ECONOMIC FINDING • APRIL 2023

Tracing the International Transmission of a Crisis Through Multinational Firms

Based on BFI Working Paper No. 2023-45, "Tracing the International Transmission of a Crisis Through Multinational Firms," by Marcus Biermann, Bielefeld University, and Kilian Huber, Chicago Booth

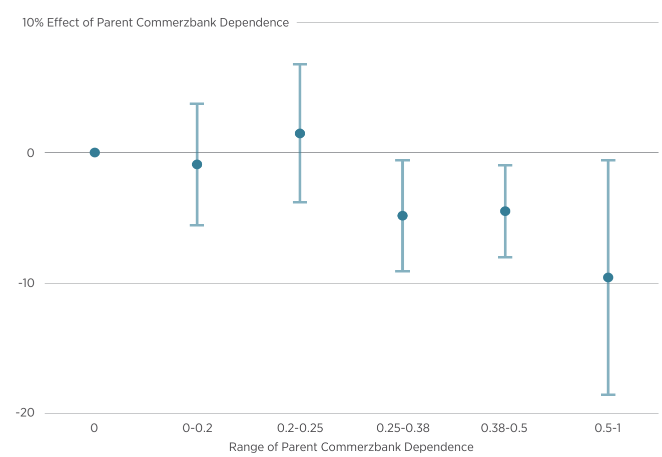
Multinational firms transmit shocks across countries to their international affiliates through their internal capital markets; those affiliates support their parents through internal lending, become financially constrained themselves, and experience lower real growth.

Capital markets for large multinational firms can be characterized as external (when capital is supplied by a bank or bond markets, for example) or internal (wherein a firm issues capital to business units in the form of, say, redistributed profits). Of the two, we know less about the inner workings of internal capital, despite their prominence in global capital movements. In recent years, for example, internal capital flows between multinational parent firms and their international affiliates accounted for over 50 percent of total capital inflows in the median country. Internal capital flows are also large relative to aggregate output, amounting to 3.6 percent of GDP in the median country.

We also understand little about how internal capital markets impact the real economy. Do internal capital markets transmit shocks across countries? Which mechanisms and frictions play a role, like managerial biases, access to external credit markets, different currencies, and geographic distance? Do internal capital markets transmit financial and non-financial shocks differently? How large and persistent are the real effects of internal capital market shocks?

To address these questions, the authors study a lending cut by Commerzbank, Germany's second-largest bank in 2008, whose corporate lending was concentrated in Germany. During the 2008-09 Financial Crisis, Commerzbank experienced significant losses on its financial investments that, while independent of Commerzbank's corporate lending division, ultimately impacted corporate borrowers because the losses forced Commerzbank to reduce its loan supply. This exogenous shock to

Figure 1 • Impact on Affiliate Sales by Bins (or Buckets) of Parent Commerzbank Dependence



Note: This figure plots the relationship between bins of parent Commerzbank dependence and affiliate sales from 2008 to 2010. The bins represent the quintiles of parent Commerzbank dependence for positive values of parent Commerzbank dependence. The light blue lines represent 90 percent confidence intervals. The point estimates for affiliates with parent Commerzbank dependence in the bins up to 0.25 are small and insignificant. In contrast, point estimates are negative, significant, and of roughly equal magnitude for the two bins between 0.25 and 0.5. Finally, the coefficient for the top quintile of affiliates above 0.5 is the largest and also significant. These results show that multinationals were able to substitute missing credit from Commerzbank if they had other, pre existing relationship banks. As a result, the effects on affiliates are not driven by all affiliates whose parents had some dependence on Commerzbank, but by affiliates of parents with relatively high dependence.

the credit supply impacted those multinationals located in Germany with a higher pre-crisis dependence on Commerzbank, but did not directly affect the credit supply of international affiliates of these multinationals.

The authors examine whether and how this lending cut affected international affiliates of impacted German parent companies. In doing so, the authors compare affiliates located in the same country at the same time, so that differences in demand or other country-specific shocks do not affect the estimates. The authors investigate a number of ways that a credit shock to parents could transmit through internal capital markets and affect international affiliates, to find the following:

- Sales of affiliates with greater parent Commerzbank dependence dropped sharply once Commerzbank reduced lending in 2008 and took until 2011 to fully recover.
- Affiliates with greater parent Commerzbank dependence would have evolved in parallel to other affiliates had Commerzbank's lending cut in Germany not happened.
- Affiliates with previous internal loans strongly increased lending to their parent after the lending cut, but other affiliates did not. Also, the reduction in affiliate sales was large and significant for affiliates that had previous internal loans and increased internal lending, but insignificant for other affiliates.
- Affiliates with greater internal lending suffered large and significant sales declines, while the effects on other affiliates were relatively small and insignificant.
- Frictions due to currency, geography, and capital controls were not important, but developed external credit markets helped affiliates to partially attenuate these effects.
- Location matters: Weak international affiliates were hit more strongly, which leads the authors to characterize managers of multinationals as relatively "Darwinist" with respect to international affiliates. In contrast, affiliates within Germany were not significantly harmed, even if they were weak, implying that managers have "Socialist" preferences toward home country affiliates.
- Regarding non-financial shocks, the authors examine how internal capital markets adjusted when parents were hit by a large-scale flood in 2013. They show that flooded parents were not financially constrained, suggesting that internal capital markets transmit financial shocks (like Commerzbank's lending cut) more strongly than non-financial shocks.
- Finally, the authors analyze the transmission of Commerzbank's lending cut through German multinationals in various countries, to reveal how a shock to an individual firm in one country can have first-order effects on the distribution of firm growth in many other countries, solely because of transmission through the internal networks of multinationals.

Bottom line: This work offers new and key insights into the role internal credit markets, including that shocks can transmit across affiliates, that internal capital flows across countries depend on different frictions than flows within domestic business groups, that financial shocks are transmitted strongly within internal capital markets while non-financial shocks have a weaker impact, and that internal capital flows can also cause financial constraints and thereby harm growth.

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NO. 2023-45 · MARCH 2023

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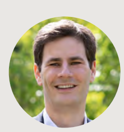

Kilian Huber

Assistant Professor of Economics and William S. Fishman Faculty Fellow, Chicago Booth

chicagobooth.edu/faculty/directory/h/kilian-huber

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