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The finance–trade nexus revisited: Is the global trade slowdown also a financial story?☆

Martin Gächter [a,b,*], Ioannis Gkrintzalis [a]

External Developments Division, European Central Bank, Germany
Liechtenstein Financial Market Authority, Liechtenstein

HIGHLIGHTS

- This paper explicitly takes into account non-linearities in the finance–trade nexus.
- We confirm a positive impact of financial development on trade openness.
- This effect however increasingly diminishes with the size of the financial sector.
- These non-linearities have played a key role in the recent slowdown of global trade.

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ABSTRACT

This paper studies the role of non-linearities in the finance–trade nexus. While we confirm the positive impact of financial development on the level of trade openness, our findings reveal that the marginal effect decreases considerably with the size of the financial sector. The study contributes to two different strands of the economic literature: First, while widely examined in the finance–growth nexus literature, the discovered non-linearities have been neglected so far in studies on the link between finance and trade. Second, the diminishing marginal effect of finance appears to be an important factor in explaining the recent slowdown in global trade growth.

1. Introduction

Previous literature suggests a positive effect of financial sector development on trade. Countries with a well-developed financial system appear to enjoy a comparative advantage and export relatively more in financially vulnerable sectors (Rajan and Zingales, 1998). Furthermore, substantial empirical evidence suggests that financial development and better access to capital markets exercise a positive impact on the overall level of trade openness because external financing possibilities are generally necessary to develop export capacities.[1] Building on the theoretical work of Kletzer and Bardhan (1987), Beck (2002) uses aggregate cross-country data and shows that financial development indeed positively affects exports in manufactured goods.

More recent papers have mostly confirmed this empirical relationship by finding a strong causal effect of the financial sector on industrial specialisation (Svaleryd and Vlachos, 2005), leading to higher export shares and trade balances in industries with more intangible assets (Hur et al., 2006). Furthermore, Becker et al. (2013) suggest that financial development is associated with more exports in industries in which fixed costs are high and also

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* Correspondence to: External Developments Division, European Central Bank, Sonnemannstrasse 20, 60314, Frankfurt am Main, Germany
E-mail address: martin.gaechter@fma-li.li (M. Gächter).

[1] Manova (2013) provides some insights into the mechanisms through which credit constraints affect trade outcomes, documenting that limited financial development does not only restrict trade by lowering output, but it also disrupts trade by precluding potentially profitable firms from exporting (extensive margin) and restricting exporters' sales abroad (intensive margin).

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positively affects (high-cost) imports. Although the link between financial development and exports would also suggest a positive impact of finance on imports (since both exports and the investment expenditures needed to establish export capacities are very import-intensive), the related empirical findings are rather mixed, and most of the papers mentioned above either do not explicitly examine the effect on imports (Beck, 2003; Hur et al., 2006) or find a considerably weaker impact of finance on imports than on exports (Beck, 2002).

This paper contributes to the literature in two important ways. First, previous work examining the link between finance and trade has largely neglected possible non-linearities in the relationship between the two variables. This is surprising as recent contributions in the finance and growth nexus literature suggest that the link between finance and growth weakened considerably in the last two decades (Rousseau and Wachtel, 2011) and is actually characterised by an inverse U-shape, i.e. financial development fosters growth only up to a certain threshold before becoming a drag on economic growth (Arcand et al., 2015; Breitenlechner et al., 2015). Our findings suggest that a similar effect can be observed in the finance–trade nexus. Such a non-linear effect of finance on trade is also consistent with theoretical considerations on possible transmission channels.[2] First, it should be highlighted that our paper, in line with previous literature, uses an imperfect proxy (private credit relative to GDP) for the broad concept of financial development. It seems intuitive that exporting firms benefit from better developed financial sectors and increased credit availability, but higher levels of credit do not automatically lead to better access to finance or higher trade openness. Second, larger financial sectors may attract high skilled workers that would otherwise work in more trade-intensive sectors, i.e. the financial sector competes with the rest of the economy for scarce resources. Finally, the effect of finance on trade may also depend on the type of lending. An increase in private credit driven by higher business investment is likely associated with higher export capacities and increased trade openness, while higher credit primarily based on mortgage lending supports the housing sector, i.e. a non-tradeable component of GDP, with potentially adverse effects on trade openness. Overall, our results show that financial deepening indeed supports the opening up of countries to international trade flows, but the marginal effect of finance decreases with the size of the financial sector and thus vanishes when certain thresholds are reached. Remarkably, and somehow contrary to previous literature, we do not only find a significant effect on exports, but also a considerable impact of finance on imports once non-linear effects are appropriately accounted for.[3]

Second, the revealed non-linearities in the finance–trade nexus may have played a considerable role in the recent global trade slowdown. Possible reasons for the persistent weakness in global trade are manifold. Cyclical factors include the overall weakness in global activity in general and the pronounced sluggishness in import-intensive demand components, such as investment, in particular (IMF, 2016). Structural factors embrace shifts in activity towards regions with lower underlying trade elasticities, as well as the slowdown in global value chain expansion (IRC Trade Task Force, 2016). At the same time, the role of financial factors has attracted surprisingly little attention in the policy debate so far. A simple counterfactual analysis based on our estimates indeed suggests that the positive, but non-linear relationship between finance and trade has boosted trade growth significantly prior to the crisis. With many countries approaching the relevant thresholds of financial depth, however, the marginal effect has increasingly diminished and the temporary financial boost to global trade growth came to an end in recent years.

2. Empirical model

In line with previous papers (see Beck, 2002; Hur et al., 2006), we estimate an equation relating two measures of trade openness with a set of explanatory variables, including an indicator of financial development. The model has the following form

$$Trade_{it} = \alpha + \beta_1 Finance_{it} + \beta_2 Finance_{it}^2 + \gamma X_{it} + \lambda_t + u_{it}, \qquad (1)$$

where the dependent variable *Trade* represents one of the two measures for trade openness (exports and imports as a ratio to GDP). *Finance* depicts our measure for financial development, which corresponds to private credit (issued by deposit banks and other financial institutions) as a ratio to GDP. This variable is frequently used in the finance–growth literature to capture the efficiency of financial intermediation and the size of the financial sector (see, for instance, Breitenlechner et al., 2015; Rousseau and Wachtel, 2011). The squared term captures possible non-linear effects of financial development on trade to evaluate the marginal effect of *Finance* at various stages of financial development. X_{it} stands for a set of standard control variables generally following previous literature (e.g. Beck, 2002). We control for total population, GDP per capita in PPP terms and the share of gross fixed capital formation in total GDP to account for capital deepening and also include a measure of schooling and the share of general government final consumption expenditure in total GDP in our baseline specification. For robustness purposes, we add a number of additional control variables, including the level of tariffs (simple mean across all products in percent) to account for distortionary government policies, net inflows of foreign direct investment (as a percentage of GDP), inflation and population growth. In line with the findings of the finance–growth nexus literature, our hypothesis would suggest a positive, but decreasing marginal effect of *Finance* on *Trade*, i.e. $\beta_1 > 0$ and $\beta_2 < 0$.

We follow the finance–growth literature (Levine, 2005) as well as earlier papers on the finance–trade nexus (Beck, 2002) and estimate Eq. (1) in a panel with 5-year averages of the corresponding variables from 1960 to 2011.[4] First, to address the simultaneity bias between financial development and the trade variables, we estimate a pooled IV model, in which the financial development indicator is instrumented with the initial value of each 5-year period as well as external instruments based on the legal origin of the respective country (following previous literature, e.g. Beck, 2002). Second, we consider a dynamic panel and employ a system GMM estimation, which takes into account the possibility that some explanatory variables might not be exogenous or predetermined (Blundell and Bond, 1998). Finally, for robustness purposes, we also estimate a dynamic panel threshold model of the following form

$$\begin{aligned} Trade_{it} = {} & \alpha + \beta_1 Finance_{it} + \beta_2 Finance_{it} * Threshold_{it} \\ & + \beta_3 Threshold_{it} + \gamma X_{it} + \lambda_t + u_{it}, \end{aligned} \qquad (2)$$

where *Threshold* refers to a dummy variable amounting to 1 if a certain credit-to-GDP threshold is exceeded. Thus, if we expect that finance does not affect trade when exceeding this threshold,

[2] For a similar line of argument in the context of the finance–growth nexus, see Arcand et al. (2015) and Cecchetti and Kharroubi (2012).

[3] The weaker link between finance and trade in earlier papers is insofar not surprising, as models that do not allow for non-monotonicity in the relationship between the two variables lead to a systematic downward bias in the estimated relationship under the assumption that the true relationship is non-monotonic (see Arcand et al., 2015).

[4] At the end of the observation period, we use three 4-year intervals (namely, 2000–2003, 2004–2007, 2008–2011), which provides 11 observation periods in total (following Breitenlechner et al., 2015).