243,260	243,260	243,260
R-squared	0.78010	0.78453	0.93079	0.63276	0.64344	0.75502	0.27683	0.27695	0.51838

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables except Default are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table B7: Robustness Test 2: The Effect of the CGF Program on Firm Performance: Binary Treatment for Main Balance Sheet Items

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Inventory	Inventory	Inventory	Tangible Assets	Tangible Assets	Tangible Assets	Liquid Assets	Liquid Assets	Liquid Assets
Panel A: Very Short-Run									
POSTxCGF	0.47691***	0.41786***	0.40004***	0.34551***	0.30568***	0.27156***	0.35804***	0.35213***	0.33345***
	(0.01699)	(0.01695)	(0.01699)	(0.00969)	(0.00951)	(0.01027)	(0.01017)	(0.01015)	(0.01016)
CGF	0.34768***	0.23095***		-0.03330***	-0.11202***		-0.08209***	-0.09377***	
	(0.01751)	(0.01754)		(0.00277)	(0.00329)		(0.00854)	(0.00862)	
Non CGF credit		0.08577***	0.08893***		0.05785***	0.09045***		0.00858***	0.02784***
		(0.00241)	(0.00220)		(0.00120)	(0.00160)		(0.00118)	(0.00113)
Observations	386,606	386,606	386,606	386,606	386,606	386,606	386,606	386,606	386,606
R-squared	0.62494	0.62804	0.83707	0.82704	0.83066	0.86719	0.55713	0.55726	0.76919
Panel B: Short-Run									
POSTxCGF	0.39249***	0.30156***	0.30482***	0.33973***	0.28272***	0.24699***	0.19659***	0.18154***	0.16189***
	(0.02094)	(0.02095)	(0.02098)	(0.01180)	(0.01145)	(0.01234)	(0.01252)	(0.01253)	(0.01258)
CGF	0.45279***	0.29233***		-0.01702***	-0.11762***		-0.07882***	-0.10538***	
	(0.01976)	(0.02003)		(0.00316)	(0.00424)		(0.00989)	(0.01008)	
Non CGF credit		0.10403***	0.10164***		0.06522***	0.10632***		0.01722***	0.03973***
		(0.00333)	(0.00369)		(0.00173)	(0.00267)		(0.00169)	(0.00199)
Observations	248,824	248,824	248,824	248,824	248,824	248,824	248,824	248,824	248,824
R-squared	0.61423	0.61771	0.84839	0.77223	0.77590	0.85540	0.55501	0.55538	0.79273

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table B8: Robustness Test 2: The Effect of the CGF Program on Firm Performance: Binary Treatment for the Breakdown of Tangible Assets

Dependent Variables:	(1) Land & Buildings	(2) Land & Buildings	(3) Land & Buildings	(4) Machinery & Equipment	(5) Machinery & Equipment	(6) Machinery & Equipment	(7) Vehicles	(8) Vehicles	(9) Vehicles
Panel A: Very Short-Run									
POSTxCGF	0.35021***	0.33139***	0.31941***	0.24399***	0.23068***	0.21042***	0.47764***	0.40617***	0.38318***
	(0.01567)	(0.01572)	(0.01572)	(0.01160)	(0.01128)	(0.01128)	(0.01612)	(0.01604)	(0.01628)
CGF	-0.02692	-0.06412**		-0.14659***	-0.17290***		0.37260***	0.23133***	
	(0.02493)	(0.02537)		(0.02420)	(0.02458)		(0.01818)	(0.01825)	
Non CGF credit		0.02734***	0.04252***		0.01933***	0.03500***		0.10380***	0.11909***
		(0.00258)	(0.00166)		(0.00256)	(0.00137)		(0.00255)	(0.00217)
Observations	386,606	386,606	386,606	386,606	386,606	386,606	386,606	386,606	386,606
R-squared	0.69921	0.69938	0.93168	0.70618	0.70628	0.95996	0.66398	0.66799	0.87649
Panel B: Short-Run									
POSTxCGF	0.37663***	0.34192***	0.32085***	0.28131***	0.25005***	0.23027***	0.37199***	0.26709***	0.24280***
	(0.01936)	(0.01952)	(0.01959)	(0.01409)	(0.01427)	(0.01411)	(0.02016)	(0.02014)	(0.02049)
CGF	-0.01052	-0.07178***		-0.12832***	-0.18348***		0.40438***	0.21928***	
	(0.02663)	(0.02753)		(0.02528)	(0.02605)		(0.01995)	(0.02033)	
Non CGF credit		0.03971***	0.06197***		0.03576***	0.05752***		0.12000***	0.14680***
		(0.00350)	(0.00282)		(0.00347)	(0.00246)		(0.00348)	(0.00370)
Observations	248,824	248,824	248,824	248,824	248,824	248,824	248,824	248,824	248,824
R-squared	0.69105	0.69132	0.93108	0.69878	0.69904	0.95749	0.63735	0.64150	0.87160

*Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.*

Table B9: Robustness Test 2: The Effect of the CGF Program on Firm Performance: Continuous Treatment for Main Balance Sheet Items

Dependent Variables:	(1) Inventory	(2) Inventory	(3) Inventory	(4) Tangible Assets	(5) Tangible Assets	(6) Tangible Assets	(7) Liquid Assets	(8) Liquid Assets	(9) Liquid Assets
Panel A: Very Short-Run									
POSTxCGF	0.03565***	0.03231***	0.03100***	0.02511***	0.02287***	0.02074***	0.02819***	0.02785***	0.02667***
	(0.00126)	(0.00126)	(0.00126)	(0.00073)	(0.00071)	(0.00077)	(0.00077)	(0.00077)	(0.00077)
CGF	0.02640***	0.01738***		-0.00226***	-0.00831***		-0.00629***	-0.00720***	
	(0.00130)	(0.00130)		(0.00021)	(0.00025)		(0.00065)	(0.00065)	
Non CGF credit		0.08678***	0.08965***		0.05812***	0.09096***		0.00880***	0.02839***
		(0.00241)	(0.00220)		(0.00120)	(0.00160)		(0.00117)	(0.00113)
Observations	386,606	386,606	386,606	386,606	386,606	386,606	386,606	386,606	386,606
R-squared	0.62486	0.62806	0.83709	0.82696	0.83065	0.86720	0.55724	0.55738	0.76932
Panel B: Short-Run									
POSTxCGF	0.02985***	0.02369***	0.02396***	0.02522***	0.02137***	0.01895***	0.01528***	0.01428***	0.01295***
	(0.00154)	(0.00154)	(0.00154)	(0.00088)	(0.00085)	(0.00091)	(0.00094)	(0.00094)	(0.00094)
CGF	0.03412***	0.02190***		-0.00114***	-0.00877***		-0.00592***	-0.00791***	
	(0.00146)	(0.00148)		(0.00024)	(0.00032)		(0.00075)	(0.00076)	
Non CGF credit		0.10474***	0.10199***		0.06536***	0.10670***		0.01702***	0.03987***
		(0.00332)	(0.00368)		(0.00173)	(0.00267)		(0.00169)	(0.00198)
Observations	248,824	248,824	248,824	248,824	248,824	248,824	248,824	248,824	248,824
R-squared	0.61421	0.61777	0.84841	0.77219	0.77590	0.85542	0.55504	0.55540	0.79277

*Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.*

Table B10: Robustness Test 2: The Effect of the CGF Program on Firm Performance: Continuous Treatment for the Breakdown of Tangible Assets

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Land & Buildings	Land & Buildings	Land & Buildings	Machinery & Equipment	Machinery & Equipment	Machinery & Equipment	Vehicles	Vehicles	Vehicles
Panel A: Very Short-Run									
POSTxCGF	0.02878***	0.02775***	0.02700***	0.01898***	0.01824***	0.01693***	0.03348***	0.02946***	0.02795***
	(0.00123)	(0.00123)	(0.00123)	(0.00089)	(0.00089)	(0.00087)	(0.00119)	(0.00119)	(0.00121)
CGF	-0.00069	-0.00344*		-0.01077***	-0.01276***		0.03011***	0.01927***	
	(0.00195)	(0.00198)		(0.00186)	(0.00189)		(0.00137)	(0.00138)	
Non CGF credit		0.02652***	0.04295***		0.01908***	0.03534***		0.10428***	0.11989***
		(0.00257)	(0.00166)		(0.00256)	(0.00137)		(0.00254)	(0.00217)
Observations	386,606	386,606	386,606	386,606	386,606	386,606	386,606	386,606	386,606
R-squared	0.69927	0.69943	0.93171	0.70618	0.70627	0.95997	0.66399	0.66807	0.87646
Panel B: Short-Run									
POSTxCGF	0.02995***	0.02771***	0.02618***	0.02197***	0.01990***	0.01850***	0.02579***	0.01872***	0.01704***
	(0.00150)	(0.00151)	(0.00152)	(0.00108)	(0.00109)	(0.00108)	(0.00149)	(0.00148)	(0.00151)
CGF	0.00078	-0.00364*		-0.00930***	-0.01339***		0.03243***	0.01842***	
	(0.00207)	(0.00213)		(0.00193)	(0.00199)		(0.00149)	(0.00152)	
Non CGF credit		0.03794***	0.06214***		0.03502***	0.05771***		0.12008***	0.14748***
		(0.00349)	(0.00282)		(0.00346)	(0.00245)		(0.00347)	(0.00370)
Observations	248,824	248,824	248,824	248,824	248,824	248,824	248,824	248,824	248,824
R-squared	0.69114	0.69139	0.93111	0.69879	0.69904	0.95750	0.63739	0.64157	0.87158

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Robustness 3: SAMPLE 2 FILLING TABLES

Table B11: Robustness Test 3: The Effect of the CGF Program on Firm Performance: Continuous Treatment for Main Variables

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variables:	Employment	Employment	Employment	Sales	Sales	Sales
Panel A: Very Short-Run						
POSTxCGF	0.01637***	0.01442***	0.01380***	0.06743***	0.05960***	0.05567***
	(0.00024)	(0.00023)	(0.00024)	(0.00105)	(0.00096)	(0.00103)
CGF	-0.00017	-0.00362***		0.00110***	-0.01273***	
	(0.00029)	(0.00030)		(0.00014)	(0.00026)	
Non CGF credit		0.03305***	0.04174***		0.13259***	0.19300***
		(0.00051)	(0.00051)		(0.00192)	(0.00261)
Observations	397,284	397,284	397,284	397,284	397,284	397,284
R-squared	0.78657	0.79305	0.93037	0.65796	0.67874	0.73421
Panel B: Short-Run						
POSTxCGF	0.01956***	0.01540***	0.01414***	0.10183***	0.08229***	0.07337***
	(0.00033)	(0.00032)	(0.00032)	(0.00154)	(0.00140)	(0.00147)
CGF	0.00217***	-0.00342***		0.00247***	-0.02378***	
	(0.00031)	(0.00032)		(0.00019)	(0.00045)	
Non CGF credit		0.04749***	0.06128***		0.22288***	0.31953***
		(0.00069)	(0.00080)		(0.00302)	(0.00422)
Observations	269,784	269,784	269,784	269,784	269,784	269,784
R-squared	0.74768	0.75841	0.91157	0.53943	0.57209	0.71722

Notes: Columns 3 and 6 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Short-Run" covers the impact of the program in 2018.

Table B12: Robustness Test 3: The Effect of the CGF Program on Firm Performance: Binary Treatment for Main Balance Sheet Items

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Inventory	Inventory	Inventory	Tangible Assets	Tangible Assets	Tangible Assets	Liquid Assets	Liquid Assets	Liquid Assets
Panel A: Very Short-Run									
POSTxCGF	0.78725***	0.66192***	0.62787***	0.67006***	0.56751***	0.50954***	0.64959***	0.59904***	0.56104***
	(0.01836)	(0.01777)	(0.01763)	(0.01230)	(0.01119)	(0.01163)	(0.01212)	(0.01149)	(0.01134)
CGF	0.35166***	0.17455***		-0.03149***	-0.17640***		-0.07749***	-0.14892***	
	(0.01728)	(0.01743)		(0.00278)	(0.00383)		(0.00844)	(0.00869)	
Non CGF credit		0.13015***	0.14995***		0.10648***	0.15540***		0.05249***	0.08617***
		(0.00255)	(0.00262)		(0.00168)	(0.00226)		(0.00156)	(0.00185)
Observations	397,284	397,284	397,284	397,284	397,284	397,284	397,284	397,284	397,284
R-squared	0.61154	0.61883	0.82576	0.78117	0.79280	0.84020	0.52150	0.52608	0.73626
Panel B: Short-Run									
POSTxCGF	0.87243***	0.62266***	0.57773***	0.87930***	0.66082***	0.55771***	0.66471***	0.52212***	0.45192***
	(0.02353)	(0.02289)	(0.02279)	(0.01703)	(0.01554)	(0.01608)	(0.01629)	(0.01544)	(0.01538)
CGF	0.47794***	0.17116***		-0.01186***	-0.28020***		-0.05905***	-0.23418***	
	(0.01909)	(0.01970)		(0.00318)	(0.00573)		(0.00960)	(0.01037)	
Non CGF credit		0.19786***	0.23181***		0.17307***	0.25059***		0.11296***	0.16516***
		(0.00350)	(0.00422)		(0.00264)	(0.00366)		(0.00242)	(0.00312)
Observations	269,784	269,784	269,784	269,784	269,784	269,784	269,784	269,784	269,784
R-squared	0.57903	0.59179	0.81921	0.66355	0.68409	0.79995	0.48634	0.49912	0.73810

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table B13: Robustness Test 3: The Effect of the CGF Program on Firm Performance: Binary Treatment for the Breakdown of Tangible Assets

Dependent Variables:	(1) Land & Buildings	(2) Land & Buildings	(3) Land & Buildings	(4) Machinery & Equipment	(5) Machinery & Equipment	(6) Machinery & Equipment	(7) Vehicles	(8) Vehicles	(9) Vehicles
Panel A: Very Short-Run									
POSTxCGF	0.47059***	0.42211***	0.40196***	0.39435***	0.35182***	0.32068***	0.69559***	0.56358***	0.52746***
	(0.01615)	(0.01601)	(0.01588)	(0.01247)	(0.01227)	(0.01175)	(0.01695)	(0.01649)	(0.01660)
CGF	-0.01026	-0.07877***		-0.14324***	-0.20334***		0.38441***	0.19787***	
	(0.02456)	(0.02505)		(0.02385)	(0.02429)		(0.01796)	(0.01811)	
Non CGF credit		0.05034***	0.07190***		0.04416***	0.06943***		0.13708***	0.16338***
		(0.00258)	(0.00199)		(0.00256)	(0.00180)		(0.00257)	(0.00241)
Observations	397,284	397,284	397,284	397,284	397,284	397,284	397,284	397,284	397,284
R-squared	0.69588	0.69648	0.92805	0.70196	0.70249	0.95507	0.65811	0.66527	0.87106
Panel B: Short-Run									
POSTxCGF	0.56240***	0.45656***	0.40866***	0.51659***	0.41074***	0.35540***	0.72125***	0.48272***	0.41748***
	(0.01984)	(0.01981)	(0.01970)	(0.01567)	(0.01554)	(0.01505)	(0.02160)	(0.02117)	(0.02133)
CGF	0.02110	-0.10889***		-0.11538***	-0.24539***		0.43520***	0.14223***	
	(0.02539)	(0.02635)		(0.02420)	(0.02509)		(0.01928)	(0.01985)	
Non CGF credit		0.08384***	0.11945***		0.08386***	0.12742***		0.18896***	0.23860***
		(0.00334)	(0.00323)		(0.00331)	(0.00304)		(0.00336)	(0.00380)
Observations	269,784	269,784	269,784	269,784	269,784	269,784	269,784	269,784	269,784
R-squared	0.68112	0.68248	0.92161	0.68612	0.68768	0.94463	0.62249	0.63318	0.85723

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

Table B14: Robustness Test 3: The Effect of the CGF Program on Firm Performance: Continuous Treatment for Main Balance Sheet Items

Dependent Variables:	(1) Inventory	(2) Inventory	(3) Inventory	(4) Tangible Assets	(5) Tangible Assets	(6) Tangible Assets	(7) Liquid Assets	(8) Liquid Assets	(9) Liquid Assets
Panel A: Very Short-Run									
POSTxCGF	0.05901***	0.05126***	0.04896***	0.04945***	0.04315***	0.03944***	0.05012***	0.04701***	0.04457***
	(0.00137)	(0.00132)	(0.00132)	(0.00092)	(0.00085)	(0.00088)	(0.00091)	(0.00087)	(0.00086)
CGF	0.02703***	0.01335***		-0.00170***	-0.01283***		-0.00562***	-0.01112***	
	(0.00129)	(0.00129)		(0.00021)	(0.00028)		(0.00064)	(0.00066)	
Non CGF credit		0.13113***	0.15096***		0.10678***	0.15625***		0.05274***	0.08699***
		(0.00254)	(0.00262)		(0.00168)	(0.00226)		(0.00156)	(0.00185)
Observations	397,284	397,284	397,284	397,284	397,284	397,284	397,284	397,284	397,284
R-squared	0.61148	0.61892	0.82582	0.78105	0.79282	0.84026	0.52172	0.52637	0.73655
Panel B: Short-Run									
POSTxCGF	0.06572***	0.04836***	0.04524***	0.06525***	0.05010***	0.04284***	0.05029***	0.04043***	0.03547***
	(0.00174)	(0.00169)	(0.00169)	(0.00128)	(0.00117)	(0.00120)	(0.00122)	(0.00116)	(0.00115)
CGF	0.03665***	0.01332***		0.00012	-0.02024***		-0.00388***	-0.01713***	
	(0.00141)	(0.00145)		(0.00025)	(0.00042)		(0.00073)	(0.00078)	
Non CGF credit		0.19807***	0.23230***		0.17280***	0.25127***		0.11245***	0.16553***
		(0.00348)	(0.00421)		(0.00262)	(0.00366)		(0.00241)	(0.00312)
Observations	269,784	269,784	269,784	269,784	269,784	269,784	269,784	269,784	269,784
R-squared	0.57908	0.59197	0.81928	0.66350	0.68414	0.80002	0.48649	0.49926	0.73824

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.

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Table B15: Robustness Test 3: The Effect of the CGF Program on Firm Performance: Continuous Treatment for the Breakdown of Tangible Assets

Dependent Variables:	(1) Land & Buildings	(2) Land & Buildings	(3) Land & Buildings	(4) Machinery & Equipment	(5) Machinery & Equipment	(6) Machinery & Equipment	(7) Vehicles	(8) Vehicles	(9) Vehicles
Panel A: Very Short-Run									
POSTxCGF	0.03786***	0.03494***	0.03363***	0.03039***	0.02780***	0.02578***	0.04981***	0.04169***	0.03933***
	(0.00126)	(0.00125)	(0.00124)	(0.00096)	(0.00094)	(0.00091)	(0.00126)	(0.00122)	(0.00123)
CGF	0.00099	-0.00415**		-0.01022***	-0.01479***		0.03134***	0.01700***	
	(0.00192)	(0.00195)		(0.00183)	(0.00187)		(0.00136)	(0.00136)	
Non CGF credit		0.04930***	0.07233***		0.04382***	0.06987***		0.13748***	0.16440***
		(0.00257)	(0.00199)		(0.00256)	(0.00180)		(0.00256)	(0.00241)
Observations	397,284	397,284	397,284	397,284	397,284	397,284	397,284	397,284	397,284
R-squared	0.69598	0.69656	0.92809	0.70197	0.70249	0.95509	0.65814	0.66539	0.87105
Panel B: Short-Run									
POSTxCGF	0.04336***	0.03622***	0.03266***	0.03944***	0.03220***	0.02823***	0.05152***	0.03499***	0.03033***
	(0.00154)	(0.00154)	(0.00153)	(0.00120)	(0.00118)	(0.00115)	(0.00160)	(0.00157)	(0.00158)
CGF	0.00418**	-0.00541***		-0.00761***	-0.01735***		0.03551***	0.01329***	
	(0.00197)	(0.00204)		(0.00185)	(0.00191)		(0.00144)	(0.00148)	
Non CGF credit		0.08143***	0.11964***		0.08264***	0.12762***		0.18866***	0.23954***
		(0.00332)	(0.00322)		(0.00329)	(0.00303)		(0.00335)	(0.00379)
Observations	269,784	269,784	269,784	269,784	269,784	269,784	269,784	269,784	269,784
R-squared	0.68128	0.68258	0.92164	0.68616	0.68770	0.94465	0.62255	0.63330	0.85721

*Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. The sector-time and province-time fixed effects are included in all specifications to control for overtime industry and province specific shifts. Robust standard errors in parentheses. All dependent variables are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Very Short-Run" covers the impact of the program only in 2017, while "Short-Run" covers the impact of the program in 2018.*

C Estimation Results for Excluded Sectors

In this section, we provide sector specific estimation results for the excluded sectors, energy and agriculture and mining sectors.

Table C1: Sectoral Impact of CGF Program in the Short-Run: Binary Treatment for Main Variables - Other Sectors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variables:	Employment	Employment	Employment	Sales	Sales	Sales	Default	Default	Default
Panel A: Energy									
POSTxCGF	0.16133**	0.10364	0.12007	1.76736***	1.14783***	0.91167*	0.01253	0.01080	0.01498
	(0.08169)	(0.08439)	(0.08459)	(0.43486)	(0.37792)	(0.52390)	(0.02567)	(0.02657)	(0.02706)
CGF	0.12844	0.08595		-0.31220**	-0.76853***		-0.00014	-0.00144	
	(0.10817)	(0.10674)		(0.15715)	(0.18109)		(0.00343)	(0.00387)	
Non CGF credit		0.03114***	0.03721***		0.33439***	0.47134***		0.00093	-0.00114
		(0.01024)	(0.00769)		(0.06002)	(0.07665)		(0.00166)	(0.00214)
Observations	760	760	760	760	760	760	736	736	736
R-squared	0.89747	0.89989	0.96429	0.84335	0.86453	0.90309	0.37539	0.37572	0.58059
Panel B: Agriculture & Mining									
POSTxCGF	0.13157***	0.11347***	0.11069***	0.99692***	0.93321***	0.85695***	0.01552	0.01591	0.01586
	(0.03005)	(0.02997)	(0.02960)	(0.15094)	(0.14775)	(0.14737)	(0.01058)	(0.01065)	(0.01072)
CGF	-0.04630	-0.09092***		0.01511	-0.14197***		-0.00275*	-0.00177	
	(0.03122)	(0.03267)		(0.02864)	(0.04522)		(0.00166)	(0.00236)	
Non CGF credit		0.02410***	0.02681***		0.08485***	0.13147***		-0.00053	-0.00170
		(0.00533)	(0.00516)		(0.01914)	(0.03045)		(0.00101)	(0.00173)
Observations	3,580	3,580	3,580	3,580	3,580	3,580	3,492	3,492	3,492
R-squared	0.83432	0.83685	0.94957	0.70338	0.70812	0.81087	0.31628	0.31637	0.54139

Notes: Columns 3-6-9 include firm fixed effect instead of pair fixed effect. Robust standard errors in parentheses. All dependent variables except Exit are in logarithmic form. *** p<0.01, ** p<0.05, * p<0.1. "Short-Run" covers the impact of the program in 2018.

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