

2

The Dark and the Bright Side of Global Banking: A (Somewhat) Cautionary Tale from Emerging Europe

Ralph de Haas

EBRD, One Exchange Square, London, EC2A 2JN, UK

This paper reviews the literature on the benefits and risks of global banking, with a focus on emerging Europe. It argues that while the potential destabilising impact of global banks was well understood before the recent financial crisis, the sheer magnitude of this impact in the case of systemically relevant foreign bank subsidiaries was under-appreciated. A second lesson from the crisis is that banks' funding structure, in particular the use of short-term wholesale funding, matters as much for lending stability as does their ownership structure.

Introduction

What are the costs and benefits of cross-border banking integration and how has the balance between the two shifted in the aftermath of the global financial crisis? This question is not only of academic interest but also pertinent to policy discussions in the wide range of countries that have opened up their banking sectors to foreign investors over the past three decades. The process of financial globalisation during this period has resulted in high levels of foreign ownership of banks across the world. To name but a few examples, Spanish and Portuguese banks developed a presence in Latin America on the back of the strong cultural and trade links between this region and the Iberian Peninsula. Nigerian and South African

Reprinted from *Comparative Economic Studies*, 56: 271–282, 2014, 'The Dark and the Bright Side of Global Banking: A (Somewhat) Cautionary Tale from Emerging Europe', by Ralph de Haas. With kind permission from Association of Comparative Economic Studies. All rights reserved.



Figure 2.1 Global banking across the globe
Note: Foreign bank assets as a percentage of total banking assets.
Source: Claessens and Van Horen (2014) and EBRD (2009).

banks created pan-African networks, while many of New Zealand's banking assets are currently owned by Australian financial institutions.

Yet banking integration has perhaps advanced the most between Western and Eastern Europe. After the fall of the Berlin Wall, Western European banks bought former state banks and opened new affiliates, both branches and subsidiaries, across emerging Europe. Figure 2.1 shows that in many emerging European countries between 67% and 100% of all banking assets are nowadays in foreign hands. Banks with saturated home markets were particularly attracted to the region due to its scope for further financial deepening at high margins.

A rich literature has developed over the last two decades that evaluates the economic upsides and downsides of banking integration for countries, in particular emerging markets, that play host to multinational banks. This paper attempts to revise this literature in two steps. First, I briefly review the academic evidence on foreign bank entry in emerging markets as it stood at the time of the outbreak of the financial crisis in 2008–2009. While numerous contributions focused on the positive impact of foreign bank entry on banking efficiency, I argue that many of the negative 'surprises' of the crisis – such as global banks' role as conduits for cross-border shock transmission – were already well known before the crisis.

Second, I discuss new empirical evidence that emerged in the wake of the crisis. Here I will highlight in particular the role of bank funding structure, over and above ownership structure, as a determinant of lending stability. Throughout the paper my emphasis will be on emerging Europe, as in this region the impact of multinational banking has been most pronounced.

Pros and cons of global banking for emerging markets

Academic and policy discussions about the economic impact of global banks on emerging markets typically focus on three topics: changes in the *quantity*, the *efficiency* and the *stability* of financial intermediation. I discuss these in turn.

Global banking and the quantity of financial intermediation

Foreign bank entry in emerging markets can help unlock access to foreign savings, increase investments and speed up economic convergence. Although in general less capital tends to flow from rich to poor countries than theory would predict, emerging Europe is one of the few regions where this empirical pattern does not hold. Facilitated by the presence of foreign banks, emerging Europe has been quite successful in

accessing foreign savings, using them to fund local business opportunities, and move quicker towards Western European living standards than would otherwise have been possible.¹

Global banking and the efficiency of financial intermediation

Foreign banks may not only expand the amount of available savings, they may also transform savings more efficiently into investments. In emerging markets, foreign banks often introduce superior lending technologies and marketing know-how, developed for domestic use, at low marginal cost (Grubel, 1977).² Evidence suggests that emerging Europe, where commercial banks were still largely absent at the start of the 1990s, has reaped substantial efficiency gains due to foreign bank entry (see, for instance, Bonin *et al.*, 2005; Fries and Taci, 2005; Havrylchyk and Jurzyk, 2011). Foreign banks are not only efficient themselves but also generate positive spillovers to domestic banks which may, for instance, copy the risk management methodologies of their new foreign competitors.

An important issue is whether this higher efficiency comes at the cost of a narrower client base. Foreign banks may simply be more efficient because they cherry-pick the best customers and leave the more difficult clients – such as opaque small- and medium-sized enterprises (SMEs) – to domestic banks. Domestic lenders may be better positioned to collect and use ‘soft’ information about opaque clients (Berger and Udell, 1995), whereas foreign banks rely more on standardised lending technologies. Some evidence consequently indicates that foreign banks are associated with a relative decline in SME lending (Detragiache *et al.*, 2008; Gormley, 2010; Beck and Martinez Peria, 2010). Yet more recent evidence suggests that foreign banks may actually find ways to effectively lend to SMEs (Beck *et al.*, 2012) either by using techniques that rely on hard information, such as credit scoring, or by using relationship lending (Beck *et al.*, 2014). As a result, foreign banks may increase SME lending in the medium term as they adopt these new lending technologies (De la Torre *et al.*, 2010). For emerging Europe, the evidence indeed suggests that foreign bank entry has not led to a reduced availability of small business lending (De Haas *et al.*, 2010; De Haas and Naaborg, 2006; Giannetti and Ongena, 2008).

Global banking and the stability of financial intermediation

Even if foreign bank entry is associated with more (and more efficiently delivered) credit, this advantage may be (partly) offset if lending by global banks is volatile and contributes to economic instability. Theory predicts that multinational banks reallocate capital to countries where bank capital is in short supply (eg, those experiencing a banking crisis) and away from

countries where investment opportunities are scarce, such as countries in a downturn (Morgan *et al.*, 2004; Kalemli-Ozcan *et al.*, 2013). Such cross-border capital movements can cause instability in countries that experience a reduction in bank capital. The empirical evidence here focuses on three separate impacts banking integration may have on local financial stability.

First, there is abundant evidence that foreign banks have a stabilising effect on aggregate lending during local bouts of financial turmoil (see Dages *et al.*, 2000; Crystal *et al.*, 2002; Peek and Rosengren, 2000a; Goldberg, 2001; Martinez Peria *et al.*, 2002; Cull and Martinez Peria, 2007). Compared with stand-alone domestic banks, foreign bank subsidiaries tend to have access to supportive parent banks that provide liquidity and capital if and when needed. De Haas and Van Lelyveld (2006) find such a stabilising role for foreign bank subsidiaries in emerging Europe and De Haas and Van Lelyveld (2010) for a broader set of countries.

Second, foreign bank entry may expose a country to foreign shocks. Parent banks reallocate capital across borders and therefore capital may be withdrawn from Country A when it is needed in Country B. Peek and Rosengren (1997, 2000b) show how the drop in Japanese stock prices starting in 1990, combined with binding capital requirements, led Japanese bank branches in the United States to reduce credit. Van Rijckeghem and Weder (2001) find that banks that are exposed to a financial shock in either their home country or another country reduce credit in their (other) host countries. Schnabl (2012) shows how the 1998 Russian crisis spilled over to Peru, as banks, including foreign-owned ones, saw their foreign funding dry up and had to cut back lending.

While foreign bank subsidiaries can transmit foreign shocks, it is important to keep in mind that lending by such local brick-and-mortar affiliates is still considerably less volatile than *cross-border* lending by foreign banks (García Herrero and Martínez Pería, 2007). Peek and Rosengren (2000a) find that cross-border lending in Latin America did in some cases diminish during economic slowdowns, whereas local lending by foreign banks was much more stable. Similarly, De Haas and Van Lelyveld (2004) find that reductions in cross-border credit to emerging Europe have generally been met by increased lending by foreign bank subsidiaries, either because new subsidiaries were established or because the lending of existing affiliates increased.³

Lastly, foreign bank ownership may also affect the sensitivity of the aggregate credit supply to the business cycle. Because multinational banks trade-off lending opportunities across countries, foreign bank subsidiaries tend to be more sensitive to the local business cycle than domestic banks (Barajas and Steiner, 2002; Morgan and Strahan, 2004).

However, if the population of foreign banks in a country is sufficiently diverse in terms of home countries, this diversity may make aggregate lending more stable. In line with this, Arena *et al.* (2007) argue on the basis of a data set comprising 20 emerging markets that the presence of foreign banks has contributed somewhat to overall bank lending stability in these countries.

To sum up, the empirical evidence available before the 2008–2009 crisis suggests the following:

- (1) Global banking improves credit availability in emerging markets and makes the delivery of credit more efficient. Yet, at least in the short term, small firms may benefit less.
- (2) Global banking may exacerbate business and credit cycles, particularly if parent banks are mostly from the same home country or region.
- (3) Global banking reduces the economic impact of local financial crises.
- (4) Global banking increases the vulnerability of a country to foreign shocks.

New evidence from the great recession

The Lehman Brothers bankruptcy on 15 September 2008 triggered a flurry of research into how multinational banks transmitted this unexpected shock across borders. Many of these banks were either directly exposed to the sub-prime market or indirectly affected by US dollar illiquidity. It consequently became more difficult for parent banks to support their foreign subsidiary networks with capital and liquidity. Cetorelli and Goldberg (2012) show, for instance, that US banks with high pre-crisis exposures to asset-backed commercial paper became more constrained when off-balance sheet became on-balance sheet commitments. This affected their foreign affiliates as funds were reallocated towards the parent, although this effect was mitigated for large ‘core’ affiliates.

Likewise, Popov and Udell (2012) and Ongena *et al.* (2014) show how Western banks propagated the crisis eastwards by reducing the credit supply to both existing and potential borrowers in emerging Europe. Opaque firms with few tangible assets were affected the most as were firms located close to branches of foreign banks that did not have easy access to parent bank funding (De Haas and Kirschenmann, 2014).

De Haas *et al.* (2014) also show that foreign bank subsidiaries in emerging Europe reduced lending earlier and faster than domestic banks.⁴ Foreign banks that took part in the Vienna Initiative, a public–private

coordination mechanism to guarantee macroeconomic stability in emerging Europe, were somewhat more stable lenders.⁵ This stabilising effect of the Vienna Initiative is confirmed by Cetorelli and Goldberg (2011) on the basis of aggregate data from the Bank for International Settlements. They find that multinational banks transmitted the crisis to emerging markets *via* a reduction in cross-border lending and local subsidiary lending. Importantly, stand-alone domestic banks, many of which had borrowed heavily in the international syndicated loan and bond markets before the crisis, were forced to contract credit as well.

A common finding of many recent empirical papers is the importance of banks' pre-crisis funding structure for their subsequent credit stability during the Great Recession. In particular, it has become clear that banks that relied more on short-term wholesale funding reduced domestic credit more⁶, were more often financially distressed (Cihák and Poghosyan, 2009) and experienced a worse stock-price performance when Lehman Brothers collapsed (Raddatz, 2010) and during the crisis in general (Beltratti and Stulz, 2012). Relying on short-term wholesale funding made banks vulnerable to sudden liquidity shortages during which they could not roll over debt. De Haas and Van Lelyveld (2014) analyse an international sample of banks and find that during the recent crisis multinational bank subsidiaries had to curtail credit growth about twice as much compared with stand-alone domestic banks. Subsidiaries of parent banks that used more wholesale funding had to reduce credit the most.

Lessons from the great recession

When we compare the pre-crisis evidence on the impact of foreign bank entry with more recent findings, two main lessons appear to stand out:

First, the crisis underlined the importance of funding structures for banking stability. In particular, it became clear that an excessive use of wholesale funding exposes banks to the bouts of illiquidity that characterise these markets. Before the crisis, policymakers and academics had focused mainly on the potentially adverse effects of depositor runs, largely ignoring the risks in the increasingly important wholesale markets. During the crisis it became clear that, relative to 'flighty' wholesale funding, (insured) deposits actually turned out to be quite 'sticky'. A prominent example was the failed UK bank Northern Rock, which saw its wholesale lenders run before retail depositors did.

A dependence on wholesale funding may hurt lending stability particularly when a bank's assets and liabilities are denominated in different

currencies. When banks carry substantial currency mismatches on their balance sheets, they become heavily exposed to temporary breakdowns in FX swap markets. During the recent crisis, this affected both domestic and globalised banks. In pre-crisis emerging Europe, many domestic banks had borrowed in local currency wholesale markets and, after swapping these funds into euros, turned them into euro loans. During the crisis this became more and more difficult. Likewise, global banks with US branches found it increasingly problematic to swap euros into US dollars and therefore experienced difficulties in supporting these branches with funding through their internal capital markets.

The Latin American experience has shown that deep financial integration through a large-scale presence of foreign banks may go hand in hand with financial stability if sufficient local deposit and wholesale funding are available. Kamil and Rai (2010) show that crisis transmission to Latin America was less severe in countries where foreign banks were lending through subsidiaries rather than across borders. Subsidiaries that were funded locally instead of through the international wholesale markets or through their parent banks were particularly stable credit sources. Some (but not all) multinational bank subsidiaries, particularly in emerging Europe, may have to adjust their funding models in this direction. These subsidiaries will increasingly have to stand on their own financial feet by raising local customer deposits and topping these up with wholesale funding if and when required. This will be easier for and more relevant to subsidiaries that target retail rather than corporate clients.

An increased focus on local funding will also be a more realistic option in countries with more conducive macroeconomic frameworks, including flexible exchange rate regimes and inflation targeting, that facilitate the development of local currency markets and a local currency deposit base. This reduces the need for banks, both foreign and domestic, to borrow and lend in FX (Brown and De Haas, 2012; Brown *et al.*, 2013).

Second, while the Japanese experience of the 1990s had already shown (or perhaps forewarned) that global banks may pass on shocks from home to host countries, what remained under-appreciated until recently is how large these effects can be if foreign bank affiliates are of systemic importance. Nowhere has this been more evident than in emerging Europe where one or several of the top three banks are in foreign hands in many countries (Figure 2.2). It was this combination of foreign ownership and systemic importance that threatened financial stability in the region and necessitated the *ad hoc* establishment of the Vienna Initiative.

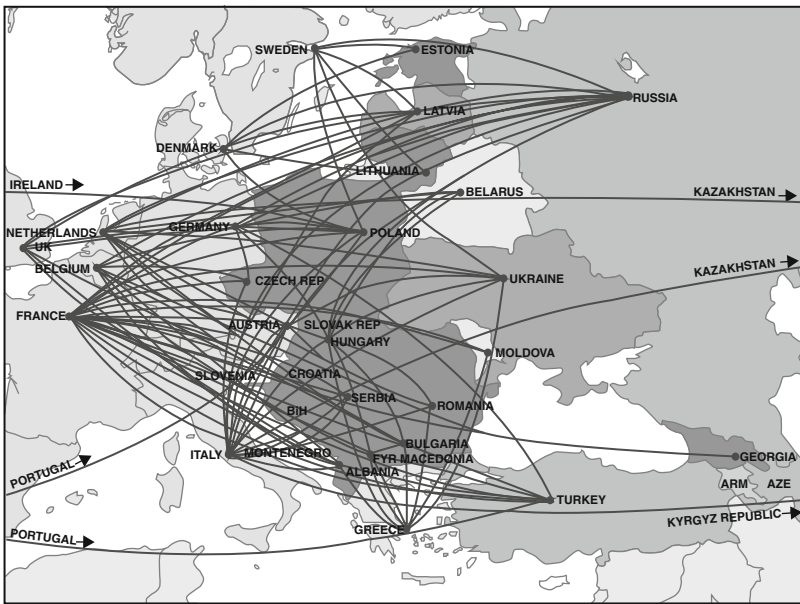


Figure 2.2 Systemic banks in emerging Europe owned by foreign parents

Note: This map shows the ownership linkages (as of 2007) between foreign strategic investors and systemic banks in emerging Europe. Systemic banks are those that are among the top three in the host country according to total assets. Each line represents one or more parent-subsidiary relationships. Branches, non-bank subsidiaries and equity holdings of less than 50% were excluded.

Source: EBRD (2009).

The recent European experience underlines the need to further reassess and possibly even adjust the role multinational banks play in many emerging markets. As this paper argues, the evidence suggests that multinational banks oftentimes play a positive role in these economies as they give households and firms access to more and more efficiently delivered financial services. A key issue that nevertheless remains high on the policy and research agenda is how to reap these benefits of banking integration while minimising ‘collateral damage’ in the form of an increased exposure to foreign shocks. One part of the answer lies in a gradual rebalancing of the funding structure of some of the more highly leveraged multinational bank subsidiaries towards a greater focus on local funding sources. This will reduce subsidiaries’ need to borrow abroad, either from external financial markets or through their parent’s internal capital market, thus limiting their role as conduits for financial shocks. The question remains what is the optimal mix of local

and foreign funding, bearing in mind that a complete reliance on local funding would entail costs to local economies in the form of less (and more expensive) borrowing opportunities for local firms.

A second part of the adjustment may have to come from the regulatory side, where further measures are needed to coordinate banking supervision and regulation across borders – for instance, in the form of supervisory colleges. For the case of emerging Europe it is important to not only improve supervisory coordination within the eurozone’s Banking Union but also between the supervisors of eurozone parent banks and of the subsidiaries that are (as yet) located outside the euro area.

Notes

1. See EBRD (2009, Chapter 3) and Gill and Raiser (2012, Chapter 3) for empirical evidence.
2. In developed countries, foreign banks are generally less efficient than domestic banks as the advantages of incumbent banks tend to dominate those of new entrants (Claessens *et al.*, 2001).
3. See De Haas and Van Horen (2012, 2013) for evidence on the rapid decline in cross-border lending during the 2008–2009 crisis, in particular by distant and relatively inexperienced international lenders.
4. Barba Navaretti *et al.* (2010) argue that multinational banks were a stabilising force as they displayed a stable loan-to-deposit ratio. Their analysis is limited to the years 2007–2008, while much of the credit crunch took place in 2008–2009.
5. As part of the Vienna Initiative various multinational banks signed country-specific commitment letters in which they pledged to maintain exposures and to provide subsidiaries with adequate funding.
6. See Ivashina and Scharfstein (2010) and Cornett *et al.* (2011) for the United States; Yorulmazer and Goldsmith-Pinkham (2010) for the United Kingdom; Iyer *et al.* (2014) for Portugal; and Rocholl *et al.* (2011) for Germany.

References

- Arena, M, Reinhart, C and Vázquez, F. 2007: *The lending channel in emerging economies: Are foreign banks different?* IMF Working Paper No. 07, International Monetary Fund: Washington DC.
- Barajas, A and Steiner, R. 2002: *Credit stagnation in Latin America*. IMF Working Paper No. 53, International Monetary Fund: Washington DC.
- Barba Navaretti, G, Calzolari, G, Pozzolo, AF and Levi, M. 2010: Multinational banking in Europe: Financial stability and regulatory implications. Lessons from the financial crisis. *Economic Policy* 25(64): 703–753.
- Beck, T, Degryse, H, De Haas, R and Van Horen, N. 2014: When arm’s length is too far. Relationship banking over the business cycle (mimeo).
- Beck, T, Ioannidou, V and Schäfer, L. 2012: *Foreigners vs. natives: Bank lending technologies and loan pricing*. Center Discussion Paper No. 55, Tilburg University.

- Beck, T and Martinez Peria, MS. 2010: Foreign bank participation and outreach: Evidence from Mexico. *Journal of Financial Intermediation* 19(1): 52–73.
- Beltratti, A and Stulz, RM. 2012: The Credit Crisis Around the Globe: Why Did Some Banks Perform Better. *Journal of Financial Economics* 105(1): 1–17.
- Berger, AN and Udell, GF. 1995: Relationship lending and lines of credit in small business finance. *Journal of Business* 68(3): 351–382.
- Bonin, JP, Hasan, I and Wachtel, P. 2005: Bank performance, efficiency and ownership in transition economies. *Journal of Banking & Finance* 29(1): 31–53.
- Brown, M and De Haas, R. 2012: Foreign currency lending in emerging Europe: Bank-level evidence. *Economic Policy* 27(69): 59–98.
- Brown, M, De Haas, R and Sokolov, V. 2013: Regional inflation and financial dollarization, EBRD Working Paper No. 163, European Bank for Reconstruction and Development, London.
- Cetorelli, N and Goldberg, L. 2011: Global banks and international shock transmission: Evidence from the crisis. *IMF Economic Review* 59(1): 41–76.
- Cetorelli, N and Goldberg, L. 2012: Liquidity management of US global banks: Internal capital markets in the Great Recession. *Journal of International Economics* 88(2): 299–311.
- Cihák, M and Poghosyan, T. 2009: Distress in European banks: An analysis based on a new data set. IMF Working Paper No. WP/09/9, International Monetary Fund, Washington DC.
- Claessens, S, Demirgüç-Kunt, A and Huizinga, H. 2001: How does foreign entry affect domestic banking markets? *Journal of Banking & Finance* 25(5): 891–911.
- Claessens, S and Van Horen, N. 2014: Foreign banks: Trends, impact and financial stability. *Journal of Money, Credit and Banking* 46(1): 295–326.
- Cornett, MM, McNutt, JJ, Strahan, PE and Hassan, T. 2011: Liquidity Risk Management and Credit Supply in the Financial Crisis. *Journal of Financial Economics* 101(2): 297–312.
- Crystal, JS, Dages, BG and Goldberg, LS. 2002: Has foreign bank entry led to sounder banks in Latin America? *Current Issues in Economics and Finance* 8(1): 1–6.
- Cull, R and Martinez Peria, MS. 2007: *Foreign bank participation and crises in developing countries*. World Bank Policy Research Working Paper No. 4128, World Bank: Washington DC.
- Dages, BG, Goldberg, LS and Kinney, D. 2000: Foreign and domestic bank participation in emerging markets: Lessons from Mexico and Argentina. *Federal Reserve Bank of New York Economic Policy Review* (September): 17–36.
- De Haas, R, Ferreira, D and Taci, A. 2010: What determines the composition of banks' loan portfolios? Evidence from transition countries. *Journal of Banking & Finance* 34(2): 388–398.
- De Haas, R and Kirschenmann, K. 2014: Powerful parents? The local impact of banks' global business models (mimeo).
- De Haas, R, Korniyenko, Y, Pivovarsky, A and Tsankova, T. 2014: Taming the herd? Foreign banks, the Vienna initiative and crisis transmission.
- De Haas, R and Naaborg, I. 2006: Foreign banks in transition countries: To whom do they lend and how are they financed? *Financial Markets, Institutions & Instruments* 15(4): 159–199.
- De Haas, R and Van Horen, N. 2012: International shock transmission after the Lehman brothers collapse. Evidence from syndicated lending. *American Economic Review Papers & Proceedings* 102(3): 231–237.

- De Haas, R and Van Horen, N. 2013: Running for the exit? International bank lending during a financial crisis. *Review of Financial Studies* 26(1): 244–285.
- De Haas, R and Van Lelyveld, I. 2004: Foreign bank penetration and private sector credit in Central and Eastern Europe. *Journal of Emerging Market Finance* 3(2): 125–151.
- De Haas, R and Van Lelyveld, I. 2006: Foreign banks and credit stability in Central and Eastern Europe. A panel data analysis. *Journal of Banking & Finance* 30(7): 1927–1952.
- De Haas, R and Van Lelyveld, I. 2010: Internal capital markets and lending by multinational bank subsidiaries. *Journal of Financial Intermediation* 19(1): 1–25.
- De Haas, R and Van Lelyveld, I. 2014: Multinational banks and the global financial crisis: Weathering the perfect storm? *Journal of Money, Credit, and Banking* 46(1): 333–364.
- De la Torre, A, Martínez Pería, MS and Schmukler, SL. 2010: Bank involvement with SMEs: Beyond relationship lending. *Journal of Banking & Finance* 34(9): 2280–2293.
- Detragiache, E, Tressel, T and Gupta, P. 2008: Foreign banks in poor countries: Theory and evidence. *Journal of Finance* 63(5): 2123–2160.
- EBRD. 2009: *Transition report 2009*. EBRD: London.
- Fries, S and Taci, A. 2005: Cost efficiency of banks in transition: Evidence from 289 banks in 15 post-communist countries. *Journal of Banking & Finance* 29(1): 55–81.
- García Herrero, A and Martínez Pería, MS. 2007: The mix of international banks' foreign claims: Determinants and implications. *Journal of Banking and Finance* 31(6): 1613–1631.
- Giannetti, M and Ongena, S. 2008: 'Lending by example': Direct and indirect effects of foreign banks in emerging markets. *Journal of International Economics* 86(1): 167–180.
- Gill, I and Raiser, M. 2012: *Golden growth: Restoring the luster of the European economic model*. World Bank: Washington DC.
- Goldberg, LS. 2001: *When is US bank lending to emerging markets volatile?* NBER Working Paper No. 8209, National Bureau of Economic Research: Cambridge, MA.
- Gormley, TA. 2010: The impact of foreign bank entry in emerging markets: Evidence from India. *Journal of Financial Intermediation* 19(1): 26–51.
- Grubel, HG. 1977: A theory of multinational banking. *Banca Nazionale del Lavoro Quarterly Review* 123(Dec): 349–363.
- Havrylychuk, O and Jurzyk, E. 2011: Inherited or earned? Performance of foreign banks in Central and Eastern Europe. *Journal of Banking & Finance* 35(5): 1291–1302.
- Ivashina, V and Scharfstein, DS. 2010: Bank Lending During the Financial Crisis of 2008. *Journal of Financial Economics* 97: 319–338.
- Iyer, R, Samuel, L, José-Luis, P and Antoinette, S. 2014: The Inter-Bank Liquidity Crunch and the Firm Credit Crunch: Evidence from the 2007–2009 Crisis. *Review of Financial Studies* 27(1): 347–372.
- Kalemli-Ozcan, S, Papaioannou, E and Perri, F. 2013: Global banks and crisis transmission. *Journal of International Economics* 89(2): 495–510.
- Kamil, H and Rai, K. 2010: *The global credit crunch and foreign banks' lending to emerging markets: Why did Latin America fare better?* IMF Working Paper No. 10/102, International Monetary Fund: Washington DC.

- Martinez Peria, S, Powell, A and Vladkova Hollar, I. 2002: *Banking on foreigners: The behavior of international bank lending to Latin America, 1985–2000*. World Bank Working Paper No. 2893, World Bank: Washington DC.
- Morgan, D, Rime, B and Strahan, PE. 2004: Bank integration and state business volatility. *Quarterly Journal of Economics* 119(4): 1555–1585.
- Morgan, D and Strahan, PE. 2004: Foreign bank entry and business volatility: Evidence from US states and other countries. In: Ahumada, LA and Fuentes, JR (eds). *Banking Market Structure and Monetary Policy*. Central Bank of Chile: Santiago, pp. 241–269.
- Ongena, S, Peydro Alcalde, JL and Van Horen, N. 2014: Shocks abroad, pain at home? Bank-firm level evidence on financial contagion during the 2007–2009 Crisis (mimeo).
- Peek, J and Rosengren, ES. 1997: The international transmission of financial shocks: The case of Japan. *American Economic Review* 87(4): 495–505.
- Peek, J and Rosengren, ES. 2000a: Implications of the globalization of the banking sector: The Latin American experience. *New England Economic Review* (September/October): 45–63.
- Peek, J and Rosengren, ES. 2000b: Collateral damage: Effects of the Japanese bank crisis on the United States. *American Economic Review* 90(1): 30–45.
- Popov, A and Udell, G. 2012: Cross-border banking, credit access, and the financial crisis. *Journal of International Economics* 87(1): 147–161.
- Raddatz, C. 2010: When the Rivers Run Dry. Liquidity and the Use of Wholesale Funds in the Transmission of the U.S. Subprime Crisis. Policy Research Working Paper No. 5203, World Bank, Washington DC.
- Rocholl, J, Puri, M and Steffen, S. 2011: Global retail lending in the aftermath of the US financial crisis: Distinguishing between supply and demand effects. *Journal of Financial Economics* 100(3): 556–578.
- Schnabl, P. 2012: Financial globalization and the transmission of bank liquidity shocks: Evidence from an emerging market. *Journal of Finance* 67(3): 897–932.
- Van Rijckeghem, C and Weder, B. 2001: Sources of contagion: Is it finance or trade? *Journal of International Economics* 54(2): 293–308.
- Yorulmazer, T and Goldsmith-Pinkham, P. 2010: Liquidity, Bank Runs, and Bailouts: Spillover Effects During the Northern Rock Episode. *Journal of Financial Services Research* 37(2): 83–98.