



ELSEVIER

Contents lists available at SciVerse ScienceDirect

Review of Economic Dynamics

www.elsevier.com/locate/red



Misallocation and financial market frictions: Some direct evidence from the dispersion in borrowing costs[☆]

Simon Gilchrist^{a,b}, Jae W. Sim^c, Egon Zakrajšek^{d,*}

^a Department of Economics, Boston University, United States

^b NBER, United States

^c Division of Research & Statistics, Federal Reserve Board, United States

^d Division of Monetary Affairs, Federal Reserve Board, United States

ARTICLE INFO

Article history:

Received 23 September 2011

Revised 30 October 2012

Available online 10 November 2012

JEL classification:

D92

O16

O40

Keywords:

Total factor productivity

Financial distortions

Firm-specific borrowing costs

ABSTRACT

Financial frictions distort the allocation of resources among productive units—all else equal, firms whose financing choices are affected by such frictions face higher borrowing costs than firms with ready access to capital markets. As a result, input choices may differ systematically across firms in ways that are unrelated to their productive efficiency. We propose an accounting framework that allows us to assess empirically the magnitude of the loss in aggregate resources due to such misallocation. To a second-order approximation, the framework requires only information on the dispersion in borrowing costs across firms, which we measure—for a subset of U.S. manufacturing firms—directly from the interest rate spreads on their outstanding publicly-traded debt. Given the observed dispersion in borrowing costs, our approximation method implies a relatively modest loss in efficiency due to resource misallocation—on the order of 1 to 2 percent of measured total factor productivity (TFP). In our framework, the correlation between firm size and borrowing costs has no bearing on TFP losses under the assumption that financial distortions and firm-level efficiency are jointly log-normally distributed. To take into account the effect of covariation between firm size and borrowing costs, we consider a more general framework, which dispenses with the assumption of log-normality and which implies somewhat higher estimates of the resource losses—about 3.5 percent of measured TFP. Counterfactual experiments indicate that dispersion in borrowing costs must be an order of magnitude higher than that observed in the U.S. financial data, in order for misallocation—arising from financial distortions—to account for a significant fraction of measured TFP differentials across countries.

Published by Elsevier Inc.

1. Introduction

Economists have long emphasized that distortions in the allocation of resources across heterogeneous firms can have large adverse effects on aggregate productivity and on the gains from trade (cf. [Hopenhayn and Rogerson, 1993](#); [Guner](#)

[☆] We thank participants at the RED Mini-Conference on “Misallocation and Productivity” (which took place at the 2011 SED Annual Meetings) for helpful comments. We are also grateful to Benjamin Moll, Diego Restuccia (the Guest Editor), Richard Rogerson, and two anonymous referees for numerous insightful comments and suggestions. Samuel Haltenhof and Ben Rump provided excellent research assistance. All errors and omissions are our own responsibility alone. The views expressed in this paper are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or of anyone else associated with the Federal Reserve System.

* Corresponding author.

E-mail addresses: sgilchri@bu.edu (S. Gilchrist), jae.w.sim@frb.gov (J.W. Sim), egon.zakrajsek@frb.gov (E. Zakrajšek).

et al., 2008; and Hopenyahn, 2011). Similarly, Restuccia and Rogerson (2008) have argued that systematic and persistent differences in the allocation of resources across production units of varying productivity may be an important determinant of differences in income per capita across countries, a hypothesis that seems to be borne out by the data. For example, using detailed microdata on manufacturing establishments in China and India, Hsieh and Klenow (2009) estimate that resource misallocation accounts for 30 to 60 percent of the difference between the total factor productivity (TFP) in U.S. manufacturing and the corresponding sectoral TFP in China and India.¹

In light of the enormous differences in the depth and sophistication of financial markets between developed and developing countries, a large literature has long stressed the role of finance in economic development; see Matsuyama (2007) for a comprehensive review. More recently, Amaral and Quintin (2010), Greenwood et al. (2010, 2013), and Buera et al. (2011) have developed theoretical models, which show—in a quantitative sense—that a large portion of cross-country differences in TFP may attributable to resource misallocation arising from imperfect financial markets. In a recent paper, however, Midrigan and Xu (2010) challenge these findings, arguing that financial distortions can account for only a modest portion (on the order of 5 percent) of the difference in manufacturing TFP between Columbia and South Korea, the latter being a benchmark country with highly developed capital markets. Thus, the extent to which financial frictions lead to reductions in TFP through resource misallocation appears to be an open question.

Although the TFP accounting methodology developed by Hsieh and Klenow (2009) leads to a persuasive conclusion that large differences in manufacturing TFP between advanced and developing economies reflect the dispersion in marginal revenue products across heterogeneous plants, it also suggests that there are substantial measured TFP losses in U.S. manufacturing. At the same time, Hsieh and Klenow (2009) are careful to ascribe such losses to potential measurement error rather than to the underlying frictions hampering the process of allocation of resources across firms. This tension raises an important question regarding the extent to which measures of dispersion based on plant-level marginal revenue products paint an accurate picture of resource misallocation that can be attributed directly to financial frictions, as opposed to alternative sources of frictions such as policy-induced tax distortions; gaps between average and marginal products due to adjustment costs; fixed production costs; or other measurement-related issues.

In this paper, we address this tension by developing an alternative TFP accounting procedure, which relies on direct measures of firms' borrowing costs to measure the implied resource misallocation caused by distortions in credit markets. Specifically, we develop an accounting framework in which observed differences in borrowing costs across firms can be mapped into measures of aggregate resource misallocation that may plausibly be attributed to financial market frictions. Using a log-normal approximation, we show that the extent of resource misallocation can be inferred from cross-industry or cross-country information on the dispersion of borrowing costs.

We apply our accounting framework to a panel of U.S. manufacturing firms drawn from the Compustat database. Despite fairly large and persistent differences in borrowing costs across firms, our estimates imply relatively modest losses in TFP due to resource misallocation—roughly on the order of 3.5 percent of TFP in the U.S. manufacturing sector. This finding is consistent with the recent work of Hopenyahn (2011), whose quantitative analysis also suggests modest TFP losses for economically plausible degrees of micro-level distortions.

Our results can be obtained directly from the log-normal approximation and information on the dispersion of interest rates across firms. Nonetheless, our methodology also allows us to relax the log-normal approximation and infer TFP losses using the joint distribution of sales and borrowing costs. We find that the estimated losses under this approach closely match those obtained under the assumption of log-normality. This finding demonstrates both the robustness of our results and its applicability to a broader environment where firm-level data on the joint distribution of sales and borrowing costs may not be readily available. We also compare the measured dispersion in the observed user cost of capital to the dispersion in the user cost inferred from the realized revenue products, an approach consistent with the methodology of Hsieh and Klenow (2009). We find that using the latter approach, the dispersion in the implied user cost overstates the degree of dispersion—and hence the degree of resource misallocation—by a factor of four, compared with an approach that uses data on actual borrowing costs.

In the wake of the recent financial crisis, research into business cycle fluctuations such as that of Gilchrist et al. (2011), Khan and Thomas (2011), and Arellano et al. (2012) has analyzed the importance of dispersion in productivity for resource misallocation in environments where firms face imperfect financial markets. Contributing to this vein of research, we document a significant increase in the overall dispersion in firms' borrowing costs over the past decade. Although our results indicate that the overall loss in measured TFP due to the dispersion in borrowing costs is relatively small, this secular increase in the dispersion of borrowing costs implies a reduction in the aggregate TFP growth on the order of one-quarter of a percentage point per year over the 2000–2010 period. This finding suggests that increased heterogeneity in access to external finance may indeed have important macroeconomic consequences, even in countries with well-developed financial markets such as the United States.

The road map for the remainder of the paper is as follows. In the next section, we present some basic facts regarding the dispersion in observed borrowing costs for our sample of U.S. manufacturing firms. In Section 3, we develop our accounting framework. Section 4 presents our main empirical results along with several robustness exercises. Section 5 concludes.

¹ As shown by Klenow and Rodríguez-Clare (1997) and Hall and Jones (1999) differences in income per capita across countries are primarily accounted for by low TFP in poorer countries.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات