Journal of Banking & Finance 37 (2013) 2419–2433

Contents lists available at SciVerse ScienceDirect

Journal of Banking & Finance

journal homepage: www.elsevier.com/locate/jbf

The real effect of banking crises: Finance or asset allocation effects? Some international evidence

Ana I. Fernández [a,1], Francisco González [a,2], Nuria Suárez [b,*]

[a] University of Oviedo, Faculty of Economics and Business, Avda. Del Cristo s/n, 33071 Oviedo, Spain
[b] Public University of Navarre, Faculty of Business and Economics, Arrosadía Campus, 31006 Pamplona, Spain

ARTICLE INFO

Article history:
Received 14 May 2011
Accepted 6 February 2013
Available online 26 February 2013

JEL classification:
G01
K11
O16
O43

Keywords:
Asset allocation
Banking crisis
Economic growth
Intangible assets
Institutions

ABSTRACT

This paper analyzes whether the decline in economic growth that follows a banking crisis occurs because of a reduction in the amount of credit available (finance effect) or a worsening in the allocation of investable resources (asset allocation effect). We use a sample of more than 2500 industrial firms in 18 developed and developing countries that experienced 19 systemic banking crises between 1989 and 2007. The results indicate that banking crises negatively affect firms' intangible investments, which intensifies the economic downturn. The negative growth effect produced by the worsening of the investment allocation is stronger in countries with highly developed financial systems and institutions.

1. Introduction

It is widely accepted that banking crises constrain economic growth. While crises tend to occur when there are economic downturns, problems in the banking sector also have independent negative effects on the real economy.[3] Dell'Ariccia et al. (2008) confirm that negative real effects persist even after accounting for reverse causality between an economic downturn and a banking crisis. More financially dependent industries perform significantly more poorly during banking crises than industries that are not so dependent on external funds. This indicates that causality runs from banking crises to recessions and not only from recessions to banking crises.

Kroszner et al. (2007), moreover, show that banking crises have a more strongly negative effect on growth in countries with more developed financial systems. This result extends for crisis periods the huge empirical literature showing that financial development promotes economic growth (La Porta et al., 1997, 1998; Levine, 1997, 2005; Rajan and Zingales, 1998; Beck et al., 2000; Ergungor, 2004). The interpretation is that operating in an environment where financial markets are well developed is an advantage for more financially dependent industries in good times, but a disadvantage in times of banking crises.

The negative real effect of banking crises has been associated with a reduction in funds provided by banks (*the finance effect*). The finance effect determines the resources available for investment and thus affects firm growth. Another way banking crises might affect growth negatively is by modifying the allocation of investments (the *asset allocation effect*). Matsuyama (2007) theoretically shows that both effects are not independent because a reduction in the bank credit supply may change the composition of credit and originate an allocation effect. Wurgler (2000), Claessens and Laeven (2003), and Pang and Wu (2009) have shown the relevance of the asset allocation effect in normal periods, but there is no empirical evidence on the changes in firms' asset structure during banking crisis periods or on how it may contribute to the negative real effect of a banking crisis.

We attempt to fill this gap with empirical analysis of the relative importance of the finance and allocation effects in the reduction of economic growth. We examine 19 systemic banking crises

* Corresponding author. Tel.: +34 948 166 085; fax: +34 948 169 404.
E-mail addresses: afernan@uniovi.es (A.I. Fernández), fgonzale@uniovi.es (F. González), nuria.suarez@unavarra.es (N. Suárez).
[1] Tel.: +34 985 103 690; fax: +34 985 103 600.
[2] Tel.: +34 985 103 698; fax: +34 985 103 600.

[3] Bordo et al. (2001), Boyd et al. (2005), and Hutchison and Noy (2005) show that output losses associated with banking crises vary substantially across crisis episodes. Hoggarth et al. (2002) find higher output losses in developed countries on average than in emerging economies.

0378-4266/$ - see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.jbankfin.2013.02.012

and firm- and industry-level data in 18 developed and developing countries over 1989–2007.

This work makes several contributions to the literature. First, we provide empirical evidence on the importance of the asset allocation effect in explaining reduced economic growth during a systemic banking crisis. Like Claessens and Laeven (2003), we use the ratio of intangible and tangible assets as a measure of a firm's asset mix. We also analyze changes in firms' overall capital efficiency during a banking crisis, i.e., whether there is a change in the efficiency of channeling resources to investments (either tangible or intangible) that yield the highest returns. We then study the influence of these changes on the real effect of a systemic banking crisis after controlling for reduced credit supply (finance effect).

Second, we control for reverse causality between banking crises, firms' investment intangible intensity, and economic growth. We first analyze how firm and industry investment intangible intensity varies during systemic banking crises after controlling for reverse causality between intangible intensity and economic downturns. We then analyze how changes in intangible intensity affect firm and industry growth. In the growth equation, we control for the finance effect and potential endogeneity of the intangible intensity using alternative set of instruments. Kroszner et al. (2007) and Dell'Ariccia et al. (2008) who analyze the finance effect during banking crises use a one-stage procedure to estimate the impact on growth and do not control for potential changes in asset allocation.

Third, we use both firm-level and industry-level data to analyze the relevance of finance and asset allocation effects in the real effect of a systemic banking crisis. This lets us calculate alternative measures of firm performance. The availability of a panel database of more than 2500 industrial firms in 20 different industries over 1989–2007 also allows us to control for specific firm and industry effects. Moreover, we estimate standard errors clustered by crisis and country to capture the potential correlation between observations of different firms or industries affected by the same crisis in a particular country.

The results show reduced firms' intangible asset intensity during a systemic banking crisis and that this reduction negatively affects economic growth in the sectors more in need of external finance. This negative real effect remains after controlling for the finance effect, and it is stronger in countries with better institutional quality and greater financial development. We also find a reduction in overall capital efficiency during a systemic banking crisis, again constraining firm and industry growth. The negative effect of the reduction in intangible intensity remains, however, after controlling for overall capital efficiency. We therefore conclude that banking crises dampen economic growth through both the finance effect, via a reduction in credit supply, and the asset allocation effect, via a reduction in firms' intangible investment intensity. Our results are robust when we control for the endogeneity of banking crises and use different definitions of the crisis period and different estimation techniques.

The paper is organized as follows. Section 2 presents a discussion of the arguments that link banking crises to changes in firms' intangible intensity. Section 3 describes the sample and the variables used in the empirical analysis. Section 4 presents the main results and robustness checks. Finally, Section 5 concludes.

2. Intangible intensity during banking crises

Theoretical studies argue that financial development promotes the efficiency of capital allocation through reduced asymmetric information problems, the screening out of bad projects, and monitoring to ensure that funds are used for productive purposes (Greenwood and Jovanovic, 1990). Wurgler (2000) confirms this conclusion in a pioneering cross-country study. Pang and Wu (2009) show that this pattern is clearer for industries that are more dependent on external finance. Claessens and Laeven (2003) use sector data in 44 countries to show empirically the importance of the mix of tangible and intangible assets for economic growth during normal periods. They find that industries with higher levels of intangibility intensity grow more in countries characterized by better-quality property rights and that this effect is due to the greater investment efficiency provided by a stronger legal framework. Claessens and Laeven (2003) argue that a firm operating in a market with weaker property rights may be led to invest more in fixed assets relative to intangible assets because it is relatively more difficult in that case to secure returns from intangible assets than from fixed assets. This negatively affects growth. Quantitatively, the finance and asset allocation effects appear to be equally important drivers of growth in sector value added.

All this research analyzes the asset allocation effect during normal periods. What happens with intangible intensity during a banking crisis is an empirical question, because either an increase or a reduction might be theoretically expected.

On the one hand, a systemic banking crisis might increase intangible intensity, as debt usually finances tangible assets and intangible investments are more often financed with equity (Hall, 2002). There are several reasons why intangible investments are difficult to finance with debt. First, adverse selection problems in the debt market are likely to be most pronounced for intangible assets. Intangible assets involve much greater uncertainty about returns than tangible assets. Firms are also likely to have better knowledge than lenders about the inherent riskiness of projects. In such an environment, lenders may choose to ration credit rather than raise interest rates, in the hope of not exacerbating adverse selection problems (Stiglitz and Weiss, 1981). Second, debt financing can lead to ex post changes in behavior (moral hazard). Intangible assets are subject more than tangible assets to more risk-shifting problems. When creditors anticipate this behavior, they may ration credit or insist on debt covenants to restrict the firm's behavior (Jensen and Meckling, 1976). Third, intangible assets provide little or no collateral value. The lower liquidation value of intangible assets increases the cost of financial distress in the use of debt and creates another difficulty in financing intangible assets using debt (Berger and Udell, 1990; Boot et al., 1991). As a banking crisis primarily damages investment financed with debt, we might expect tangible investments to lose more value during banking crises than intangible investments. In this case, we would expect an increase in intangible intensity during banking crises.

On the other hand, several reasons might lead to a reduction of firms' intangible intensity during a systemic banking crisis. First, banks and debtors may use lending relationships to reduce adverse selection and the moral hazard problems associated with intangible assets. This would explain why some intangible assets may be financed with debt. A banking crisis could destroy the benefits of such close lending relationships and damage intangible investments the most. If the relationship bank goes bankrupt, some of its borrowers might be obliged to borrow from non-relationship banks that would prefer to allocate funds to the better known and less risky, although less profitable, projects of relationship firms (Detragiache et al., 2000). The consequence is a reduction in firms' intangible intensity. Second, if banks become more concerned about avoiding bankruptcy, they may adopt more conservative investment behavior toward debtors wishing to renew their loans. This would lead debtors to reduce risky assets, making intangible investments more difficult. When bankruptcy probability increases under systemic banking crises, risk-averse bank managers tend to avoid variance-increasing projects. Moreover, if banks are obliged by regulators and supervisors to behave more