



## Bank credits and non-oil economic growth: Evidence from Azerbaijan <sup>☆</sup>

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### ABSTRACT

We examine the impact of bank credits on non-oil tradable sector output using aggregate data from Azerbaijan. We apply ARDL Bounds Testing approach, Engle–Granger two-step methodology, and Johansen's approach while correcting for small sample bias to test for cointegration and construct error correction models. Results from all three approaches are similar indicating that bank credits have a positive impact on non-oil tradable sectors output both in the long- and short-run. Short-run deviations are corrected to the long-run equilibrium within one quarter. Our results are useful for the macroeconomic policy makers and contribute to the literature that studies the relationship between the financial sector development and economic growth in the resource driven small open transition economies.

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### 1. Introduction

Financial development is considered one of the most vital sources of economic growth (Beck, 2009; Levine, 2005 provide excellent overviews). Prior literature suggests that financial sector influences economic growth by two channels: improved resource allocation and acceleration of technological development (Beck, Levine, & Loayza, 2000; Schumpeter, 1911; Wurgler, 2000). These effects originate from the financial institutions' role of intermediation that mobilizes savings for investment purposes, facilitates a low-cost transfer of external funds, and provides efficient allocation of capital. Previous theoretical and empirical studies use different indicators, including the level of bank credit, interest margin, and productivity in financial sector to identify the effects of bank intermediation and financial development on economic growth.

Greenwood and Jovanovic (1990) develop a theoretical model to find that the impact of financial intermediation on economic growth is dependent on the transitional cycles in the economy. Austrian-based credit cycle theories (Hayek, 1933, 1935; von Mises, 1912) and capital-based macroeconomics (Cochran, Call, & Glahe, 1999; Garrison, 2001) generally argue that financial intermediation and credit expansion, especially through money creation may cause overinvestment problems that lead to unsustainable economic growth. The economic growth, especially in small open economies may experience larger fluctuations

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according to the credit boom explanation of the business cycle (White, 2006). Thus, the relation between financial development and economic growth in small open economies is a non-trivial question and yet to be empirically investigated.

Several empirical studies using macro and industry-level data have concluded that the development of financial intermediation has a significantly positive effect on economic growth. King and Levine (1993) provide the most comprehensive empirical work where using cross-sectional data from 80 countries. They find a positive relationship between bank credit and economic growth. Efficient allocation of funds through financial institutions leads to economic growth. Other studies including Levine and Zervos (1998), Levine (1998), and Beck and Levine (2003) find similar results. Eschenbach (2004) reviews the majority of empirical studies and concludes that the direction of causality between financial development and growth varies across countries, regions and even variables employed by these studies.

The purpose of this study is to investigate the impact of financial development measured by bank credit on non-oil tradable sectors using aggregate data from Azerbaijan. Specifically we ask the following question: *do bank credits stimulate growth in non-oil tradable sector in a resource-based small open transition economy?* Although there is an extant literature on the “blessing” or “curse” of natural resources, (Ploeg, 2011 reviews this literature), the literature studying the impact of financial sector on economic growth in resource-based transition economies is rather limited. The case of resource-based transition countries is interesting from several aspects. First, measures of financial development may be misleading and not necessarily indicate the level of financial development. For example, several studies show that regardless of the level of financial development, resource-based countries experience credit boom when world commodity prices rise (Algozhina, 2006; Sturm, Gurtner, & Alegre, 2009). Second, these countries usually experience appreciation in real exchange rate and a higher rent in non-tradable sectors that absorb most of economic and financial resources, cause non-resource tradable sectors decay, and lead to a well-known “Dutch Disease Syndrome.” Therefore, timely development of non-resource tradable sectors and retaining balance across industries are required for a sustainable economic growth. Third, along with shifts in macroeconomic factors, resource-based transition economies experience lack of institutional development that is crucial for sustainable economic growth driven by natural resource wealth. Mehlum, Moene, and Torvik (2006) suggest that countries above a threshold of institutional development benefit the most from resource wealth. On the other hand, natural resource wealth can also explain the variations in institutional development across transition economies (Beck & Laeven, 2006). Therefore, transition countries should not only achieve an efficient financial intermediation, but also develop strong institutions to ensure proper governance. Ergungor (2008) finds that countries that have an inflexible judicial system grow faster when they have a more bank-oriented financial system. Wang (2000) analyzes whether the economic growth is caused by the supply of financial assets or by the demand of investors and savers in Taiwan and concludes that the financial-supply-leading version is prevailing. Overall, there is a necessity to search for the most crucial financial or institutional indicators of economic growth in transition countries, especially where simultaneous development of several indicators is not possible (Macedo & Martins, 2008). In this context, the examination of the link between financial sector and non-resource economic growth is further necessary.

Our choice of country distinguishes this study from others found in literature. Most prior studies focus on cross-country analyses and therefore, do not provide insight on the role of country specific factors (Ang, 2008; Arestis & Demetriades, 1997; Demetriades & Andrianova, 2004). To avoid these issues, our study focuses on a single country. Despite the exclusion of Azerbaijan almost in all prior studies, except Koivu and Sutela (2005), several reasons make this country interesting to study. Being a small open resource-based transition country, Azerbaijan is one of the few economies that combine several aspects of our research question. Since the country gained independence from Soviet Union in 1991, Azerbaijani economy has passed through several macroeconomic and financial reforms, especially in banking and insurance sectors. As a result, bank loans to GDP ratio doubled during 2003–2009. Besides structural reforms, recently unprecedented surge in oil prices fueled Azerbaijani economy by windfall of oil export revenues. Along with opportunities to grow, oil revenues cause threats to sustainable fiscal and monetary policies (Wijnbergen & Budina, 2011). Therefore, to avoid resource-related socio-economic problems and achieve a sustainable growth, policymakers in Azerbaijan need to develop non-oil sectors to prevent resource-related economic and social illnesses. As discussed above, prior literature finds that providing funds to non-resource sectors is one of the ways a resource-based country can reach economic diversification. Overall, Azerbaijan provides us with a unique environment to investigate the impact of growing lending capacity of commercial banks, a proxy for financial sector development on the growth of non-oil tradable sectors.

We find that there are both long- and short-run relationship between bank credits and non-oil tradable sectors output. In the long run, 1% increase in bank credits leads to 0.31–0.36% increase in non-oil tradable sectors output. This impact is almost twice stronger in the short-run. About 87–88% of short-run fluctuations are corrected to the long-run equilibrium within one quarter. We also find that 1% appreciation in the real effective exchange rate causes 0.61–0.65 (2.80–3.21) percent long-run (short-run) reduction in the non-oil tradable sectors output.

Our study contributes to the literature in several ways. First, our study fills the gap between the literature on transition and resource-based economies. Different from most prior studies, our paper focuses on non-resource economic growth and examines the role of financial sector in mitigating the natural resource curse in a transition country.

Second, to our best knowledge, we are the first to apply autoregressive distributed lag bounds testing (ARDL) approach to test for cointegration between bank credits and non-oil tradable sectors output. Most resource-rich transition economies rapidly grow in a relatively shorter period. Because small sample properties of the ARDL approach are more superior to its alternatives (Jalil, Feridun, & Ma, 2010; Pesaran & Shin, 1999) our analysis differs from others found in prior literature.

Third, our study provides a comparative analysis by applying three types of cointegration approaches such as single equation-based (ARDL), residual-based Engle–Granger (EG) and system-based (Johansen's) cointegration methods, while correcting the small sample bias, which is usually missing in prior literature.

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