Economic Modelling xxx (2017) 1–15

Contents lists available at ScienceDirect

Economic Modelling

journal homepage: www.journals.elsevier.com/economic-modelling

The effects of global bank competition and presence on local economies: The Goldilocks principle may not apply to global banking☆

Uluc Aysun

Department of Economics, University of Central Florida, College of Business Administration, 4000 Central Florida Blvd., Orlando, FL 32816-1991, USA

ARTICLE INFO

JEL Classification:
E32
E44
F33
F44

Keywords:
Global banks
Cournot competition
Real business cycles
Advanced economies

ABSTRACT

This paper is the first to show that advanced economies are least stable when the market power of global banks in these economies are neither too high nor too low. When global banks have higher/lower market power in one economy than the others, they don't shift funds across countries by as much in response to shocks, and the economies become more stable with robust lending. The reason is that increasing (decreasing) loans causes a sharper decrease (increase) in global banks' returns in the economy where they have high market power. It is at moderate levels of market power at which global banks (unlike domestic banks that only lend locally) substantially reallocate funds across countries and generate high volatility. This finding, unlike the usual unidirectional relationships in the literature, implies that countries should either allow few large global banks to dominate their credit markets or minimize their exposure to global banking. The middle ground, the Goldilocks region, is turbulent.

1. Introduction

Economists have long grappled with identifying theoretical mechanisms that can explain the high degree of macroeconomic shock transmission across advanced economies. Standard open economy models have failed along this dimension and various goods and capital market frictions have been proposed as remedies (c.f. Backus et al., 1992). More recently, a few number of studies have offered global banking as a solution (e.g. Alpanda and Aysun, 2014; Cetorelli and Goldberg, 2011). Global banks provide a natural fit since they lend throughout the world and transmit the shocks that they face on the supply and demand side of credit markets similarly to all the countries that they lend in. This mechanism is consistent with the stylized fact that global banks use their internal capital markets effectively and shift assets across their overseas subsidiaries without incurring large costs. While the mobility of global banks assets clearly forms a link between business cycles in open economy models, its effects on economic stability is still up for debate. There is evidence for each side of this debate (see below). A further confounding factor is that global banks face different degrees of competition and their loans are not evenly distributed across the world. Do global banks behave differently in markets where they face a lower/higher degree of competition? How does this behavior depend on their market share? There is ample evidence, some of which I mention below, which suggest that finding the answers to these questions are important as they indicate that global banks are now a primary source of finance and the degree of banking competition and foreign bank presence varies widely across advanced economies.

In this paper, I answer these questions by investigating mechanisms that link global banking activity to local economic stability. I do so by building a dynamic two-country real business cycle model that includes local and global banks. Under the baseline scenario, the two countries are symmetric except for the number of their local banks and they are linked through trade as well as global banking. There are three realistic aspects of this model that are at the forefront. First, only global banks have the ability to allocate loanable funds across the two economies (hereafter, domestic and foreign economies) to equate marginal returns from lending. Second, both types of banks operate under a Cournot oligopoly so that each bank considers the behavior of other banks when lending. Third global banks are allowed to have a higher/lower share of lending in one economy than the other. Throughout the paper, I put the spotlight on the interaction of these three features and I analyze how global banks react to shocks (productivity, credit default risk and a terms-of-trade shocks) and shift loanable funds across the two economies when they have different degrees of market power in each economy. It is this interaction between market power and cross-country reallocation of funds in a general equilibrium framework that is the unique feature of my paper that, to the best of my knowledge, sets it apart from other studies.

☆ I thank the two anonymous referees and the editor for their detailed comments.
E-mail address: uaysun@bus.ucf.edu.

https://doi.org/10.1016/j.econmod.2017.10.018
Received 10 April 2017; Received in revised form 9 October 2017; Accepted 28 October 2017
Available online XXX

The results, based on a calibration to U.S. data, indicate that when global banks are more competitive in the domestic economy than they are in the foreign economy, the amplitudes of the domestic output responses (my measure of economic volatility) to domestic macroeconomic shocks are higher.[1] The reason is that when global banks are more competitive in the domestic economy, their lending behavior has a smaller impact on the overall returns to lending in this economy than it does in the foreign economy and their domestic lending response to domestic shocks are, therefore, larger. In response to a positive shock in the domestic economy, for example, global banks not only increase their total global lending but also allocate a greater share of their loans to this economy to equate cross-country marginal returns. While this larger response of global banks is partially offset by the smaller lending response of less competitive local banks in the domestic economy, I find that the reallocation of global banks' loans to the domestic economy dominates and the output responses are larger in magnitude. These results imply that shocks are mostly absorbed by the economy where they originate if global banks are more competitive in this economy. These conclusions are reversed when global banks are less competitive. Simply put, volatility is higher when global banks are large in numbers yet small in size (i.e., less competitive) in an economy.

Next, I investigate how the two economies respond to macroeconomic shocks when global banking loans are unevenly distributed across them. To keep the focus on this distribution, I set the number of local and global banks equal to each other in each economy so that the share of global banks' loans in an economy is also their credit market share in this economy. Unlike earlier results, output volatility is highest when global banking loans are more evenly distributed across the two economies. Under an uneven distribution, global banks' cross country mobility of loanable funds is restrained as their returns drop/increase more rapidly in the economy where they have higher market share. If there is a positive productivity shock in this economy, for example, a small increase in global bank loans rapidly equates returns across two economies and the large reallocation of global bank loans is not observed. I find that the cross-country mobility of loanable funds and the sensitivity to domestic shocks are at their peak when global banks' loans are evenly distributed. Therefore, economic volatility in a given economy is highest when global banks' share of credit markets is neither too high nor too low in this economy.

In an alternative formulation, I assume that if a global bank changes its allocation of loans across countries, it incurs adjustment costs. Under this more realistic scenario, output responses are also larger in magnitude when the number of global banks is neither too large nor too small. While global banks' responses are still small when they are fewer, the substantial cross-country reallocation of loans observed when the number of global banks is large is stymied by portfolio adjustment costs. These costs generate a wedge between the marginal returns that global banks receive from the two economies and as the number of global banks increase, the wedge becomes important enough to cause a drop in the degree of loan reallocation and the sensitivity to shocks.

Overall, I uncover mechanisms that link economic stability in advanced economies to the market power of global banks. The policy implications of my findings are that countries that have global banks with either high (low) market power would have to go over a hump (face higher economic volatility) if they choose to carry out policies that lower (increase) their exposure to global banking. In other words, countries seeking to preserve economic stability should either allow few large global banks to dominate their credit markets or minimize their exposure to global banking. The middle ground, the Goldilocks region, can be turbulent.

While my analysis is not empirical, it is informed by empirical findings, and my results bring a unique perspective to the rapidly growing empirical literature on global banking as they have important policy implications. While the increase in the number of studies has become more noticeable after the 2007–09 financial crisis, the attention that global banks receive in the international business cycle literature has been steadily rising since the mid 90's. This is no coincidence as the degree of bank globalization has dramatically increased over this period and global banks have become a large source of funding in most countries. The total foreign claims of Bank of International Settlements (BIS) reporting banks as a share of world GDP, for example, have increased from 25.9 to 43.9 percent from 1995 to 2011, constituting a large component of domestic credit.[2,3] Studies such as Cetorelli and Goldberg (2012), Bruno and Shin (2015) and Claessens and Van Horen (2014) make similar observations and report a high degree of heterogeneity in the presence of global banks across host nations. This heterogeneity is explained by both the market conditions in host and lending nations (the so called pull and push factors in Fratzscher, 2012) and also by regulatory asymmetries (e.g. Houston et al., 2012).

There are two other major developments related to global banking in the past two decades. First, banks that are globally active have become larger and they are now operating in more concentrated banking markets with concentration ratios varying widely across countries.[4,5] Second, empirical studies such as Houston et al. (1997), Campello (2002), De Haas and Van Lelyveld (2010) and Cetorelli and Goldberg (2012) reveal that global banks use their internal capital markets effectively and often shift funds across their overseas subsidiaries.

While most economists would agree that global banking is crucial for international business cycles, the literature is divided on the effects global banking on economic stability. On the one hand, studies such as Hernandez and Rudolph (1995), Buch (2000), Dahl et al. (2002), Goldberg (2002), Jeanneau and Micu (2002) and Morgan and Strahan (2004), De Haas and Van Lelyveld (2006), De Haas and van Horen (2013), find/predict that global banks, by shifting loanable funds from weak to strong economies, can have a destabilizing effect.[6] On the other hand, studies such as Dages et al. (2000), Peek and Rosengren (2000), Crystal et al. (2002), Cetorelli and Goldberg (2012), De Haas and Van Lelyveld (2014) show that global banks can enhance stability by providing a robust source of funding during liquidity shortages. While it is not clear which of these two effects, i.e., the substitution and support effects, dominates, both sets of studies find a unidirectional (positive or negative), relationship between global banks' market power and economic stability. My findings uniquely suggest that the relationship may not be unidirectional and may depend on the initial level of global banks' market power.

The literature on banking competition and economic stability, though divided, suggests that the substitution and the support effects described above can be related to the degree of competition that global banks face. While studies such as Marcus (1984), Keeley (1990), Boot and Thakor (1993), Allen and Gale (2000, 2004) and Lapteacru (2017)

[1] This definition of volatility is narrower than the ones derived by including price, exchange rate and interest rate volatility, in addition to output volatility, in a weighted loss function. I only consider output volatility since in my model prices and real exchange rates change only due to terms-of-trade shocks. The trade-off between output and price volatility, therefore, is absent in my model as it lacks the price-setting behavior in New Keynesian models.

[2] I used data from the BIS and the World Development Indicators in my computations.

[3] Aysun and Hepp (2016) show that BIS bank loans constitute approximately half of the total local credit in 15 advanced economies between 2000 and 2014.

[4] The Lerner index of bank competition has increased from 0.19 to 0.27 from 1996 to 2010 (data source: Federal Reserve Bank of St. Louis, FRED database).

[5] Aysun and Hepp (2016) find that the average 3-bank concentration ratio and its standard deviation across 15 advanced economies between 2000 and 2014 is 67.4 and 19 percent, respectively. High cross-country variance is also apparent in other indicators such as the Lerner and Boone indices and the 5-bank concentration ratio.

[6] Studies on the 2008 financial crisis (e.g. Claessens and Van Horen (2014)) find that global banks have reduced credit by more than local banks and have had a negative impact on local banks (e.g. Akhter and Daly, 2017).