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## Financial convergence in the financial periphery How interdependence shapes regulators' decisions

### **Emily Jones and Alexandra O. Zeitz**







# Financial convergence in the financial periphery: How interdependence shapes regulators' decisions

Emily Jones and Alexandra O. Zeitz

#### **Abstract**

We examine the processes by which regulations prevailing in countries at the core of the global economy spread to countries outside this small group. We show how specific cross-border relationships between banks, regulators, and investors generate regulatory interdependence that drives the diffusion of international standards from the standard-setting countries at the core of the financial system to the financial periphery. We argue that regulatory decisions in the financial periphery are shaped by the prior choices of regulators in other countries, mediated through four specific cross-border relationships associated with banking globalization.

We draw on a new dataset of Basel II adoption in over ninety jurisdictions in the financial periphery. Using spatial lag models we show that regulators' decisions over the adoption of international standards are shaped by the choices of regulators to whom they are connected through the cross-border operations of individual banks, international professional networks, and competition for capital. Our analysis underscores the value of parsing out the relevant actor-level linkages that connect countries: while international considerations shape regulatory decisions, what matters is not the extent to which countries are connected to the global economy but rather the nature of these connections.

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#### Introduction

There has been a dramatic increase in the globalization of markets for goods, services, capital, and information since the 1980s, leading to growing levels of economic and regulatory interdependence between countries. We examine the processes by which regulations prevailing in countries at the core of the global economy spread to countries in the periphery through relationships of interdependence. Specifically, we study how international banking standards, the Basel standards, spread from countries in the core of the global economy to those in the periphery. We find that countries in the financial periphery adopt more of the international banking standard when they have direct cross-border relations with banks and regulators in countries that have already adopted the standard.

We argue that interdependence in the financial system creates incentives for national regulators to adopt the regulatory standards prevailing in jurisdictions to which they are connected through banks and transnational networks of bank supervisors. Regulatory convergence on international banking standards is not necessarily a reflection of the suitability of these regulations to financial conditions in each adopting country. Instead, regulatory convergence is a basis for communication for regulators who are connected by cross-border operations of banks or through joint membership in international networks, and as they signal to international investors.

Our work builds on the new interdependence approach, which seeks to explain systemic international political economy dynamics by examining cross-border linkages between subnational actors. Our core contention is that it is not simply the degree of openness of a country's economy and hence the *extent* of international market signals it receives that shape regulatory decisions but rather the *nature* of these signals. In line with other work on international financial standards, we argue that market forces play an important role in spreading international standards. Our contribution is to draw attention to the *specific* cross-border relations between individual market actors that drive diffusion.

We build from the insight that two countries may be integrated into the global economy to a similar extent, but the nature of cross-border economic relationships may differ. For example, in 2008, Madagascar and Colombia both had six foreign-owned banks in their jurisdictions. On the face of it, both are integrated into the international banking system to the same extent. However, the banks in Colombia were all from advanced economies that had made considerable progress in adopting the international Basel banking standards: Germany, Spain, the United Kingdom and the United States. In Madagascar, by contrast, the parent companies of the six foreign banks were based not only in France, but also in countries with much less extensive adoption of the Basel standards; Mauritius and Mali. While seemingly experiencing similar levels of internationalisation of their banking sectors, Colombia and Madagascar were in fact integrated into very different segments of the international financial system. This was also reflected in the extent to which they adopted international banking standards, with Colombia adopting the standards to a greater extent than Madagascar.<sup>3</sup> We argue that differences in regulatory change are driven precisely by such differences and that testing the explanatory power of this argument requires specifying exact cross-border connections that underpin interdependence.

We focus on the adoption of international standards by regulators in what we term the periphery of global finance. By financial periphery, we mean countries that do not have deep financial systems, are not closely interconnected with financial centers, and are not included

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<sup>&</sup>lt;sup>1</sup> Oatley 2011. See for instance Farrell and Newman 2010; Farrell and Newman 2014; Farrell and Newman 2016; Quaglia 2017; Newman and Posner 2018; Quaglia 2019.

<sup>&</sup>lt;sup>2</sup> Simmons 2001; Mosley 2003a; Tarullo 2008.

<sup>&</sup>lt;sup>3</sup> In 2008, Colombia had adopted six of ten Basel II components, while Madagascar had adopted one.

in international standard-setting forums. Global financial governance, including membership of the Basel Committee on Banking Supervision ('Basel Committee') that sets international banking standards, follows the hierarchical core-periphery structure of the international financial system.<sup>4</sup> The vast majority of the world's regulators are not represented on the Basel Committee, have no influence over the standard-setting process, and supervise relatively small financial sectors. As rule-takers, their choice to adopt the international banking standards is therefore worth explaining. We demonstrate how differential patterns of integration between core and peripheral countries, and among peripheral countries, leads to variation in the adoption of international banking standards among regulators in the financial periphery.

Specifically, we identify four types of cross-border relationships associated with banking globalization that drive convergence of peripheral countries on the standards set by regulators in the core. First, as foreign banks enter a country in the financial periphery, the regulators in that country have an incentive to converge on the banking regulations prevailing in the foreign bank's home jurisdiction to facilitate communication with home supervisors. Second, as banks from peripheral countries expand internationally, their own domestic regulators are incentivized to converge on the level of adoption prevailing in the jurisdictions their banks enter, to ease their own banks' expansion and facilitate communication with host supervisors. Third, with banking globalization, regulators have become part of international networks of supervisors, which provide information and strong socialization effects that lead supervisors to converge on the behavior of their peers. Fourth, globalization of the banking sector means that banks compete internationally to attract capital. To attract investors into the banking sector, regulators in the periphery converge on the level of adoption prevailing in jurisdictions with which they compete for investment. Although we focus on the spread of international banking standards, we expect the relational dynamics involving international firms and key actors in the global economy that we identify in this paper to help explain patterns of regulatory diffusion in other issue areas, such as accounting, food, or labor standards.

To test our argument, we draw on a newly collected dataset of Basel II adoption in one hundred jurisdictions.<sup>5</sup> Using spatial lag models, we show that regulators in the financial periphery converge on the regulatory behavior of jurisdictions where their banks have foreign operations, and that regulators are influenced by the behavior of their peers in international networks. To a lesser extent, the behavior of countries that are competitors in attracting investment is also influential, as is that of home jurisdictions of foreign banks. When countries in the financial periphery send banks abroad, participate in international supervisory networks, and compete for capital, they converge on the level of adoption of international financial standards prevailing in the jurisdictions to which they are connected. These results hold even when controlling for other forms of economic integration and the influence of the IMF.

Our paper shows the distinct political economy processes underpinning core-periphery convergence, which are different from regulatory harmonization among core countries. Our first contribution is to unpack market incentives for regulatory change and show how specific cross-border links at the level of the firm, as well as competition for international capital, drives convergence on international banking standards. Our second contribution is to fill an

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<sup>&</sup>lt;sup>4</sup> On hierarchy in the global financial system, see: Oatley et al. 2013.

<sup>&</sup>lt;sup>5</sup> We focus on Basel II for reasons of data availability but expect similar processes to be at work in the ongoing diffusion of Basel III standards.

<sup>&</sup>lt;sup>6</sup> Singer (2004) suggests that political processes explaining cooperation and the creation of international standards among core countries are likely to differ from those underpinning expansion to jurisdictions in the periphery. On Basel convergence in the core see Kapstein 1989; Oatley and Nabors 1998; Tarullo 2008.

empirical gap. Despite the fact that the majority of countries around the world are not part of standard-setting processes, we still know relatively little about the mechanisms (other than traditional power dynamics) through which the policy decisions of governments in core countries such as the US or EU members shape policy decisions of governments in the periphery. We draw attention to the fact that countries in the financial periphery are differentially situated in the global financial system and the decisive ways in which cross-border linkages between banks, regulators and investors can shape regulatory outcomes.

The remainder of this paper proceeds as follows. Section 2 explains what international banking standards are, why their adoption (or non-adoption) is consequential, and provides an overview of their global uptake. Section 3 presents our argument and explains how we expect relations of interdependence between regulators, banks and investors to influence the decisions of regulators in the periphery, specifically with regards to the adoption of Basel II standards. In sections 4 and 5 we test our argument empirically. Section 6 offers a brief conclusion.

<sup>&</sup>lt;sup>7</sup> Farrell and Newman 2014, 355.

# Regulators in the periphery respond to international banking standards

There have been multiple generations of Basel banking standards, all agreed by a group of regulators from the world's largest financial centers under the auspices of the Basel Committee on Banking Supervision. The Basel Committee began with a membership of regulators from the G10 countries and in 2009 expanded to cover 45 members from 28 jurisdictions, including, for the first time, regulators from developing countries in the G20. The standards agreed by the Basel Committee are minimum standards for the regulation of internationally active banks operating in Basel member countries. Like other financial standards, Basel standards have been agreed by national regulators meeting in informal committees and they are soft law, not hard law.<sup>8</sup>

The first set of Basel standards (Basel I) and the accompanying Basel Core Principles were introduced in the late 1980s, setting minimum capital requirements for internationally active banks and providing principles for prudent regulation. As international banks grew in size and developed increasingly sophisticated financial products, the Basel Committee responded with increasingly complex regulatory standards. Basel II was agreed in 2004, with member countries expected to adopt the standard by 2007, and Basel III finalized in 2014, with implementation scheduled sequentially up until 2019.

Should regulators in countries in the financial periphery base their banking regulations on Basel standards? The answer is not obvious. Basel I was designed for regulating relatively simple banking systems and is still praised for its efficacy. International policy experts in the IMF and World Bank encourage all countries to adopt Basel I and associated Basel Core Principles. By the late 1990s Basel I standards were the basis for national banking regulations in more than one hundred countries outside of the Basel Committee. Unlike Basel I, there has been no concerted campaign by standard-setting countries or international organizations to promulgate Basel II and III standards beyond the Basel Committee, yet they have spread nonetheless. These standards were designed for more internationally active banking groups with complex business models that are subject to a variety of risks, including the ones posed by their own operational complexity. Basel II and II standards are much more complex and costly for regulators and banks to implement than Basel I, and their efficacy is much debated, particularly for smaller banks and for developing countries.

Regulators outside of the Basel Committee can respond to Basel banking standards in a range of ways, so the process of convergence need not be uniform. While Basel I was a relatively simple and straightforward standard, Basel II and III are in practice compendia of individual rules. Regulators can pick and choose which parts they wish to adopt and can modify the standards to suit the local context.<sup>13</sup>

Of course, formal adoption of an international standard may not result in meaningful implementation and enforcement. Regulators may adopt the standards in name but underenforce the rules on their books, effectively leading to soft defections from commitments, a

<sup>10</sup> Quillin 2008.

<sup>&</sup>lt;sup>8</sup> Brummer 2010b. Newman and Posner 2018.

<sup>&</sup>lt;sup>9</sup> Wilf 2017.

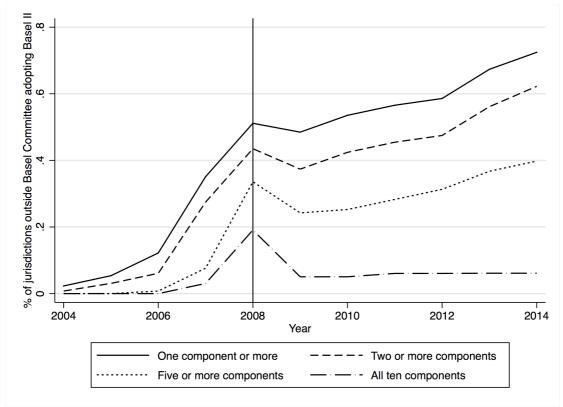
<sup>&</sup>lt;sup>11</sup> Restoy 2018.

<sup>&</sup>lt;sup>12</sup> For a review of the efficacy of Basel II and III see Romano 2014., Rodrik 2009. Specifically on developing countries see Rojas-Suarez, del Valle, and Galindo 2012; Kasekende, Bagyenda, and Brownbridge 2012; Frait and TomŠÍk 2014; Rojas-Suarez 2018; Rojas-Suarez and Muhammad 2018; Beck 2018; Beck, Jones, and Knaack 2018a.

<sup>&</sup>lt;sup>13</sup> Hohl et al. 2018.

phenomenon referred to as 'cosmetic' or 'mock' compliance.<sup>14</sup> Such practices have been documented among Basel Committee members, prompting scholars to challenge the efficacy of the standards in changing regulatory behaviour in meaningful ways.<sup>15</sup> We analyze patterns of adoption of international standards in peripheral countries and recognize that this may not reflect actual levels of compliance. Our analysis helps illuminate the international factors that incentivize regulators in the periphery to converge on international standards. Examining the conditions under which formal adoption results in compliance is an important question for further research.

The data reveals that Basel II has been widely taken up outside of the financial core, with 71 of the 100 jurisdictions for which we have data adopting at least one of the ten components of Basel II by 2015. However, adoption was highly selective. Countries outside the Basel Committee were, on average, only implementing four of the 10 components of Basel II (mean: 3.52) as at 2015 (Figure 1). Regulators in peripheral countries tended to adopt the simpler elements of Basel II. The Basel II standard is being adopted by countries at various levels of development. For instance, countries that report having adopted all ten components of Basel II in 2015 include not only Norway and Taiwan (high income countries), but also Serbia (upper-middle income) and Bolivia (lower-middle income).



**Figure 1:** Basel II adoption 2004-2014 by countries outside the Basel Committee. **Note:** the Basel Committee expanded in 2009 to include members of the G20, leading the average level of adoption outside the Basel Committee to drop.

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<sup>&</sup>lt;sup>14</sup> Chey 2006; Walter 2008.

<sup>&</sup>lt;sup>15</sup> Quillin 2008; Chey 2014. Quaglia 2019.

<sup>&</sup>lt;sup>16</sup> In 2008, 35-45% of countries outside the Basel Committee had adopted the simple approaches to credit, operational, and market risk, while only 20-25% had adopted more complex model-based approaches.

## Interdependence and regulatory decisions in the financial periphery

The interdependence literature conceives of the global economy as system, with countries linked through cross-border connections between societal actors including firms, government, officials and civil society groups. The Drawing on these arguments, we identify four specific cross-border relationships between banks, regulators and investors that we expect to serve as vectors for the diffusion of international banking standards. We argue that regulators' choices with regard to the adoption of international banking standards are affected by the prior choices of regulators in other countries, mediated through specific forms of interdependence associated with banking globalization.

Two of these relationships are created by the complex web of cross-border operations of internationally active banks. As we explain below, networks of cross-border relationships generate market and functional incentives for regulatory convergence and drives the spread of international standards. These relationships of interdependence are not symmetrical: though there are American banks operating in Morocco, there are no Moroccan banks operating in the United States. We therefore separately analyse the effect on regulators in the financial periphery of interdependence created by foreign banks entering their jurisdictions and of their domestic banks entering foreign jurisdictions.

The third cross-border relationship takes place at the level of senior officials from regulatory authorities who meet through transnational professional networks. A series of professional networks exist, typically clustered according to geographic regions, so they exhibit a different spatial pattern to the linkages generated by cross-border banks. These networks generate processes of peer learning and emulation, and contribute to the spread of international standards.

The final cross-border relationship is more diffuse and occurs between banks and among governments that compete with each other for international capital and the investors that supply it. The actors do not necessarily interact directly or on a regular basis, but, competition for capital among banks and governments in countries that have similar risk-return profiles creates pressures for regulatory convergence.

Below we discuss each of these four cross-border relationships in turn, explaining how they contribute to the spread of international banking standards and providing preliminary qualitative evidence of their plausibility.

#### **Incoming foreign banks**

Regulators may implement Basel standards to facilitate the operation and supervision of foreign banks operating in their jurisdiction, taking into account the decisions of the foreign bank's home regulator as they do so.

When a foreign bank enters a new country and operates as a subsidiary, the subsidiary comes under the purview of the local regulators. From the perspective of the foreign bank, if the host regulator has different regulatory requirements to those applied in the bank's home country, the bank must operate dual reporting lines, incurring transaction costs. We therefore expect international banks to champion regulatory harmonisation between home and host countries. There is anecdotal evidence of these processes at work. Large regional banks in South East Asia have advocated publicly for other regulators follow Malaysia and implement

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<sup>&</sup>lt;sup>17</sup> See e.g Keohane and Nye 1977; Cao 2012; Farrell and Newman 2016; Winecoff 2017.

<sup>&</sup>lt;sup>18</sup> See e.g. Epstein 2017.

Basel standards to reduce their compliance costs.<sup>19</sup> Similarly, in West Africa, Nigerian banks have championed the implementation of regulatory upgrading in host countries and an eventual move to Basel II and III.<sup>20</sup>

From the host regulator's perspective, harmonisation with the home regulators of foreign banks has advantages, as it can facilitate home—host supervisory coordination.<sup>21</sup> Precisely because Basel standards are widely recognized, they act as a focal point around which supervisors can coordinate. Vietnamese regulators for instance, have been keen to adopt Basel II standards in tandem to their country opening up to foreign banks, as this ensures they have a 'common language' with home regulators of the incoming foreign banks.<sup>22</sup> In Pakistan, the movement of personnel from foreign to local banks facilitated the adoption of Basel II standards by local banks.<sup>23</sup>

We therefore expect regulators in the financial periphery to harmonise with the regulatory standards of home regulators to whom they are connected through foreign banks operating in their jurisdiction.

#### **Outgoing domestic banks**

Regulators may also adopt international banking standards to facilitate the international expansion of domestic banks. We expect decisions over the adoption of international standards to reflect the regulations prevailing in the countries in which domestic banks have foreign operations.

Due to the risk of cross-border financial contagion, host regulators will seek assurance that a bank is soundly regulated at home before they issue a license allowing foreign banks to operate in their jurisdiction. International standards can provide an 'epistemic signpost' that assists host regulators in making such an assessment.<sup>24</sup> In the EU, member states are allowed to restrict access to third-country banks whose home country regimes do not meet EU standards. Similarly, in the US, the Federal Reserve has the authority to issue banking licenses to foreign banks only if they are "subject to comprehensive supervision or regulation on a consolidated basis by the appropriate authorities in its home country" and if they are "well-capitalized and well-managed" on a global basis.<sup>25</sup> In the 2000s, compliance with Basel Core Principles and, from 2007 onwards, implementation of Basel II standards were the common reference point for EU and US regulators in making these assessments.<sup>26</sup> Thus, while not an explicit condition for market entry, implementation of the international benchmark has been, as a matter of practical regulatory policy, an important mechanism for gaining entry into these markets.<sup>27</sup>

There is evidence that, cognizant of this regulatory requirement, regulators in the financial periphery adopted Basel standards to help their banks gain entry into European and US markets. Chey (2007) finds that Taiwanese and South Korean adoption of Basel I in the late

<sup>24</sup> Brummer 2010a. 264.

<sup>&</sup>lt;sup>19</sup> Chee Yuan 2015.

<sup>&</sup>lt;sup>20</sup> Alade 2014.

<sup>&</sup>lt;sup>21</sup> Tarullo 2008, 172.. See also Stephanou and Mendoza 2005.

<sup>&</sup>lt;sup>22</sup> Tran Thi and Vu Thanh 2019.

<sup>&</sup>lt;sup>23</sup> Naqvi 2019.

<sup>&</sup>lt;sup>25</sup> Cited in Alexander, Dhumale, and Eatwell 2006, 146.

<sup>&</sup>lt;sup>26</sup> EU and US use of Basel standards as a signal of high-quality domestic banking regulation has waned since the global financial crisis, as both jurisdictions have come to distrust each other's modifications of Basel III,

<sup>&</sup>lt;sup>27</sup> Alexander, Dhumale, and Eatwell 2006, 146.

1990s and early 2000s was due to "regulatory authorities' concern about potential foreign market closures to banks that failed to comply with the Accord".<sup>28</sup> Jones and Zeitz (2017) find that jurisdictions where more domestic banks have subsidiaries abroad adopt more components of Basel II.<sup>29</sup>

Even where adoption of Basel standards is not a pre-requisite for market entry, regulators may adopt Basel standards to boost the reputation of their internationally active banks. Improving the reputation of China's internationally active banks helps explain China's overcompliance with Basel III standards.<sup>30</sup> The Executive Director of the Reserve Bank of India gave a similar explanation for Basel adoption in India: "Any deviation [from global standards] will hurt us both by way of reputation and also in actual practice. The "perception" of a lower standard regulatory regime will put Indian banks at a disadvantage in global competition".<sup>31</sup>

Overall, we expect regulators in the financial periphery to converge on the regulatory standards of the host regulators to whom they are connected through domestic banks operating abroad.

#### **Transnational peer networks**

Regulators' decisions over the adoption of international banking standards may be influenced by the decisions of peers to whom they are connected through transnational professional networks.

In designing financial regulation, regulators face considerable uncertainty, making it hard to identify what regulation would be optimal for a given jurisdiction.<sup>32</sup> Given this, we expect regulators to look to and draw lessons from the experiences of regulators in countries similar to theirs, and to apply these lessons in designing their own policies, even if this does not necessarily lead to improved policy outcomes.<sup>33</sup> In particular, transnational networks of regulators can be a key forum in which regulators can learn from peers.

Several transnational networks bring together regulators from countries in both the core and periphery of global finance. For instance, the South East Asia, New Zealand, Australia Forum of Banking Supervisors brings together Basel Committee members including Australia, China, and Indonesia with non-members like New Zealand, Malaysia and the Philippines. While many networks are organized along regional lines, there are also networks that bring together regulators who oversee specific types of banking sectors, including the Group of International Finance Centre Supervisors (formerly the Offshore Group of Banking Supervisors) and the Islamic Financial Services Board.

Crucially, these transnational networks are a forum for policy transfer. Analysis of the agenda and records of their meetings reveals that bank regulators use these networks to share experiences of implementation Basel standards. For example, the Executives' Meeting of East Asia-Pacific Central Banks Working Group on Banking Supervision shares members' experiences in implementation of new regulatory frameworks. It regularly holds joint meetings with the Basel Committee to discuss the implementation of Basel standards in the Asia-Pacific region.<sup>34</sup>

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<sup>&</sup>lt;sup>28</sup> Chev 2007, 297.

<sup>&</sup>lt;sup>29</sup> Jones and Zeitz 2017.

<sup>&</sup>lt;sup>30</sup> Knaack 2017.

<sup>&</sup>lt;sup>31</sup> Vishwanathan 2015.

<sup>&</sup>lt;sup>32</sup> Romano 2014.

<sup>&</sup>lt;sup>33</sup> Dobbin, Simmons, and Garrett 2007. On dysfunctional policy transfer, see: Sharman 2010.

<sup>34</sup> BIS 2018.

Research on diffusion provides insights into the specific ways in which transnational networks drive policy transfer, distinguishing between process of learning and emulation. Learning is based on an evidence-based evaluation of practices in other countries and a progressive move from less effective to more effective policies. While this may take place, hard evidence of the efficacy of a policy in another jurisdiction may not always be available. Policies may still diffuse across borders, driven by a quest for normative acceptance and legitimacy rather than technical efficiency as policymakers emulate the policies of those they perceive to be leaders in their field. More generally, international financial networks foster common knowledge and "shared understandings" among the officials involved, leading them to converge on particular policy expectations. <sup>36</sup>

Financial regulators are especially inclined to follow their peers, since their professional incentives dissuade them from experimenting with regulation.<sup>37</sup> Following 'international best practices' and the policies of successful peers helps insulate regulators from attribution and attendant costs in the event of a financial crisis.<sup>38</sup> These effects are particularly strong where networks promulgate specific sets of regulatory standards, as non-implementation may result in social opprobrium from counterparts for failing to deliver on the group's regulatory program or shared norms.<sup>39</sup>

We expect regulators will learn from peers and emulate each other's decisions with regards to Basel adoption. All else equal, where regulators engage in networks where their peers are high adopters of Basel standards, we expect this to lead to higher levels of adoption.

#### **Competing for international capital**

The final set of cross-border interactions we expect to shape regulators' decisions over Basel are interactions between banks and international investors. These may be direct interactions or mediated through credit ratings agencies and other third parties. International investors and other market participants appreciate simple metrics such as the Basel standards for providing a straightforward assessment of national performance that can be easily integrated into risk-return calculations. Therefore, we expect regulators' decisions over Basel standards to emulate the decisions of regulators in countries with whom they compete for international capital, specifically investment into the financial services sector, following a similar logic to Elkins et al. (2006).

When raising capital internationally, banks face the problem that investors do not have complete information about banks' financial health. Banks may therefore advocate for the adoption of international standards to reassure investors they are financially sound. Evidence from East Asia suggests regulators adopted Basel I because they believed this would help domestic banks access international credit. Islamic banks have also looked to Basel standards as a mechanism for signalling to international investors. As a senior industry practitioner notes: "One of the challenges of being a Sharia-compliant bank is that you are

<sup>&</sup>lt;sup>35</sup> Dobbin, Simmons, and Garrett 2007.

<sup>&</sup>lt;sup>36</sup> Porter 2005.

<sup>&</sup>lt;sup>37</sup> Romano 2014.

<sup>&</sup>lt;sup>38</sup> Gadinis 2015, 52.

<sup>&</sup>lt;sup>39</sup> Brummer 2010a.

<sup>&</sup>lt;sup>40</sup> Mosley 2003b.

<sup>&</sup>lt;sup>41</sup> Elkins, Guzman, and Simmons 2006.

<sup>&</sup>lt;sup>42</sup> Gottschalk and Griffith-Jones 2006.

<sup>&</sup>lt;sup>43</sup> See Chey 2014, 59–66; 102–5; 115.

perceived to be very different to conventional institutions. Adopting standards is a way of banks communicating with their shareholders".<sup>44</sup>

International credit ratings agencies, institutional investors, and asset managers may shape these expectations, treating compliance with the latest Basel standards as being 'positive for bank creditworthiness'. For instance, in its assessment of Colombia, Fitch Ratings argued that the country's failure to fully align with Basel III standards meant that "they trail international peers that use more conservative and globally accepted capital standards". As Alexander et al. (2006) note, market participants frequently "perceive adherence to [international standards] as a mark of good regulatory practice that will enhance their reputation" and thereby "help them to obtain lower-cost funding from banks and capital markets."

Aside from individual banks' efforts to attract investors, governments may pursue the adoption of Basel standards as part of a broader strategy for attracting investment into the financial services sector. Established financial centers, as well as financial centres trying to gain market share, deliberately cultivate an image as secure and stable investment destinations to attract a greater volume of lucrative business. The reputational payoffs for compliance with international standards are comparatively high, and governments may thus be willing to bear the costs of compliance to achieve the reputational benefits. As a leading banker in Ghana noted with specific reference to the country's implementation Basel II, [o]ther African markets including Nigeria are in the process of getting their laws amended to improve their adherence to international norms and we need to ensure that we are not left behind in our bid to attract and retain capital". Crucially, where regulators adopt international banking standards as part of a strategy to attract international capital, we expect their decision will be shaped by the regulatory decisions of their competitors. We expect to observe clustering, with regulators from competitor countries responding in similar ways to Basel standards.

#### **Alternative explanations**

A prominent alternative category of explanations for the adoption of international standards in the financial periphery focuses on international pressure or coercion. Drezner emphasizes the role of great powers in international standard-setting and expects regulatory convergence to result from state-to-state pressure. However, there is little empirical evidence of such state-to-state pressure driving harmonization of financial standards, with the exception of Financial Action Task Force standards. For Basel standards, a more plausible mechanism is that pressure is exerted through international financial institutions, particularly the International Monetary Fund (IMF). Indeed, Wilf (2017) shows how engagement with the IMF helps explain the uptake of Basel I.

<sup>&</sup>lt;sup>44</sup> Alderson 2013.

<sup>&</sup>lt;sup>45</sup> Tarullo 2008, 142; Moody's Global Credit Research 2015, 77; Restoy 2018.

<sup>&</sup>lt;sup>46</sup> Wade 2018.

<sup>&</sup>lt;sup>47</sup> Alexander, Dhumale, and Eatwell 2006, 147. This was also the case in East Asia. See Chey 2007.

<sup>&</sup>lt;sup>48</sup> Sharman 2009.

<sup>&</sup>lt;sup>49</sup> Brummer 2012, 147. Ercanbrack 2015, 214. However, for international financial activity that thrives on secrecy and regulatory forbearance, regulators may deliberately opt against adoption of international standards to signal commitment to continuing this approach. See Goodhart 2011, chap. 12.

<sup>&</sup>lt;sup>50</sup> Owusu Kwarteng 2018.

<sup>&</sup>lt;sup>51</sup> Drezner 2008.

<sup>&</sup>lt;sup>52</sup> Sharman 2008.

However, with the more advanced Basel II and III standards, the IMF and World Bank do not give consistent advice. While they routinely recommend compliance with the Basel Core Principles and adoption of Basel I, they are much more circumspect about recommending the adoption of Basel II and III, actively discouraging it in some cases. For instance, in its response to a 2015 survey, Belize states it is not implementing Basel II on the direct advice of the IMF. Conversely, in francophone West Africa the IMF has been a strong advocate of countries moving to adopt Basel II. Significantly in IMF recommendations, we do not expect to see a systematic relationship between the interactions countries have with the IMF and their decisions on Basel II standards.

It is also possible that regulatory changes are driven by globalization and economic integration as such, rather than the specific financial interdependence we set out above. Countries that are more integrated in the international economy may be more likely to converge on what are seen as "international best practices" in banking regulation. Furthermore, countries may be inclined to mimic the regulatory behavior of countries to whom they are closely connected through processes of broad economic policy convergence, rather than specific incentives related to finance. To account for this alternative explanation, we include a spatial lag for trading partners in our empirical tests below, as a "placebo" test that allows us to isolate whether regulatory change is associated specifically with the forms of financial interdependence we identify, or with overall economic interdependence.

Finally, although our argument here focuses specifically on the effect of international linkages on regulators' decisions, we do not expect that this will be a complete explanation for variation in the adoption of Basel standards. Existing scholarship has drawn attention to the ways in which domestic features, such as existing regulatory practices, level of financial sector development, and the power of local banking elites, shape regulators' decisions over the adoption of international banking standards. <sup>56</sup> In the empirical models below, we therefore control for important domestic political and institutional factors and attributes of domestic banking systems that can help to explain the adoption of Basel II banking standards.

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<sup>&</sup>lt;sup>53</sup> Even for Basel I, the IMF's impact on actual implementation may be limited: studies have repeatedly shown borrowers' ability to avoid or delay implementation of IMF conditions. Mosley 2010. Stone 2004. Stone 2008. Dreher, Sturm, and Vreeland 2009.

<sup>&</sup>lt;sup>54</sup> FSI 2015, 4.

<sup>&</sup>lt;sup>55</sup> Illy and Ouedraogo 2019.

<sup>&</sup>lt;sup>56</sup> Quillin 2008; Walter 2008; Mosley 2010; Chey 2007; Chey 2014; Ho 2002; Quaglia and Spendzharova 2017; Jones and Zeitz 2017.

#### Data and methodology

To test our argument about the impact of interdependence and cross-border interactions on regulators' responses to Basel II, we estimate a series of spatial lag and spatial autoregressive models of Basel II adoption among countries outside the Basel Committee. Recent applications of spatial analysis in political science have identified spatial relationships in terms of joint membership in inter-governmental organizations, <sup>57</sup> similarity in attractiveness to international investors, <sup>58</sup> links through trade and investment, <sup>59</sup> and peers on the basis of the level of democracy. <sup>60</sup> We use spatial lags to capture the four forms of financial interdependence outlined above, as well as to control for a trade ties, an alternative form of interdependence. We focus on Basel II for reasons of data availability but expect similar processes to be at work in the ongoing diffusion of the more recent Basel III standard.

#### **Data description**

Our data on Basel II adoption by countries outside of the Basel Committee covers 100 jurisdictions. The majority of the data (ca. 80 countries) comes from the annual survey of non-members of the Basel Committee conducted by the Financial Stability Institute between 2012 and 2015. The survey asks respondents to report their level of adoption across Basel subcomponents and indicate the year since 2004 when each component was first introduced, which allows us to backdate the level of Basel II adoption from 2004 onwards. To test our expectations about interdependence between the periphery and core as well as within the periphery, we augment the survey data with manually collected data on jurisdictions that are members of the Basel Committee, including those who joined the Committee in 2009.

Our dependent variable consists of the total number of Basel II components adopted by a country outside of the Basel Committee (ranging from 0 to 10).<sup>65</sup> The sum of Basel II components a country has adopted is the most straightforward measure of the extent of adoption. Since countries adopt Basel II in very similar patterns (see Tables A1 and A2 in the appendix), we are confident that this straightforward measure does not mask differences in the nature of adoption. For instance, countries adopting three Basel II components tend to

<sup>&</sup>lt;sup>57</sup> Cao 2009. Greenhill 2010.

<sup>&</sup>lt;sup>58</sup> Elkins et al 2006., Hale 2015., Bathel and Neumayer 2012.

<sup>&</sup>lt;sup>59</sup> Cao 2010., Neumayer and de Soysa 2011.

<sup>&</sup>lt;sup>60</sup> Böhmelt, Ruggeri, and Pilster 2017, Ward and Gleditsch 2008.

<sup>&</sup>lt;sup>61</sup> Following the convention of the Correlates of War data, we exclude countries with a population lower than 500,000. We wish to study a universe of cases that we can reasonably expect to affect "other states' beliefs or behavior" (Chaudoin, Milner, and Pang 2015, 304.) Furthermore, data coverage for key covariates is sparse for these small countries.

<sup>&</sup>lt;sup>62</sup> Available from: <a href="http://www.bis.org/fsi/fsipapers.htm">http://www.bis.org/fsi/fsipapers.htm</a>

<sup>&</sup>lt;sup>63</sup> Spot-checking of national legislation and guidelines reveals survey data is generally accurate. See Tabart 2016.

<sup>&</sup>lt;sup>64</sup> This data was collected from the websites of central banks and regulatory authorities.

<sup>65</sup> Newman and Posner (2018) criticize the tendency of studies of soft law to treat compliance as a binary matter of compliance/non-compliance. The index is intended to capture the range of convergence options. It is the same index used as the dependent variable in Jones and Zeitz (2017). The ten Basel II subcomponents are: (1) standardized approach to credit risk; (2) foundation-internal ratings based approach to credit risk; (3) advanced-internal ratings based approach to credit risk; (4) basic indicator approach to operational risk; (5) standardized approach to operational risk, (6) advanced measurement approach to operational risk; (7) standardized measurement method for market risk; (8) internal models approach to market risk; (9) Pillar 2 (Supervision); (10) Pillar 3 (Market Discipline).

adopt the standardized approach to credit risk, the basic indicator approach to operational risk, and pillar 2 on supervision or pillar 3 on market discipline. To further confirm the robustness of our results, we also report models in the appendix (see Tables A10 and A11) that use an alternate dependent variable, which employs item response theory (IRT) to scale countries' adoption of the ten Basel II components.

The analysis is based on two cross-sections taken from the data in 2008 and 2013. 66 Our main results are from the 2008 data, which is the final year prior to the expansion of the Basel Committee in 2009. This year is appealing as a snapshot of the extent of Basel II adoption for three reasons: First, it consists of a large population of countries outside of the Basel Committee, which declines in subsequent years as the Basel Committee expands. Second, Basel Committee members themselves were only required to implement the standard by 2007, making 2008 the first year when countries outside the Basel Committee were confronted with increasing global adoption of the standard. Third, 2008 is the last year before the full extent of the global financial crisis became clear, a crisis which challenged the legitimacy of elements of Basel II. As a robustness check, we compare our 2008 results to a snapshot of adoption in 2013, which is the most recent year for which data on covariates are widely available for the countries in the dataset.

#### Spatial lag variables

To analyze the effect of interdependence in the spread of Basel II to the financial periphery we use a spatial lag model, in which the key explanatory variables are weighted observations of the dependent variable in other units. Spatial lags are calculated by multiplying a vector of the dependent variable with W, an  $N \times N$  matrix of the connections between units. We choose to row standardize our weighting matrices, such that all weights at the country level sum to one. <sup>67</sup> What is most important for testing our argument is the average level of Basel II adoption among those countries to which a jurisdiction is connected through financial interdependence. With row-standardized spatial lags, the variation in the spatial lag for each country comes largely from the variation in the Basel II adoption decisions of its connections. By contrast, with non-row-standardized spatial lags, variation in the spatial lag for each country stems both from the number of connections the country has and the variation in adoption decisions of its connections. <sup>68</sup> Since our theory is interested in the effect of being embedded in high- or low-adopting environments through financial interdependence, rather than having many or few connections, row-standardization more accurately reflects this.

Spatial lags are calculated using data on Basel II adoption for both non-members and members of the Basel Committee, since although we are ultimately interested in the decisions of non-members of the Basel Committee, their choices are shaped by the behavior of jurisdictions to which they are connected, both within and outside the Basel Committee.

Formally, the spatial lags are calculated as follows.

$$\boldsymbol{W_i} = \sum_{j \neq i} w_{ij} y_j$$

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<sup>&</sup>lt;sup>66</sup> We analyze the data in cross-sections since we are interested in the *extent* of adoption. Our theory does not yield any predictions about the *timing* of adoption, so we choose not to use the data as a panel.

<sup>&</sup>lt;sup>67</sup> Plümper and Neumayer 2010. Neumayer and Plümper 2016.

<sup>&</sup>lt;sup>68</sup> With no row-standardization, the spatial lag for a country with five connections that each have adopted two components of Basel II and a country with one connection that has adopted ten components of Basel II would be the same. With row-standardization, the spatial lag for the first country would be two and the spatial lag for the second country would be ten.

The following five spatial lags are calculated:

- Incoming foreign banks: A dichotomous weighting matrix that equals one if country *i* is host to a bank from country *j* in a given year. For instance, in 2008, Morocco is connected to France through three French banks operating in Morocco and connected to the United States through the presence of one American bank in Morocco. In the connectivity matrix, the French-Moroccan dyad and American-Moroccan dyad each take on a value of one. The data is recoded from Claessens and van Horen's dataset, which provides information on home and host jurisdictions at the bank level.<sup>69</sup>
- Banks operating abroad: A dichotomous weighting matrix that takes the value of one
  if there is a bank from country *i* operating in country *j* in a given year. In 2008, for
  example, Nigeria is connected to Cameroon, Rwanda, Uganda, Ghana, and the
  United Kingdom through the subsidiaries of its home banks.<sup>70</sup>
- Networks of banking supervisors: A dichotomous weighting matrix that takes the value of 1 if both countries are members of at least one shared international network of supervisors. We coded membership of 12 networks and forums, all of which include discussion of banking regulation on their agendas.<sup>71</sup> For instance, in 2008 Thailand is connected to 18 countries through joint membership of supervisory networks, including the East Asia-Pacific Central Banks Working Group on Banking Supervision and the South East Asia, New Zealand, Australia Forum of Banking Supervisors.
- Competition for capital: A dichotomous weighting matrix that takes the value of 1 if countries have the same sovereign credit in a given year. We follow previous work that has used similarity in credit ratings to identify countries that are competitors for investment capital.<sup>72</sup> This is premised on the notion that when investors compare potential investment destinations, they compare economies that have a similar risk profile. If countries are adapting their policies to attract foreign capital, they are likely to be influenced by countries with a similar risk profile, i.e. similar credit rating. For instance, in 2008, Namibia was given a BBB- rating by Fitch, making it a competitor of eight other countries in the dataset that had the same rating that year, including Brazil, Croatia, India, and Peru.
- Trade partners: As a control, we include a spatial lag for the intensity of trade links between countries, to ensure that the other four spatial lags are capturing bankingspecific interdependence and not merely capturing broader economic interdependence. This weighting matrix takes the value of 1 if total trade between country i and country j to country i's GDP is in the top 30<sup>th</sup> percentile (results are the

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<sup>&</sup>lt;sup>69</sup> Claessens and Horen 2014.

<sup>&</sup>lt;sup>70</sup> This matrix captures the interdependence created by banks operating abroad, it does not allow us to test whether Basel II adoption is driven by the market entry requirements of Basel II-compliant jurisdictions, since we do not have data on banks' expansion intentions.

<sup>71</sup> The networks are: (1) Executives' Meeting of East Asia-Pacific Central Banks Working Group on Banking Supervision; (2) Group of Banking Supervisors from Central and Eastern European Countries; (3) South East Asia, New Zealand, Australia Forum of Banking Supervisors; (4) The Arab Committee on Banking Supervision; (5) Association of Supervisors of the Banks of the Americas; (6) Committee of Banking Supervisors of West and Central Africa; (7) Caribbean Group of Banking Supervisors; (8) Association of Financial Supervisors of Pacific Countries; (9) Islamic Financial Services Board; (10) Group of French-Speaking Banking Supervisors; (11) Group of International Financial Center Supervisors; (12) Basel Consultative Group.

In a PhD thesis, Cho (2013) uses a similar approach to evaluate the role of international networks in the spread of Basel banking standards.

<sup>&</sup>lt;sup>72</sup> Simmons and Elkins 2004. Elkins, Guzman, and Simmons 2006.

same if trading partners are classified by the 10<sup>th</sup> or 20<sup>th</sup> percentile). Data is taken from the Correlate of War Trade data (v4.0).

All five of the spatial lags that we use in our main results have dichotomous connectivity matrices, in which pairs of countries are either connected or not. We test the robustness of results with alternate operationalizations of the connectivity matrices, in which we instead define connections continuously - banking and network connections by the number of crossborder banks and shared networks between the two jurisdictions, competition for capital by the similarity in credit ratings, and trade by the ratio of total trade to country i's GDP. These results are reported in the appendix in tables A3 and A4 and are largely similar to those in the main models reported below.

#### **Control variables**

In addition to the spatial lag variables described above, estimation models include the following control variables: financial sector depth (private sector credit as a % of GDP), 73 FDI inflows, democracy (Polity IV), corruption perception (Transparency International), central bank independence (Garriga), banking sector concentration, and whether a country had an agreement with the IMF in the last three years. To account for gaps in the data, some control variables are linearly interpolated. To further control for spatial clustering unrelated to interdependence, we include regional dummies in all of our models.

Table 1 reports summary statistics for the spatial lags and control variables in the panel as a whole and the two cross-sections. The difference between the 2008 and 2013 crosssections is driven by the change in the composition of the financial periphery following the expansion of the Basel Committee in 2009 to include members of the G20 and the EU, all of which had relatively high levels of Basel II adoption. 74 As a result, the 65 countries remaining in the financial periphery after 2009 have a lower average level of Basel II adoption than the 96 outside of the Basel Committee in 2008. The spatial lags, on the other hand, have higher values in 2013 than in 2008, reflecting the increasing adoption of Basel II among countries to which the countries in the financial periphery are connected, especially those within the Basel Committee.

<sup>&</sup>lt;sup>73</sup> Financial sector depth is highly correlated with development as measured in GDP per capita. For issues of multicollinearity, we omit GDP per capita in our main models, though we report them in the

appendix, see Table A5. <sup>74</sup> There are 31 fewer observations in 2013 models than in 2008 due to the expansion of the Basel Committee to include G20 members and the EU. Since EU member countries are represented through the EU, we also exclude EU member countries from the analysis in 2013.

Table 1: Summary statistics

	Entire	dataset 2005-2	2013	2008 Cross-section				2013 Cross-section					
Variable	Mean	Std. Dev.	$\mathbf{N}$	Mean	Std. Dev.	Min.	Max.	$\mathbf{N}$	Mean	Std. Dev.	Min.	Max.	$\mathbf{N}$
Dependent variable													
Basel II adoption	1.923	2.984	815	3.5	4.109	0	10	96	3.108	3.118	0	10	65
$Spatial\ Lags$													
Spatial lag: Incoming foreign banks	3.898	3.788	815	2.404	1.58	0	5.375	96	6.133	3.366	0	10	65
Spatial lag: Banks abroad	1.189	2.273	815	0.892	1.282	0	4.857	96	1.894	2.724	0	10	65
Spatial lag: Supervisory networks	1.825	2.226	815	1.031	0.856	0	2.474	96	3.269	2.539	0	7.333	65
Spatial lag: Sovereign competitors	1.536	2.696	815	1.324	1.698	0	7.333	96	2.283	3.172	0	10	65
Spatial lag: Top trading partners	4.357	2.925	799	2.593	0.369	1.786	3.489	96	7.119	0.690	5.5	8.875	65
Controls													
Financial sector depth	47.6	36.681	788	51.311	41.899	2.707	229.206	96	44.205	30.315	5.134	148.263	65
FDI inflows (as % of GDP)	5.662	6.859	797	7.104	7.201	0.056	50.968	96	5.264	6.529	0	37.732	65
Democracy	4.154	6.061	794	4.76	5.98	-10	10	96	4.062	5.793	-10	10	65
Corruption perception index	61.186	16.789	790	59.49	18.268	6	84	96	60.354	13.996	15	81	65
Central bank independence	57.186	19.382	710	59.442	19.97	13.45	89.900	96	56.607	16.163	14.922	86.650	65
Banking sector concentration	75.079	19.298	779	74.697	19.996	21.148	100	96	74.326	18.828	26.997	100	65
IMF program (last 3 years)	0.36	0.48	815	0.344	0.477	0	1	96	0.385	0.49	0	1	65

#### **Estimation methodology**

Our choice of estimation methodology is driven by our substantive interest in the behavior of countries outside of the Basel Committee and our theoretical expectation that regulation is shaped by interdependence. To evaluate the effect of interdependence, we adopt a spatial approach. Our expectation is that regulators in the financial periphery will be affected both by fellow non-members of the Basel Committee and by members of the Basel Committee, depending on which countries they have cross-border connections with. Although we are only interested in regulatory behavior among countries outside of the Basel committee, the spatial impulse comes partially from outside this group. This is easiest to capture with a "naïve" spatial-OLS estimator, where the weighting matrix **W** can encompass countries not included in the final estimation. We therefore report our main results using spatial-OLS models. Though spatial autoregressive models are often preferred to "naïve" spatial-OLS models for better accounting for endogeneity, these autoregressive models require the units in the estimation to be the same as those in the connectivity matrices. In robustness checks, we estimate spatial autoregressive models using the generalized spatial two-stage least squares estimator, using samples that either include all countries or drop members of the Basel Committee throughout.

We estimate the models using two cross-sections, one from 2008, before the expansion of the Basel Committee to include members of the G20 and EU, and the second from 2013. We lag both the spatial lags and control variables by one time period. The main models using "naïve" spatial-OLS models are specified as follows:

$$y_{it} = \alpha + \rho \mathbf{W}_{ijt-1} + \beta \mathbf{X}_{it-1} + \varepsilon_{i,j,t}$$

where  $\rho$  is the vector of effects of the spatial lags  $W_{ijt-1}$ , lagged by a year, and  $\beta$  is a vector of coefficients for the  $X_{it-1}$  matrix of control variables, all lagged by one year.

#### Results

#### 2008 results

Beginning with the results of the 2008 cross-section (shown in Table 2), we find consistent evidence of spatial dependence in the adoption of Basel II, particularly through the ties created by banks operating abroad and joint membership in supervisory networks. Models 1-5 include each of the five spatial lags separately, before combining the spatial lags in single models in columns 6 and 7. We concentrate our analysis on the final model in column 7 where all five spatial lags are included.

We find a positive and statistically significant spatial effect of the interdependence created by the banks of peripheral jurisdictions expanding abroad. Holding all else constant, a difference of one component in the level of Basel II adoption among the host regulators to which countries outside of the Basel Committee are connected (standard deviation: 1.282) is associated with a difference of 0.572 in the number of Basel II components adopted. This indicates countries outside of the Basel Committee are affected by the regulatory decisions in jurisdictions where their home-regulated banks have foreign subsidiaries. This convergence likely arises out of the cooperation between supervisors, who benefit from having a focal point for regulatory coordination. It suggests international banks headquartered in jurisdictions in the financial periphery may be encouraging Basel II adoption in line with the foreign jurisdictions in which they operate.

The spatial effect of joint membership in international networks is positive and statistically significant, indicating that countries are affected by the extent of Basel II adoption of fellow supervisory network members. A difference of one component in the level of Basel II adoption among fellow members of supervisory networks (standard deviation: 0.856) is associated with a difference in Basel II adoption of 1.085 components. Because banking supervisory networks tend to be organized along regional lines, it is noteworthy that we find this relationship even with the inclusion regional dummies. This indicates there is a spatial effect of shared membership that goes beyond mere unit similarities within regions and suggests regulators are learning from and perhaps emulating their counterparts in these networks.

We find less evidence for spatial dependence in Basel II adoption on the basis of incoming foreign banks or competition for capital. While the incoming foreign banks spatial lag is positive and statistically significant on its own (column 1), this is no longer the case when we control for other forms of interdependence.

We also control for spatial dependence based on trade links but find no statistically significant relationship. The fact that we find evidence of spatial dependence for banking-related spatial lags even while controlling for trade links indicates that the spatial relationships identified are specific to banking globalization rather than broader economic integration.

Turning to the controls, the significant effects are broadly in line with expectations. Financial sector depth is positive and significant across models: economies with deeper financial sectors will adopt Basel II to a greater extent. A one standard deviation difference in private credit to GDP (41.899%) is associated with a difference of 0.629 in components of Basel II adopted. In line with our predictions, corruption has a negative effect on the extent of Basel II adoption. All else equal, countries that are one standard deviation apart on the corruption perception index (18.268) will have a difference of 0.895 components in Basel II components adopted. Finally, banking sector concentration is positively and significantly associated with the level of Basel II adoption (one standard deviation difference, 19.996, associated with 0.96 Basel II components adopted), in line with the understanding in the literature that large banks are most likely to benefit from Basel II, since more concentrated banking sectors are likely to host fewer, but larger banks. These results speak to the relative role of domestic factors in

driving regulatory change in the financial periphery. On the one hand, measures of political and institutional traits, e.g. democracy and central bank independence, are not significantly associated with the extent of Basel II adoption, suggesting that international relationships of interdependence are more important. Nevertheless, there are indications that domestic factors related to the suitability of the banking standards (i.e. financial sector depth and banking sector concentration) determine the extent of Basel II adoption. In terms of magnitude, these domestic factors have a similarly sized impact on the extent of Basel II adoption as forms of spatial dependence, with a one standard deviation difference being associated with a difference of 0.6-1.1 components of Basel II adopted, all else equal.

Table 2: Results: Spatial-OLS model of the extent of Basel II Adoption in 2008

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\mathbf{W}_{\mathrm{V}}$ Incoming Foreign Banks: $ ho$	0.517**					0.352	0.330
.,,	(0.205)					(0.212)	(0.209)
$\mathbf{W}_{\mathrm{V}}^{\mathrm{Banks \ Abroad}} :  ho$	(0.200)	0.555**				0.542**	0.572**
,		(0.255)				(0.224)	(0.225)
$\mathbf{W}_{\mathrm{V}}$ Supervisory Networks: $ ho$		(0.200)	1.114***			0.978**	1.085**
··· y			(0.400)			(0.415)	(0.427)
$\mathbf{W}_{\mathbf{y}^{\mathrm{Competitors}}}: ho$			(0.400)	0.418*		0.396*	0.362*
.p				(0.244)		(0.205)	(0.214)
$\mathbf{W}_{\mathrm{V}}$ Trade partners: $ ho$				(0.244)	-0.698	(0.200)	-1.289
•• y					(1.332)		(1.234)
					(1.332)		(1.234)
Controls							
Financial sector depth	0.021***	0.020**	0.026***	0.018*	0.021**	0.017**	0.015*
i manetar sector depth	(0.008)	(0.009)	(0.008)	(0.010)	(0.009)	(0.008)	(0.009)
FDI inflows (as % of GDP)	0.008	0.015	-0.011	0.025	0.009	0.009	0.005
1 D1 milews (ab / v of GD1)	(0.044)	(0.041)	(0.041)	(0.044)	(0.045)	(0.040)	(0.042)
Democracy	0.049	0.063	0.022	0.077	0.062	0.027	0.012
Democracy	(0.062)	(0.066)	(0.064)	(0.062)	(0.064)	(0.060)	(0.057)
Corruption perception index	-0.052***	-0.053***	-0.072***	-0.043**	-0.063***	-0.041**	-0.049**
Corruption perception macx	(0.017)	(0.017)	(0.017)	(0.019)	(0.017)	(0.019)	(0.019)
Central bank independence	0.027*	0.023	0.021	0.018	0.023	0.019	0.017
Central bank independence	(0.015)	(0.014)	(0.014)	(0.015)	(0.015)	(0.013)	(0.014)
Banking sector concentration	0.034**	0.031*	0.030**	0.026*	0.013	0.048***	0.048***
Danking Sector Concentration	(0.015)	(0.016)	(0.014)	(0.015)	(0.015)	(0.015)	(0.016)
IMF program (last 3 years)	-0.909	-0.769	-0.881	-0.834	-1.157	-0.334	-0.527
imir program (last 3 years)	(0.801)	(0.830)	(0.806)	(0.841)	(0.845)	(0.782)	(0.799)
Constant	-1.888	-0.270	0.573	(0.841) -0.494	(0.843) $2.881$	-3.933	-0.286
Constant							
	(2.496)	(2.285)	(2.239)	(2.255)	(3.789)	(2.574)	(3.843)
Observations	96	96	96	96	96	96	96
R-squared	0.642	0.639	0.652	0.632	0.622	0.693	0.699
Region dummies	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

#### 2013 results

To check our findings, we run a separate set of spatial-OLS models on the 2013 cross-section, when the sample of countries outside the Basel Committee is smaller. Results are reported in Table 3. As noted above, we expect these results to differ from the 2008 findings because of the different traits and connections among the jurisdictions that remain in the periphery in 2013. Indeed, we find evidence that competition for capital is a basis for spatial dependence in the pattern of Basel II adoption in 2013, but that the relationships created through the operation of banks abroad and the joint membership in supervisory networks are no longer statistically significant drivers of regulatory convergence, as they were in 2008.

Though the spatial lags of interest are positive and largely statistically significant when included on their own in the 2013 cross-section (see models 8-11 in Table 3), only the competitors for capital spatial lags is statistically significant when all are included in the full model (model 14 in Table 3), while the incoming foreign banks spatial lag approaches statistical significance. Among competitors for capital, a difference of three components in the level of Basel II adoption (standard deviation: 3.172) is associated with an increase in Basel II adoption of 0.834 components. This suggests that among those countries in the financial periphery in 2013, the extent of Basel II adoption is related to the choices about Basel II adoption being made by countries in similar risk classes.

The comparison of the 2008 and 2013 cross-sections highlights differences in the drivers of regulatory change as the composition of the periphery changes and Basel II adoption expands globally. In particular, it draws attention to the importance of disaggregating market linkages into the specific ties created by firms' movement across borders. While for those countries outside of the Basel Committee in 2008 (including Argentina, Brazil, China, and South Korea) the operation of domestic banks abroad is an important form of interdependence that leads to the spread of Basel II, this is not the case for those countries that remain outside of the Basel Committee in 2013. For these smaller economies, competition over investment is a more important form of economic interdependence and source of regulatory change.

Table 3: Results: Spatial-OLS model of the extent of Basel II Adoption in 2013

	(8)	(9)	(10)	(11)	(12)	(13)	(14)
WyIncoming Foreign Banks:ρ	0.005***					0.105*	0.101*
$\mathbf{W}$ y meaning relegil Banks: $\rho$	0.325***					0.165*	0.161*
$\mathbf{W}_{\mathrm{V}^{\mathrm{Banks \; Abroad}}}:  ho$	(0.087)	0.204				(0.088)	(0.090)
$\mathbf{W}$ y $\mathbf{y}$ $\mathbf{y}$ $\mathbf{y}$ $\mathbf{y}$		0.324				0.207	0.200
$\mathbf{W}_{ ext{V}}^{ ext{Supervisory Networks}}:  ho$		(0.197)	0.472***			(0.165)	(0.166)
<b>w</b> y : ρ						0.293*	0.279
$\mathbf{W}_{ ext{v}^{ ext{Competitors}}}: ho$			(0.176)	0.970***		(0.174)	$(0.167) \\ 0.278**$
$\mathbf{w}$ y $\mathbf{y}$ $\mathbf{y}$				0.378***		0.278**	
$\mathbf{W}_{ ext{V}}^{ ext{Trade partners}} :  ho$				(0.130)	0.005	(0.126)	(0.127)
<b>w</b> y rade paramete:ρ					-0.995		-0.209
					(0.878)		(0.855)
Controls							
Controls							
Financial sector depth	0.033**	0.038**	0.035**	0.022	0.038**	0.017	0.016
-	(0.015)	(0.015)	(0.017)	(0.018)	(0.017)	(0.015)	(0.016)
FDI inflows (as % of GDP)	-0.039	-0.038	-0.062	-0.043	-0.060	-0.035	-0.036
,	(0.037)	(0.042)	(0.041)	(0.042)	(0.040)	(0.045)	(0.047)
Democracy	-0.050	0.024	-0.000	0.018	0.034	-0.023	-0.018
•	(0.083)	(0.080)	(0.075)	(0.083)	(0.086)	(0.071)	(0.077)
Corruption perception index	-0.029	-0.000	-0.026	-0.008	-0.037	-0.003	-0.006
	(0.032)	(0.032)	(0.032)	(0.031)	(0.035)	(0.029)	(0.033)
Central bank independence	0.040	0.027	0.002	0.013	0.025	0.012	0.013
	(0.029)	(0.029)	(0.032)	(0.029)	(0.030)	(0.031)	(0.030)
Banking sector concentration	0.011	0.005	-0.006	-0.011	0.001	0.005	0.006
	(0.021)	(0.019)	(0.020)	(0.020)	(0.023)	(0.020)	(0.021)
IMF program (last 3 years)	0.428	0.305	0.560	0.456	0.121	0.406	0.336
	(0.802)	(0.833)	(0.833)	(0.756)	(0.828)	(0.762)	(0.763)
Constant	-2.209	-1.848	1.418	0.499	7.654	-2.156	-0.639
	(3.240)	(3.251)	(3.376)	(3.251)	(7.013)	(3.026)	(7.064)
Observations	er.	er.	er.	er.	G.F	GF.	GF.
Observations	65	65	65	65	65	65	65
R-squared	0.391	0.360	0.368	0.402	0.332	0.486	0.487
Region dummies	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

#### Robustness: Spatial autoregressive models

To test the robustness of our results, we estimate a series of spatial autoregressive models. While autoregressive models are often preferred to spatial-OLS models to avoid simultaneity bias, they require the sample of countries included in the connectivity matrices and in the final analysis to be the same, making them unsuitable for our main results. In the autoregressive models reported in the appendix as robustness checks, we first expand the analysis to consider the adoption of Basel II by all countries (both within and outside the Basel Committee) and second limit the spatial connectivity matrices to include only countries outside the Basel Committee. These specifications diverge from our baseline models in ways that are likely to change the results. When the estimation sample is expanded to include all countries, this introduces noise, since Basel Committee members are required to adopt Basel II, and their level of adoption is unlikely to be determined by spatial interdependence. When the connectivity matrices are shrunk to encompass only countries outside the Basel Committee, this excludes crucial links that are drivers of Basel II adoption, especially cross-border banking links between the financial core and periphery.

Bearing this in mind, the results from the 2008 and 2013 cross-sections shown in the appendix in Tables A6-A9 give support to our argument that regulatory choices are driven by interdependence. The spatial lags for international supervisory networks are significant across models and competition for capital has a statistically significant spatial effect in three out of four models.

The two results that do not appear the same way in these robustness checks are the effect of banks going abroad and the "placebo" trade spatial lags. In the GS2SLS models of Basel adoption in 2008 and 2013, home regulators do not appear to imitate the behavior of the host regulators of their domestic banks abroad. This is likely a consequence of expanding the estimation sample and shrinking the connectivity matrix. For members of the Basel Committee, adoption of the Basel standards is less likely to be determined by outside forces, since they designed the standard themselves and committed to adoption. When the connectivity matrix includes only countries outside the Basel committee, this excludes connections into high-adopting jurisdictions within the Basel committee. The trading partners "placebo" spatial lag, which is not statistically significant across the spatial-OLS models, is significant in the GS2SLS models when the estimation sample is expanded to include Basel Committee members, though not when the connectivity matrices only include countries outside the Basel Committee. This is likely attributable to the fact that the adoption of Basel II by trading partners among the Basel Committee is overdetermined by their joint membership in the Basel Committee.

#### Robustness: Alternate measure of the dependent variable

In the main models reported in Tables 2 and 3 above, the dependent variable of the extent of Basel II adoption is measured using the sum of Basel II components adopted. While this is a straightforward measure, there might be a concern that the index is not sufficiently sensitive to differences among Basel II components. As a robustness check, we therefore re-estimate our main models with an alternate dependent variable that uses item response theory (IRT) to scale countries' Basel II adoption. Here we treat countries' choice to adopt each of the ten subcomponents of Basel II as ten "votes" and use IRT to scale the underlying

<sup>&</sup>lt;sup>75</sup> In 2007, 10% of banking dyads in which the home regulator was outside the Basel Committee had a host regulator within the Basel Committee, while in 2012 it was 25%

<sup>&</sup>lt;sup>76</sup> IRT has been applied in political science to yield continuous measures of actors' preferences or behavior based on a series of discrete choices (e.g. voting in the UN General Assembly). See Fariss 2014; Bailey, Strezhnev and Voeten 2015; Fariss 2018.

preferences of a country with respect to Basel II. Since some components are much more challenging to adopt than others (e.g. the advanced internal ratings based approach), countries will receive a higher score for having adopted these than simply one additional point on the summative index. The results from these alternate models (reported in Tables A10 and A11) are not substantively different from the main results reported in Tables 2 and 3 above, supporting the robustness of our findings.

#### Conclusion

We argue that the diffusion of international banking standards from countries at the core of the financial system to countries in the periphery is driven by specific cross-border relationships between banks, regulators, and investors. Our core finding is that a regulator's decision over the adoption of international standards is shaped by the choices of regulators to whom he or she is connected through the cross-border operations of individual banks, transnational professional networks, and competition for capital. In particular, regulators in the financial periphery adopt a greater extent of the Basel II banking standard when they are the home supervisor of banks operating in high-adopting jurisdictions, are members of regulatory networks with high-adopting jurisdictions, and compete for capital with countries that have adopted more of the Basel II standard. Crucially, we have shown that while international considerations shape regulatory decisions, what matters is not the extent to which countries are open to the global economy but rather the nature of these connections and the counterparts to whom they are connected.

Although we model these four forms of interdependence as independent from one another, in practice it is reasonable to expect that the spatial processes may overlap and have a cumulative (rather than independent) impact on regulatory outcomes. For instance, following the global financial crisis there has been an expansion of regional banks in the financial periphery in response to the retrenchment of European banks. It is plausible that regional banks have increasingly similar spatial configurations to transnational networks of supervisors, intensifying regulatory interdependence in non-linear ways. In Ghana, there is an increasing presence of Nigerian and other banks from West Africa, which may result in Ghanaian regulators being more responsive to processes of learning and emulation in the Committee of Banking Supervisors of West and Central Africa, than if foreign banks in Ghana were from outside the region.

While welcomed for empirically capturing relations of interdependence, spatial modelling techniques have been criticized for failing to specify interdependence at the actor-level. To address this concern, we rely on actual firm-level linkages to capture interdependence generated by cross-border banks and membership of specific supervisory networks in our empirical work, rather than broader measures that are commonly used to estimate proximity. We treat the impact of various spatial lags on regulatory outcomes as independent to assess the importance of each form of spatial dependence. Future work should endeavor to capture the possibility of (non-linear) cumulative effects such as the one described above.

Our findings speak to wider debates on the conceptualization and estimation of policy interdependence in the global economy. Overall, our analysis underscores the value of conceptually parsing out the relevant actor-level linkages that connect countries, specifying the accompanying micro-processes that plausibly shape domestic policy decisions, and testing these explanations empirically using spatial estimation techniques. While others have used such approaches to estimate the impact of international governmental and non-governmental networks, few studies have used them to examine the impact of the cross-border activities of firms.

There is potential for a productive research agenda that investigates the ways in which cross-border relations at the level of the firm help explain regulatory convergence and divergence in other issue areas, from the adoption of accounting regulations, to food and other product standards. For instance, global accounting firms and professional accounting associations have been central in the design and promotion of international accounting standards and cross-border linkages created by these firms and professional associations

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<sup>&</sup>lt;sup>77</sup> Oatley 2016.

<sup>&</sup>lt;sup>78</sup> See e.g. Phillips 2017.

may help explain spatial patterns of diffusion.<sup>79</sup> Similarly, lead firms in global food and garments supply chains have championed the implementation of specific sets of private food and labor standards, which may account for the spatial patterns associated with their diffusion.<sup>80</sup>

Future research could investigate the relative power of individual firms in shaping regulatory outcomes across the world. Spatial and network analysis has revealed the differential positions that countries occupy as nodes in the networked global economy. Less attention has been paid to the relative power of individual firms as the providers of networks. In the preceding analysis for instance, we have shown that individual banks, through their cross-border operations, act as important vectors for the diffusion of regulatory practices across countries. An important but unanswered question is how network power is distributed across banks: which international banks occupy positions of systemic importance in processes of regulatory diffusion by virtue of their position as network providers?

However, a firm-level research agenda faces challenges. First, data on cross-border relations at the firm level is hard to obtain and researchers will need to invest in creating datasets on the cross-border activities of individual firms and supply chains. Second, and more profoundly, while studying cross-border relations at the level of individual actors helps capture systemic dynamics missed in an open economy politics approach, network and spatial approaches can have blind spots with respect to system-level macroeconomic trends that shape policy outcomes. Engaging these critiques will be key for a research agenda investigating firm-level regulatory interdependence.

Our findings have substantial policy implications. There is growing consensus among international policymakers that one size does not fit all when it comes to banking regulation and that countries outside of the Basel Committee, particularly developing countries, should be selective in their implementation of international standards and adopt a proportional approach. Yet this well-intentioned advice overlooks the powerful reputational, competitive and functional incentives generated by financial globalization that, as we have shown, may lead regulators to adopt international standards even if they are ill-suited to their local context. There is thus a compelling argument for reforming international standards and standard-setting processes to better reflect the interests of countries in the financial periphery. He financial periphery.

<sup>&</sup>lt;sup>79</sup> Caramanis 2002; Botzem and Quack 2009; Botzem 2014.

<sup>&</sup>lt;sup>80</sup> On food standards see e.g Lee, Gereffi, and Beauvais 2012. On labor standards see e.g. Malesky and Mosley 2018.

<sup>&</sup>lt;sup>81</sup> This study would not have been possible without a unique dataset that provides bank-level information on home and host jurisdictions: Claessens and Horen 2014.

<sup>&</sup>lt;sup>82</sup> Blyth and Matthijs 2017.

<sup>83</sup> Restoy 2018; Hohl et al. 2018; Barth and Caprio 2018.

<sup>&</sup>lt;sup>84</sup> For details on such a policy agenda see Beck, Jones, and Knaack 2018b; Jones and Knaack 2019.

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