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Banking industry volatility and growth

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ABSTRACT

In this paper, we provide evidence that banking industry volatility may exert a negative impact on growth in a more economically integrated world. By applying the augmented difference-in-difference framework of Rajan and Zingales (1998) to the cross-country cross-industry data developed by Ciccone and Papaioannou (2009), complemented by the Financial Development and Structure database of Beck et al. (2010), we show that over the 1980–1999 period the banking sector volatility, measured as the standard deviation of the growth of private credit, has a negative impact on the growth of industries that are more externally financially dependent, and this finding is robust to various sensitivity tests. However, the detrimental growth effect of banking sector volatility disappears when the sample is restricted to the relatively placid 1980s. Compared to the 1980s, the 1990s are characterized by a more economically integrated world accompanied by more often unpredicted financial crises that disturb the banking sector. As such, our results imply that in a more economically integrated world, the stability of bank development may be important to long-run growth.

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1. Introduction

This paper aims to empirically investigate the impact of banking industry volatility on long-run economic growth. Following the pioneering work of King and Levine (1993a,b), an enormous literature has been devoted to investigating the finance-growth nexus.[1] By and large, this line of research generally concludes that the depth of financial markets and institutions, usually measured by the size of private credit relative to GDP, has a positive and significant effect on long-run growth. Further effort has also been made toward establishing that the causality goes effectively from financial to economic growth, but not the other way around, by analyzing industry- and firm-level data to clarify the mechanisms that are somewhat obscured in cross-country studies (Demirgüç-Kunt and Maksimovic, 2002; Rajan and Zingales, 1998). However, along the process of financial development, which entails a deepening of markets and services that channel savings to productive investments, allow risk diversification and thus possibly lead to higher economic growth in the long run, the same process can also present weaknesses as evidenced by systemic banking crises, cycles of booms and busts, and overall financial volatility. Whether intrinsic to the process of development or induced by policy mistakes or external shocks, these elements of financial volatility (or fragility) can hurt economic growth (Loayza and Rancière, 2006). Nevertheless, this speculation is barely examined in the finance-growth nexus literature.

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[1] Please see Levine (2005) and Ang (2008) for complete surveys on this issue.

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On the other hand, in the last few decades, volatility has become an independent field of inquiry in macroeconomics, moving on from a second-order research area to currently 'occupy a central position in development economics' (Aizenman and Pinto, 2005). What brings volatility into this prominence are the cross-country studies that follow the seminal paper of Ramey and Ramey (1995) in examining the negative impact of volatility on growth, and the growth literature that includes volatility based on the endogenous growth theory. As to the role of the financial sector in this stream of the literature, recent theoretical works tend to illustrate the negative relationship between volatility and growth via the channel of financial frictions, e.g., Kharroubi (2007), Aysan (2007) and Aghion et al. (2010), just to name a few.[2] Empirically, most of the previous studies that investigate the negative relationship between volatility and growth have focused on debating the relative importance of macroeconomic policy volatility versus institutional uncertainty to the process of economic development, e.g., Aizenman and Marion (1993, 1999), Brunetti and Weder (1998), Acemoglu et al. (2003), Campos and Nugent (2003), Easterly (2005), Hnatkovska and Loayza (2005), and Loayza et al. (2007), just to mention a few. By contrast, recent efforts have been directed toward understanding the factors, such as a well-developed financial sector and institutional strength, that help mitigate the negative effect of volatility, e.g., Aghion et al. (2009), Aghion et al. (2010) and Fatás and Mihov (2006). However, since the financial system may even propagate economic variability or create risk of its own, rather than treating the financial sector as a channel for mediating with other volatility, it would be more interesting to investigate the direct impact of volatility that originated from the financial sector on economic growth.

However, through what mechanism can the volatility in the financial sector affect real economic activity? Based on an asymmetric information theory of financial instability, Mishkin (1998) summarizes four categories of fundamental factors that lead to financial volatility (or instability): an increase in interest rates, increases in uncertainty due to recession or political instability, the asset market effect on nonfinancial firms' balance sheets, and problems in the banking sector. Generally speaking, asymmetric information between lenders and borrowers leads to two basic problems in the financial system: adverse selection and moral hazard. Specifically, rising interest rates and uncertainty will worsen the problems of adverse selection as well as moral hazard and consequently drive up the possibility of lending leading to bad credit. Under such circumstances, lenders will want to make fewer loans, possibly leading to a sharp decline in lending that will result in a substantial decline in investment and aggregate economic activity. On the other hand, the decline in net worth as a result of a stock market decline makes lenders less willing to lend because the net worth of firms serves a similar role to collateral, and when the value of the collateral declines, it provides less protection to lenders so that losses from loans are likely to be more severe.[3] As to the problems in the banking sector, banks have a very important role to play in financial markets since they are well suited to engage in information-producing activities that facilitate productive investment for the economy. Thus, a decline in the ability of banks to engage in financial intermediaries and make loans will lead directly to a decline in investment and aggregate economic activity.

From the above analysis, one can see that financial instability occurs when shocks to the financial system interfere with information flows so that the financial system can no longer do its job of channeling funds to those with productive investment opportunities and hence is likely to result in a contraction of output. As such, in this paper, we will revisit the question about the role of the financial sector in economic growth by extending the set of variables that characterize the process of financial development. In contrast to most of the previous empirical studies that only use the size of the banking system, such as the ratio of private credit to GDP, as a regressor to predict growth performance, we additionally consider the volatility in the banking sector, measured by the standard deviation of the growth of private credit, and argue that it can also be a key characteristic of the financial sector that matters for long-term economic performance, especially in a more economically integrated world. Moreover, while much of the existing research relies on cross-country analysis to identify volatility as an impediment to growth, it is of interest to present complementary evidence that is derived from more disaggregated data. In addition, as the financial system may even propagate economic variability or create risk of its own, it would be more reasonable to treat the financial sector as the source of volatility rather than a channel for mediating with other volatility. For the reasons presented above, in this study, we particularly focus on the impacts of banking sector volatility on growth by employing the difference-in-difference approach of Rajan and Zingales (1998, thereafter RZ) to cross-country and cross-industry data, which are mainly obtained from Ciccone and Papaioannou (2009) and complemented by the Financial Development and Structure Database constructed and recently updated by Beck et al. (2010).

Our empirical analysis for the 1980-1999 period reveals that when adding the interaction of banking industry volatility and industrial external finance to the original RZ specification, the positive effect of bank development on sectoral growth via

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[2] Specifically, Kharroubi (2007) illustrates that normal volatility and abnormal volatility, which result from liquidity crises that are due to maturity mismatches between assets and liabilities, have independent negative effects on the average growth rate. Moreover, Aysan (2007) employs a two-period overlapping generations model with two types of technologies to predict that greater volatility induces financial intermediaries to charge higher interest rates, and therefore increases the cost of borrowing associated with capital market imperfections, thus deterring people from obtaining and using more productive technologies, which is detrimental to growth. Aghion et al. (2010) develop a model in which a novel propagation mechanism emerges such that tighter credit affects the cyclical composition of investment and thus can lead to both higher volatility and lower mean growth.

[3] Alternatively, according to the 'financial accelerator framework' developed by Bernanke et al. (1999), the pro-cyclicality of credit allocation amplifies small shocks occurring in the real sectors of the economy. Specifically, agency problems make firms' external funding costs depend on their collateral values. As such, when the economy is booming, firms appear to be less risky with stronger balance sheets, and thus can borrow from banks with a lower external finance premium, thereby inducing firms to make more new investments that contribute to economic growth. This mechanism which works in good times also works in reverse in bad times. If uncertainty increases, banks respond by raising the average external finance premium because they expect more firms to go bankrupt. Consequently, the higher average external finance premium causes the average level of investments to decline, and can thus induce lower economic growth.

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