

Financial Choice in a Non-Ricardian Model of Trade

by Katheryn N. Russ and Diego Valderrama

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discussion by Martin Berka

Vanderbilt University

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Financial heterogeneity meets international

- Interesting model that introduces financial heterogeneity into a small open economy setting
- Basic model assumptions:
 - ▶ endogenous number of firms produce varieties of intermediate goods
 - ▶ no capital flows: all adjustment through balanced trade
 - ▶ all investment must be borrowed, either bank loan or bond
 - ▶ bond financing requires larger fixed costs, and is therefore accessible to larger, more efficient firms
- Bank- and Bond- market development policies operate on different groups of firms
- Therefore, they can have dramatically different results
 - ▶ implications at macro level: Exports and RER

Model

- Representative consumer
- Financial intermediaries
 - ▶ Bank financing: lower fixed cost f_l but higher variable (monitoring) costs $\Rightarrow \uparrow r_l$
 - ▶ Bond financing: higher fixed cost f_b and lower variable cost (r_b)
- Intermediate good firms Cobb-Douglas with constant markup, final good a CES aggregator
- Exporting: for a fixed cost f_x , access to exogenous foreign demand, subject to ad-valorem iceberg cost τ

Scenario 1: Drop in fixed cost of bond issuance f_b

- $\downarrow \varphi_{bx}$ former most efficient bank borrowers issue bonds instead
 - ▶ Switchers have lower MC $\Rightarrow \downarrow p$ (constant markup)
- Competition increases across the board as a larger proportion of firms has access to financing with a lower MCK
 - ▶ Least productive firms drop out ($\uparrow \varphi_{ld}$)
 - ▶ Least productive bank-exporters drop out ($\uparrow \varphi_{lx}$)
- Stiffer price competition by switchers drives some bank exporters out of export \Rightarrow number of exporting firms \downarrow , Exports \downarrow
- Output rises
 - ▶ though declines marginally for firms that now face more competition from switchers
- Price level declines
- Real exchange rate depreciates
- Smaller friction implies higher welfare

Scenario 2: Drop in bank monitoring cost μ

- \downarrow MCK for all bank borrowers (not just switchers): $\downarrow p$, $\uparrow \pi$, market share
- more firms enter production ($\downarrow \varphi_{ld}$) and exporting ($\downarrow \varphi_{lx}$)
- marginal bond-issuers switch to bank loans ($\uparrow \varphi_{bx}$)
- $\uparrow Y$: reallocation towards less productive firms
- marginal exporter is a less productive firm $\Rightarrow \uparrow$ number of exporters & \uparrow Exports
- marginal Price level increase (RER appreciation)
- Smaller friction implies higher welfare

Opposing Export predictions of bond- and loan- market policies

- Δf_b only changes MCK for *switchers* (from r_l to r_b or vice versa)
- By assumption, marginal exporter is a bank customer. Because a marginal switcher is on the loan-bond margin, it already exports
- Thus, marginal change in f_b does not operate on non-exporters, and has no first-order effect on the extensive margin of trade.
- The price effect (competition) is the dominant driver of export volume changes
- $\Delta\mu \Rightarrow \Delta r_l \Rightarrow \Delta\text{MCK}$ for *all bank firms*, not only for switchers
- as all non-exporters use bank loans, marginal $\Delta\mu$ has first-order effect on extensive volume of trade

Gains from trade

- Balanced trade assumption $\Rightarrow \uparrow$ Exports and \uparrow Imports of intermediate goods, $\uparrow C, Y$
- New switching channel: $\downarrow \tau \Rightarrow \uparrow$ available foreign demand
 - ▶ marginal bank-firms leverage this to switch to bonds
 - ▶ lower marginal cost, higher output
- channel strongest with $\downarrow f_b$: large difference between MCK_{bond} and MCK_{bank} and because f_b policy operates on most efficient firms
- Spill-over to domestic firms from \uparrow demand for domestic inputs
 - ▶ bonds \uparrow , loans \uparrow , bonds/loans \uparrow
- Relative size of bond market increases with GDP (empirical match)
 - ▶ causality: trade \Rightarrow bond market development
- $\downarrow f_x \Rightarrow \uparrow$ extensive margin of trade and $\uparrow w/p \Rightarrow$ pushes some bond-firms into loans. Net effect on Exports ~ 0

RER implications of bond- and loan- market policies

- $\downarrow \mu \rightarrow \uparrow P$
 - ▶ Bank rate drop induces influx of low-efficiency firms, each with $p > \bar{p}$
 - ▶ Bond \rightarrow bank switchers charge higher prices
- $\downarrow f_b \rightarrow \downarrow P$
 - ▶ lowers marginal costs of more efficient firms $\rightarrow \downarrow P$
- $\downarrow \tau \rightarrow \uparrow P$
 - ▶ relatively more firms with lower productivities, $\uparrow P_N/P_T$

Comment: model setup

- Focus on long-run equilibrium response to policy scenarios
- Empirically, time dimension important for capital accumulation
 - ▶ savings: consumption smoothing
 - ▶ investment and capital stock as functions of anticipated changes
 - ▶ asset distributions become skewed over time due to environmental restrictions, making average values poor summary statistics for the decision making
- Here: model of capital markets without a temporal dimension, average productivity within an asset group is the summary statistic
- Implications?
 - ▶ all scenarios permanent
 - ▶ ignores stickiness of the asset distributions
 - ▶ focus on the long-run
- It would be nice to discuss these implications

Comment: sizes of experiment changes

- Magnitude changes in scenarios may need motivation
 - ▶ bond issuance fixed cost ↓ by 80% (leads to 1100% ↑ of n_{bx})
 - ▶ bank monitoring cost ↓ by 67%
 - ▶ iceberg trade cost ↓ by 16%
- The first two large one-off change, too big for repeated policy?
 - ▶ Estimate elasticities to get a sense of relative importance of scenarios?
 - ▶ Estimate empirically relevant range of changes of f_b, μ
- τ scenario may match post-WWII decline in iceberg trade costs
 - ▶ Jacks et al. (2008) see US gravity-implied trade costs drop around 15% since WWII (more for France, less for UK)
- Interpret model implications against 50- rather than 20-year history: doubling of bond/loans, 6% RER appreciation, 58% GDP growth (empirical regularity)

Comment: liberalization-induced efficiency decline and redistribution

- Trade liberalization typically associated with growth in openness
- Here new channel causes Exports/GDP *declines* by about 4.5%
 - ▶ capital market development ($\uparrow B/L$) *induces decline in average efficiency*
 - ▶ entry of new (least productive) exporters
- Previously unviable firms (non-exporters) emerge due to \uparrow demand for domestic variety
- *Redistributive effects* of trade liberalization
 - ▶ Gains from trade spread across wider population (56% increase in welfare)
 - ▶ Effectively, increase in demand benefits the least efficient more
 - ▶ It would be nice to get more intuition behind this result
- Imports *not* consumed: at odds with most gains from trade mechanisms
 - ▶ Assumption seems crucial for aforementioned effect

Comment: size of RER responses

- Despite large changes in f_b, μ , RER changes by less than 0.5%
- Even for $\Delta\tau$, RER change is 6%
- Empirically, a negligible component of RER movements
- Adjustment through distributional shifts: interesting. Empirically important?
- Unlike in the data, non-traded sector appears much smaller than traded
- Potential to discuss Balassa-Samuelson mechanism
 - ▶ trade by construction concentrated in a more efficient sector

Minor comments

- Fig 1: Openness may be better measured as Exports/GDP, not Exports
- $r_b = \frac{r}{1-\delta}$ on p. 15 appears inconsistent with $r_b = r + \frac{\delta\mu_b}{1-\delta}$ and $\mu_b = 0$ in Appendix A
- It wasn't clear to me why exogenous death shock operates on aggregate L but not on aggregate K