

# Financial Inclusion and Global Regulatory Standards

An Empirical Study across Developing Economies





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## About the New Thinking and the New G20 Project

The project aims to promote policy and institutional innovation in global economic governance in two key areas: governance of international monetary and financial relations and international collaboration in financial regulation. Sponsored by CIGI and the Institute for New Economic Thinking, the project taps new research and next-generation scholars in the emerging economies, linking them to established networks of researchers in the industrialized world. The objective over the longer run is to create a more permanent and self-sustaining research network that will provide a continuing stream of new ideas, sustain international collaboration and integrate researchers from the emerging economies into global policy discussions.

Miles Kahler and Barry Eichengreen (principals in the original project) recruited C. Randall Henning (new principal, American University) and Andrew Walter (University of Melbourne) to lead two research teams devoted to macroeconomic and financial cooperation and to international financial regulation. Gathering authors from eight countries, the project consists of 11 CIGI papers that add to existing knowledge and offer original recommendations for international policy cooperation and institutional innovation. CIGI will also publish the final papers as an edited volume that addresses the global agenda in these issue-areas.

## About the Author



Mariana Magaldi de Sousa is professor at the Center for Research and Teaching in Economics in Mexico City. She has worked as a consultant to the Inter-American Development Bank, Oxfam International and the Ministry of Social Development in Mexico. She received a Ph.D. in political science from the University of Notre Dame and specializes in financial regulation in Latin America and international political economy more broadly.

## Acronyms

AFI	Alliance for Financial Inclusion
BCBS	Basel Committee on Banking Supervision
CPSS	Committee on Payment and Settlement Systems
CUNY	City University of New York
G20	Group of Twenty
GPFI	Global Partnership for Financial Inclusion
Global Findex	World Bank Global Financial Inclusion Database
SSBs	standard-setting bodies
UNSGSA	United Nations Secretary-General's Special Advocate for Inclusive Finance for Development

## Introduction

Expanding the access of financial services to low-income households and other disadvantaged groups has become an important public policy goal in the past decade. Many developing economies have encouraged the introduction of a variety of programs, services and branchless banking instruments ranging from automatic teller machines to cell phones to reach people for whom traditional, branch-based structures, had not. After the 2008 global financial crisis, the leaders of the Group of Twenty (G20) recognized the need to further promote these initiatives as key components in the development of healthy, vibrant and stable financial systems that contribute to sustainable economic growth and lower levels of income inequality. As a result, financial inclusion has become one of the new areas of international financial regulation coordination, alongside shadow banking, resolution regimes and new capital requirements.

Inclusion is certainly welcome if we consider it as an independent, stand-alone objective of financial regulation. According to the World Bank Global Financial Inclusion Database (Global Findex) (2011), 2.5 billion adults (about half the world's adult population) have no access to financial services delivered by regulated financial institutions. While account penetration is nearly universal in high-income nations, it is only 41 percent in developing countries. Initiatives which aim to increase access to, and usage of, financial services can help people in emerging economies rely less on informal mechanisms for loans, savings and protection (Global Partnership for Financial Inclusion [GPFI] 2013).

However, when assessed in conjunction with other financial regulation objectives such as stability, integrity and consumer protection, policy interventions geared toward greater inclusion may entail some considerable risks that can threaten the growth- and equality-enhancing benefits of financial empowerment. For example, the South African government, in an attempt to encourage lending to a previously excluded group, permitted payroll deductions from civil servant salaries for scheduled payments on unsecure small loans that were meant to be used for housing purposes. Before long, government employees became overindebted due to an abrupt increase in credit demand and abuse by lenders, who extended loans for other purposes besides housing. The government withdrew its permission, causing an increase in payment defaults, and ultimately, the failure of a large bank and a run on others.

At the Seoul G20 Summit in 2010, G20 leaders, recognizing the need to achieve a balance between core financial policy objectives, called for the creation of the GPFI to coordinate the implementation of responsible financial inclusion. Since its inception, the GPFI's work, carried out through its subgroups, has focused on several important elements. These include: engaging with the standard-setting bodies (SSBs) to catalyze progress on financial inclusion and help ensure that the global regulatory environment supports national policy makers to promote innovative financial inclusion reforms; incorporating financial inclusion into all types of financial sector assessments (such as the Financial Sector Assessment Programme); creating an extensive dataset of financial inclusion indicators; and evaluating countries' frameworks for consumer protection and financial literacy.

Since the Los Casos G20 Summit in 2012, the GPFI has supported the development of national financial inclusion strategies through the G20 Financial Inclusion Peer Learning Program. Under this program, like-minded G20 and non-G20 countries shared their experiences in designing effective policies to promote and prioritize financial inclusion in their national agendas. The Alliance for Financial Inclusion (AFI) — a global network of 117 central banks and financial regulators working in 94 developing and emerging countries — has acted as the GPFI's partner in helping countries to implement national strategies and energize stakeholders to achieve targeted goals.

In April 2014, the AFI published a document highlighting the main global trends and recommendations from previous financial inclusion experiences (Newnham 2014). One of these recommendations states, "policy makers need to pursue a proportionate application of global standards" (ibid., slide 24). Since the 2007-2008 financial crisis, the five SSBs — the Basel Committee on Banking Supervision (BCBS), the Committee on Payment and Settlement Systems (CPSS), the Financial Action Task Force, the International Association of Deposit Insurers and the International Association of Insurance Supervisors — have put forth various global standards to provide guidance to national regulators and policy makers in

the design and implementation of regulatory frameworks that minimize risk and ensure the safety and soundness of the financial system. However, these global standards can also pose a challenge to developing countries, because they can restrict the space for the creation and adoption of new products and services that would allow for greater reach of the financial system. Regulatory frameworks must thus balance the benefits of regulation against its costs in order to allow sufficient room for innovation and avoid the unintended consequence of hindering financial inclusion. In other words, the implementation of global regulatory standards at the country level must follow the proportionality principle, which requires attention not just to the risks of financial instability and lack of integrity, but also to the benefits of financial inclusion.

This paper contributes to the discussion about the enablers and barriers to responsible financial inclusion by assessing to what extent differences in the adoption of post-crisis global regulatory standards can explain cross-country variation in financial inclusion. Some of the questions this paper sets out to answer include whether implementation of global regulatory standards hampered financial inclusion or helped it, and whether national regulators in developing countries have been able to apply international regulatory recommendations in a proportionate manner. Using the 2011 Global Findex database, two original indices of financial inclusion for 90 developing and emerging economies were constructed in order to benchmark countries' performance in this dimension. These indices were then used as the dependent variables in cross-country regression analyses, evaluating the impact of various aspects of global regulatory standards. The findings of these analyses are mixed. On the one hand, international recommendations related to information disclosure have a positive impact on financial inclusion. Regulators' efforts to expand the use of financial services are complemented by better publicly available information about financial institutions' risks and risk-management procedures. On the other hand, global standards regarding macroprudential regulation and capital adequacy have impaired financial inclusion initiatives. Countries that have adopted more strict capital requirements and utilized macroeconomic factors to assess systemic risk are more likely to have lower levels of inclusion. These results can help inform the coordination agenda on international financial regulation that can meet the challenge of balancing inclusion, integrity and stability of the financial sector.

Beyond the introduction, this paper is structured into five main parts. The second section discusses the concept of financial inclusion and its operationalization in empirical indices. An original mapping of countries' performance in terms of financial inclusion is presented. The third section draws attention to the lack of systematic studies on the relationship between post-crisis global regulatory recommendations and financial inclusion. Three general theoretical hypotheses on why this is so are then postulated. This section also identifies possible alternative mechanisms linking various aspects of global

regulatory standards and financial inclusion. The fourth section tests these hypotheses and presents the main empirical results of the regression analyses. The last section concludes with some suggestions for international regulation policy that supports inclusive financing.

## The Variation of Financial Inclusion across Countries

Financial inclusion, or inclusive financing, generally refers to the wide availability of financial services and to their usage by low-income households and other disadvantaged groups. The concept has gained importance since the early 2000s when a direct correlation between inclusion and poverty reduction was found (Chibba 2009; Manji 2010). Today, inclusive financing is an integral part of mainstream thinking on economic development, and even the G20 has recognized its importance (G20 Leaders Declaration 2012).

In this paper, a more restrictive definition of financial inclusion is adopted: the use of financial services through traditional instruments (for example, bank accounts or debit cards) or innovative ones (for example, cell phones). The access dimension of inclusion is not considered for two reasons. First, access is more closely related to factors that affect the supply of financial services, whereas use is determined by demand as well as supply influences (Allen et al. 2012). Since inclusion can be restricted by supply and demand factors alike, a more appropriate measure is one that captures both aspects. Second, the dataset used to empirically capture the concept of financial inclusion — the Global Findex — measures the use but not the access of financial services.

The distinction between inclusion via traditional instruments and innovative ones is important because it is not possible to know a priori how these two dimensions are correlated. Greater use of bank accounts and debit cards could serve as an incentive for low-income groups to utilize financial services through cell phones and other innovative instruments. It may be the case that people search out these new mechanisms because they do not have access to more traditional forms of banking. In this case, these two forms of providing financial services would be negatively correlated. As a result, ignoring such a distinction and forcing these two dimensions to load into a single empirical index could lead to biased results.

The Global Findex database provides a set of indicators that measure how adults in 148 countries save, borrow, make payments and manage risk using both traditional and innovative instruments. The data are drawn from the Global Findex Questionnaire, a survey conducted by Gallup, Inc., as part of its Gallup World Poll, among more than 150,000 adults in



2011.<sup>1</sup> It is the only publicly available dataset that systematically covers several indicators of financial inclusion across numerous countries (Demirgüç-Kunt and Klapper 2012).

In order to benchmark countries' performance in terms of financial inclusion, a principal component analysis (with varimax rotation) was applied to nine indicators from the Global Findex dataset. They included: account at a formal financial institution (acffi); account used for business purposes (accbus); account used to receive wages (accwages); debit card (debitcard); electronic payments used to make payments (elecipay); loan from a financial institution in the past year (loanfi); saved at a financial institution in the past year (savefi); cell phone used to pay bills (mobilepay); and cell phone used to send money (mobilesend). All indicators are presented as a percentage of the population aged 15 years and older.

The analysis yielded two orthogonal indices of financial inclusion, which suggest there are two distinct dimensions that capture the usage of financial services. The two dependent variables of this study are the use of financial services through either traditional or innovative mechanisms. Table 1 shows the factor loadings and the variance explained by both dimensions. Because the indicators acffi, accbus, accwages, debitcard, elecipay, loanfi and savefi load well within the first extracted component, this dimension is considered to represent the use of financial services through traditional instruments (the first dependent variable). Similarly, because mobilepay and mobilesend present high correlation coefficients with the second extracted component, this dimension is considered to reflect the use of financial services through innovative instruments (the second dependent variable). Together, these two indices account for 66.39 percent of the variation in the original indicators.<sup>2</sup>

Table 1: Component Loadings for Principal Component Analysis of Indicators of Financial Inclusion

Indicators of Financial Inclusion	Component 1	Component 2
Account at a formal financial institution (% age 15+), acffi	0.97	0.00
Account used for business purposes (% age 15+), accbus	0.62	0.16
Account used to receive wages (% age 15+), accwages	0.93	0.00
Debit card (% age 15+), debitcard	0.89	0.02
Electronic payments used to make payments (% age 15+), elecipay	0.81	0.12
Loan from a financial institutions in the past year (% age 15+), loanfi	0.42	-0.29
Saved at a financial institution in the past year (% age 15+), savefi	0.74	0.07
Cell phone used to pay bills (% age 15+), mobilepay	0.24	0.81
Cell phone used to send money (% age 15+), mobilesend	-0.05	0.88
Percentage of total variance explained	49.08	17.31

Source: Author's own calculations.

On the basis of the distribution of the object scores for each dimension, the 90 developing and emerging sampled countries were classified according to the level of financial inclusion from broadest (1) to narrowest (90) (see Table 2). As the mean of both components extracted from the analysis is zero, countries with positive object scores presented broad use of financial services, whereas countries with negative object scores presented narrow use of financial services. While the minimum values for the first and the second indices of financial inclusion are -2.63 and -1.26, their maximum values are 6.94 and 6.32, respectively. The standard deviations in both indices are equal to one.

1 A second version of the Global Findex dataset is scheduled to be published in April 2015. For more information about the Global Findex Database Methodology, see the World Bank's website: <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTPROGRAMS/EXTFINRES/EXTGLOBALFIN/0,,contentMDK:23172731~pagePK:64168182~piPK:64168060~theSitePK:8519639,00.html>.

2 Although the first dimension (use of financial services through traditional instruments) explains almost half the variation in the original indicators in 2011, the expectation is that the second component (use of financial services through innovative instruments) will become more important as more data become available with the publication of the second version of the Global Findex Database.

Table 2: Variation of Financial Inclusion across 90 Developing and Emerging Countries

Broad Use of Financial Services	Narrow Use of Financial Services
<b>Through Traditional Instruments (Component 1)</b>	
Angola (29), Bahrain (23), Belarus (19), Bosnia-Herzegovina (28), Brazil (24), Bulgaria (37), Chile (41), China (27), Costa Rica (26), Croatia (8), Estonia (1), Greece (18), Hungary (10), Israel (6), Jamaica (9), Kazakhstan (33), Kenya (22), Kosovo (44), Kuwait (5), Latvia (4), Lebanon (38), Lithuania (11), Malaysia (20), Mauritius (15), Montenegro (34), Morocco (31), Mozambique (30), Nigeria (45), Poland (13), Romania (42), Russia (36), Senegal (16), Serbia (25), Singapore (2), Slovak Republic (3), South Africa (21), Sri Lanka (40), Swaziland (43), Thailand (12), Trinidad and Tobago (7), Turkey (17), Ukraine (39), United Arab Emirates (14), Venezuela (32), Zimbabwe (35)	Argentina (50), Armenia (76), Bangladesh (56), Benin (79), Botswana (49), Burkina Faso (78), Burundi (84), Colombia (47), Dominican Republic (46), Ecuador (48), Egypt (85), El Salvador (74), Ghana (51), Guatemala (67), Guinea (88), Honduras (70), India (57), Indonesia (62), Iraq (80), Jordan (64), Kyrgyz Republic (87), Lesotho (65), Madagascar (86), Malawi (71), Mali (83), Mexico (53), Moldova (72), Nepal (73), Nicaragua (77), Niger (90), Pakistan (81), Panama (60), Paraguay (58), Peru (68), Philippines (54), Sierra Leone (69), Syrian Arab Republic (61), Tajikistan (75), Tanzania (59), Togo (82), Tunisia (55), Uganda (52), Uruguay (63), Vietnam (66), Yemen (89)
<b>Through Innovative Instruments (Component 2)</b>	
Angola (3), Bahrain (6), Israel (10), Jamaica (18), Kenya (1), Kosovo (9), Lesotho (11), Morocco (15), Nigeria (12), Philippines (14), Singapore (13), South Africa (17), Swaziland (5), Tajikistan (2), Tanzania (7), Uganda (4), United Arab Emirates (8), Vietnam (16)	Argentina (74), Armenia (30), Bangladesh (31), Belarus (67), Benin (54), Bosnia (72), Botswana (20), Brazil (83), Bulgaria (87), Burkina Faso (55), Burundi (24), Chile (77), China (81), Colombia (44), Costa Rica (88), Croatia (60), Dominican Republic (32), Ecuador (63), Egypt (57), El Salvador (69), Estonia (80), Ghana (45), Greece (84), Guatemala (56), Guinea (23), Honduras (50), Hungary (85), India (36), Indonesia (61), Iraq (25), Jordan (68), Kazakhstan (21), Kuwait (27), Kyrgyz Republic (41), Latvia (90), Lebanon (62), Lithuania (89), Madagascar (53), Malawi (52), Malaysia (65), Mali (51), Mauritius (37), Mexico (26), Moldova (42), Montenegro (35), Mozambique (64), Nepal (59), Nicaragua (58), Niger (43), Pakistan (29), Panama (76), Paraguay (22), Peru (39), Poland (86), Romania (78), Russia (75), Senegal (49), Serbia (71), Sierra Leone (40), Slovak Republic (73), Sri Lanka (34), Syrian Arab Republic (46), Thailand (79), Togo (48), Trinidad and Tobago (47), Tunisia (66), Turkey (28), Ukraine (19), Uruguay (70), Venezuela (82), Yemen (38), Zimbabwe (33)

Source: Author's own classification.

## The Impact of Global Regulatory Standards on Financial Inclusion

There is a paucity of literature and a need for systemic empirical investigation to examine if countries that have more closely complied with international regulatory recommendations also experience greater achievements in terms of widening the use of financial services by low-income households and other disadvantaged groups.

Global regulatory standards were originally established to provide principles and best-practice benchmarks for developed countries to follow. Based on these standards, the SSBs provided guidance on the regulation and supervision of existing institutions and their traditional, typically non-poor customers, without paying too much attention to the possible unintended consequences that these innovative standards could have had. Their main objective was to ensure the stability of the financial system rather than inclusion.

More recently, however, there has been recognition that financial exclusion presents risks not only to the stability of the (domestic and international) financial system but also to its integrity, security and efficiency. Political unrest, for instance, can be triggered by pyramid schemes organized as informal savings and investment opportunities, thus threatening the confidence in the banking system. Terrorist financing is facilitated by cash transactions and the use of non-formal intermediaries. Informal providers may charge higher prices for making payments and sending money. In these cases, the risks introduced by financial exclusion represent a challenge for SSBs when trying to accomplish their core mandates.

All five SSBs have embraced the goal of financial inclusion, albeit at different paces, by weaving this new policy objective into global recommendations. In 2010, for example, the BCBS issued "Microfinance Activities and the Core Principles for Effective Banking Supervision," one of the first papers to touch upon a financial inclusion topic issued by this major financial sector SSB. The document offers guidance for the application of the Basel Core Principles to depositary microfinance institutions, without adding unduly to the compliance costs for providers. It calls for the application of the proportionality principle, which allows national regulators to calibrate regulation according to the risks posed to the financial system. Similarly, the CPSS Working Group on Innovative Retail Payments is developing further guidance for country-level authorities to implement proportionate regulation that also allows for innovative payment platforms and instruments (such as e-money) to reach a larger share of the population at a lower cost (CPSS 2012).

Based on these observations, some experts and international institutions suggest that global regulatory standards, if applied adequately and proportionately, can have a measureable positive impact on financial inclusion. Examples abound. In South Africa, the regulator removed a regulatory requirement of address

verification for accounts with small balances and transaction values, after realizing that many poor people could not provide proof of legal residence. As a result of this and other related policies, the percentage of the population with bank accounts increased from 46 percent in 2004 to 63 percent in 2011 (United Nations Secretary-General's Special Advocate for Inclusive Finance for Development [UNSGSA] 2013). In 2008, a similar case occurred in the Philippines, where the central bank issued a circular allowing 20 alternative documents as sufficient formal identification for financial transactions. Banks were also allowed to use third parties for know-your-customer verification, making it easier for people to open accounts or send remittances (*ibid.*). In 2011, Mexican authorities created a tiered system for customer identification, according to which no identification is required to open accounts at base level, but more ID documents are required for higher-value transactions (*ibid.*).

Notwithstanding these success stories, it is important to note that there remain some important challenges for SSBs to coordinate their actions to ensure that their agendas include the objective of financial inclusion. First, the SSBs' varying mandates may cause a "silo" effect in their standards and guidance, whereby each body proposes a different approach to regulation and financial inclusion. These approaches can lead to divergent (often conflicting) recommendations on the same issue, which in turn leave national regulators unsure about how to best implement global standards. Similarly, because policy makers, regulators and supervisors lack the capacity to apply the proportionality principle, full compliance with global standards often results in marginalizing financial inclusion.

Another significant challenge in the design and implementation of proportionate global standards is the fact that stakeholders measure the costs and benefits of regulation differently. Some of the costs and benefits are not easily quantified, even though they can be qualitatively assessed. When the standards vary across products, services and institutions, the difficulties associated with inclusive global regulatory standards magnify.

In practical terms, these challenges call into question the argument that global regulatory standards have an unequivocal positive impact on financial inclusion. Indeed, some bankers, experts and policy makers have warned that global regulatory standards can have important unintended consequences, which ultimately hinder (rather than promote) financial inclusion. Speaking at a conference at the City University of New York (CUNY) Graduate Center in New York in 2010, the former Citigroup CEO Vikram Pandit stated that the post-crisis reforms proposed by the BCBS and the US Congress (for example, Dodd-Frank)<sup>3</sup> caused credit lines to shrink (Pandit 2010). Similarly, the governor of the Central Bank of the

Philippines, Amando Tetangco, Jr., affirmed that "while global standards are sufficient to allow proportionate application, they were not originally established with financial inclusion as a consideration, which can lead countries to adopt conservative approaches that limit innovation" (Newnham 2014).

A consensus regarding the overall impact of global regulatory standards on financial inclusion has not been achieved or tested in a systematic manner. To counter this, three general hypotheses are examined in this paper. The first hypothesis is that global regulatory standards are implemented in a proportionate manner, illustrated by a positive impact on financial inclusion. The second hypothesis considers that the barriers to the proportionate application of international financial regulation are so significant that compliance with global standards has a negative impact on the use of financial services by low-income households and other disadvantaged groups. The third hypothesis is that there is no significant relation between the adoption of global regulatory standards and financial inclusion. In this latter case, it is simply not possible to make any claims regarding the impact of the design or the implementation of international financial regulation on inclusive financing.

What aspects of global regulatory standards are most likely to have an impact on financial inclusion? Beyond the three general hypotheses, other mechanisms are also identified that might link specific types of standards with financial inclusion. For example within information disclosure regimes, if financial service delivery is not transparent, it becomes more difficult for consumers — especially low-income people who have less experience with formal finance and lower levels of financial literacy and capability — to determine whether a product or a service is appropriate for them. Pricing and other terms of financial contracts become opaque, leading to hesitation in using financial services. On the contrary, if information is transparent and easily available, customers are better able to determine the appropriateness of financial contracts, services are used more often, and inclusion in the formal financial sector poses fewer risks for vulnerable groups.

Global standards and recommendations affect many aspects of the delivery of formal financial services and the practical and economic feasibility of reaching financially excluded poor households. The BCBS's guidance to enhance banks' risk-reporting practices under its "Enhancements to the Basel II framework" (2009) is an example. One of the most significant lessons from the 2007–2008 global financial crisis was that banks' information technology and data collection processes were inadequate to support the management of risks, including financial exclusion risks. In response, the BCBS issued a supervisory review process guide to enhance banks' management information systems, which included, among others, the development of a common data template for global systemically important financial institutions to address key information gaps (BCBS 2013). It is clear that the rationale behind such a recommendation was to provide the authorities

3 The Dodd-Frank Wall Street Reform and Consumer Protection Act became law in 2010. It made changes in the US financial regulatory environment that affected various elements of the financial service industry, including the consolidation of regulatory agencies, increased transparency of the derivatives market and consumer protection reforms.

with a stronger framework for assessing potential systemic risks. The impact this could have on inclusion prospects, if nothing else, includes the strengthening of information-processing capabilities to help banks better evaluate their risks and make more informed decisions about their resources. This would lead to gains in efficiency, reduced probability of losses and enhanced decision making about serving disadvantaged groups. Following this reasoning, information disclosure is expected to correlate positively with financial inclusion.

Conversely, capital adequacy requirements are expected to have a negative impact on financial inclusion. More stringent capital requirements for financial institutions raise the cost of credit, as fewer resources are available for loans, especially for riskier borrowers such as low-income people and small businesses. In developed countries, these costs would tend to fall over time as better-capitalized banks could fund themselves more cheaply. However, in developing countries, this tendency may take longer to be observed because there are other factors (such as weaker regimes for recognition of impaired assets) that push banks' funding rates up.

Of course, it could be argued that lower levels of effective (de facto) compliance with more stringent capital requirements in many developing countries would lower the costs of compliance, thus limiting the negative effects of increasing capital requirements on microfinance businesses. However, the empirical finding that overcompliance with Basel I and II minimum capital ratios is far more common, and more substantial in lower-income countries, weakens such an argument.<sup>4</sup>

The same reasoning developed for capital adequacy ratios applies to "new" tools of prudential regulation such as dynamic provisioning and macroprudential regulatory standards. Although these instruments have helped to reduce risk taking, smooth the credit cycle and strengthen the financial sector (Agenor and Pereira da Silva 2012), they may deter the process of financial inclusion. In practical terms, what these tools do is strengthen the requirements for financial institutions to provision reserves (and capital) against potential losses. They restrict the resources made available to groups outside the formal financial system. Not surprisingly, the expectation is that higher stringency in these types of rules is associated with lower levels of financial inclusion.

## The Empirical Measures of Global Standards

In order to test these hypotheses, original measures of the so-called global regulatory standards or simply global standards were developed. The concept is used here to connote the generally high-level norms proposed by each of the SSBs, which are also often referred to as regulatory best practices, principles or recommendations. Although the five SSBs mentioned here are not the only ones with normative standards that can have an impact on financial inclusion, they have been identified by the G20 as having a special significance and relevance (directly or indirectly) for financial inclusion.

Constructing empirical measures of global standards is not an easy task. Not only is the concept multi-dimensional, but the availability of cross-country comparable data on the extent to which countries have implemented global recommendations is limited. In addition, there is no consensus in the literature on which aspects of global standards have a greater impact on financial inclusion. The 2007–2008 global financial crisis spurred a series of international regulatory reforms, but literature searches have yielded no cross-country empirical work that assess the impact of reforms on access or use of financial services.

A literature search on suitable global regulatory reforms in light of the 2007–2008 financial crisis was conducted and questions from the fourth wave of the World Bank's Database on Bank Regulation and Supervision (2012) were chosen (Čihák 2012).<sup>5</sup> This was an attempt to capture the direction of the post-crisis international regulatory reforms in the research. Moreover, the literature review included determinants of financial inclusion to determine which aspects of the global regulatory reforms could have the most significant impact on financial inclusion. The overall idea was to extract from the World Bank's survey the most appropriate proxies of global standards that could potentially have a measurable impact on financial inclusion.

More specifically, four clusters of international financial regulatory reforms with the highest potential for affecting financial inclusion were identified: dynamic provisioning of capital; alignment and coordination of macroprudential supervision with microlevel supervision; minimum capital requirements; and a more transparent framework for disclosing information to the public. Proxies for each of these recommendations in the World Bank's survey measured each country's degree of compliance by coding whether or not they had implemented each requisite of a given regulatory reform. Table 3 shows a summary of definitions and coding schemes for these proxies.

4 In the sample used here, 57 percent of the countries overcomply with Basel I and II minimum total capital ratios, maintaining an actual risk-based regulatory capital ratio that is greater than the Basel eight percent minimum.

5 The answers to this survey were collected in 2011.

Table 3: Proxies for Global Regulatory Standards and their Coding Schemes

Global Standards Issue Areas	Possible Answers	Coding Scheme
<b>Dynamic Provisioning</b>		
Which criteria are taken into account to classify loans and advances as non-performing? (nplreg)	a) significant financial difficulty of the borrower and deterioration in its creditworthiness; b) breach of contract (for example, default or delinquency in interest or principal payments); c) restructuring (i.e., concession granted, for economic or legal reasons relating to the borrower's financial difficulty that the lender would not otherwise consider); d) borrower bankruptcy or other financial reorganization; e) days past due status; f) existence of collateral, guarantees or other credit mitigants; g) other	1=Yes, 0=No; Range: total sum of answers (0–7)
Do you have any counter-cyclical regulations or tools to dampen boom/bust cycles in credit flows? (countercyclereg)	a) counter-cyclical capital requirements; b) counter-cyclical loan to value ratios; c) granular capital requirements based on loan to value ratios; d) counter-cyclical provisioning requirements; e) temporary restrictions on dividend and bonuses distribution	1=Yes, 0=No; Range: total sum of answers (0–5)
<b>Macroprudential Regulation</b>		
Which of the following factors do you consider in assessing systemic risk? (macroprudreg)	a) bank capital ratios; b) bank leverage ratios; c) bank profitability ratios; d) bank liquidity ratios; e) growth in bank credit; f) sectoral composition of bank loan portfolios; g) F1 position of banks; h) bank non-performing loan ratios; i) bank provisioning ratios; j) stock market prices; k) housing prices; l) other	1=Yes, 0=No; Range: total sum of answers (0–12)
<b>Capital Adequacy Ratio</b>		
Which risks are covered by the current regulatory minimum capital requirements in your jurisdiction? (capitalreg)	a) credit risk; b) market risk; c) operational risk; d) other risks	1=Yes, 0=No; Range: total sum of answers (0–4)
<b>Information Disclosure</b>		
Do banks disclose to the public? (inforeg)	a) full audited financial statements; b) off-balance sheet items; c) governance and risk management framework; d) regulatory capital and capital adequacy ratio; e) transactions with related parties; f) any other material information (i.e., information that omission or misstatement could change or influence the assessment or decision of a user relying on that information for making decisions); g) scope of consolidation (including reasons for not including certain entities, where appropriate)	1=Yes, 0=No; Range: total sum of answers (0–7)

Data source: Author's own compilation based on the World Bank's Database on Bank Regulation and Supervision.

One of the important lessons of the 2007–2008 financial crisis, widely endorsed by the SSBs, was to impose upon banks some form of counter-cyclical loan-loss provisioning. Because banks are more likely to lend to bad-quality borrowers when the economy is expanding, dynamic provisioning was supposed to counter the inherent pro-cyclicality of credit activity. The way this provision works is that authorities provide a strict definition for a non-performing loan (q. 9.2)<sup>6</sup> and various tools to dampen the boom and bust cycles in credit flows (q. 12.27).

The second of the four clusters of post-crisis international financial regulation reforms relates to the need to align macroprudential oversight with micro-level institution-by-institution supervision. A common threat to financial stability is, for example, the overexpansion of the supply of credit due to expansionary monetary and fiscal policies. As a result, the consideration of macroeconomic factors beyond bank-specific risks that might affect system-wide financial stability is one of the alternative ways to help integrate macro- and microperspectives (q. 12.22.1).

A more stringent capital adequacy ratio is yet another element in the recipe of SSBs, emerging from post-crisis evaluation. Under the latest model adopted by the BCBS (Basel III), regulatory minimum capital requirements should focus primarily on the risk of a run on a bank by requiring differing levels of capital for different forms of bank assets. Yet, these requirements have hardly been implemented in developing countries. Greater compliance with a previous version of the Basel accords can be observed regarding the maintenance of regulatory capital based on calculations for three major components of risk that a bank faces: credit risk, operational risk and market risk. This dimension (q. 3.2) is thus considered as a more appropriate proxy for global standards regarding capital requirements.

Finally, post-crisis reform proposals call for increasing the quality of information available to the public. Under Basel II, the BCBS developed a set of disclosure requirements that allowed market participants to gauge the capital adequacy of an institution. After the crisis, these requirements have been extended to force financial institutions to reveal details regarding their capital adequacy and their risk exposures and risk assessment processes (q. 10.5.1). Although the implementation of these requirements has been delayed to 2018–2019, many developing countries have made efforts to implement their own rules of information

<sup>6</sup> These numbers refer to the original question numbers found in the World Bank's Database on Bank Regulation and Supervision.

disclosure. The idea behind this recommendation was that the sharing of information would facilitate market discipline.

It should be reiterated that these are all post-crisis recommendations and their implementation has varied significantly across countries since 2008. Given that all the dependent and independent variables date from 2011, it could be argued that it is simply too soon to assess their impact on financial inclusion. Although the value of such an argument is recognized, this study can serve as a reference, a point of departure. As more data become available in the future, other evaluations comparing results with this first baseline assessment should follow.

## Empirical Model and Results

Spurred by the contemporary debates about global regulatory standards and financial inclusion and the lack of an established literature relating to both issues, two general hypotheses about the impact of post-crisis reforms on inclusive financing have been identified: international regulatory recommendations can either promote or hinder financial inclusion. A third possibility is that the two issues still remain largely disconnected either because of a lack of financial inclusion initiatives or because developing and emerging countries have been slow in adopting global standards. To test these different alternatives, two cross-country linear regression models have been estimated, using alternative dependent variables, proxies for different aspects of global standards and some control variables.

In the first regression (model 1) the impact of the various aspects of global regulatory standards on the use of financial services through traditional instruments is gauged, while in the second regression (model 2) the dependent variable is a proxy for financial inclusion through innovative instruments. The control variables used in both models are the same and they were chosen based on previous studies on the determinants of financial inclusion (Kumar 2013; Demirgüç-Kunt and Klapper 2013). They include: natural log of GDP per capita, inflation, real interest rate, bank credit to the private sector (as a percentage of GDP), z-score and the level of concentration of the financial system. While the first four variables were taken from the World Bank's World Development Indicators (World Bank 2014), the latter two were extracted from the World Bank's Financial Structure Dataset (Cihák 2012b). All figures are for 2011. Table 4 summarizes all the predictors used in the regression models and the theoretical expectations of their relationships with financial inclusion.

The summary statistics for the independent variables and the correlations among the control variables are included in Appendix I. The missing values of the predictors were imputed using the Amelia II program for multiple imputations.<sup>7</sup>

Table 4: A Brief Description of the Independent Variables and their Theoretical Expectations

Independent Variables	Brief Description	Expected Relationship with Financial Inclusion
nplreg	Dynamic provisioning: which criteria are taken into account to classify loans and advances as non-performing?	negative
countercyblereg	Dynamic provisioning: do you have any counter-cyclical regulations or tools to dampen boom/bust cycles in credit flows?	negative
macroprudreg	Macroprudential regulation: which of the following factors do you consider in assessing systemic risk?	negative
capitalreg	Capital adequacy ratio: which risks are covered by the current regulatory minimum capital requirements in your jurisdiction?	negative
inforeg	Information disclosure: do banks disclose to the public?	positive
realintrate	Real interest rate (%): the lending interest rate adjusted for inflation as measured by the GDP deflator.	negative
inflation	Inflation (annual %): as measured by the consumer price index, it reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals.	positive
gdppc	GDP per capita (constant 2005 US\$): gross domestic product divided by midyear population.	positive and negative
zscore	Bank z-score: estimated as $(ROA+equity/assets)/sd(ROA)$ ; where $sd(ROA)$ is the standard deviation of ROA.	positive
concentration	Concentration: assets of three largest banks as a share of assets of all commercial banks.	Negative
privatecredit	Private credit: private credit by deposit money banks to GDP.	positive

Source: Author.

<sup>7</sup> "Multiple imputations" is an approach developed by Honaker and King (2010) to substitute missing values in a dataset using a predictive model that incorporates all available information in the observed data together along with any prior knowledge. This approach is based on an algorithm that is different from interpolation based on linear regression or curve fitting.

GDP per capita captures the level of each country's development. Experience has shown that more developed countries tend to have an increased number of people integrated into the formal financial system, making use of traditional financial services and products. At least in principle, this fact diminishes the need for people in these countries to search for innovative instruments of financial inclusion. As a result, the expectation is to find a positive correlation between GDP per capita and financial inclusion in model 1 but a negative one in model 2.

The relationship between inflation and inclusion is not as clear-cut. Intuitively, it seems probable that the increased circulation of money and the creation of additional demand (reflected in higher levels of inflation) would lead people to use financial services more often. It could also be true that as an economy moves toward higher financial inclusion with better integration of the population to financial system and banking, there is a tendency to push prices higher. Inclusion would thus lead to inflation and not the other way around. Regardless of the direction of causality, the expectation is that higher levels of inflation are associated with higher levels of financial inclusion either through traditional or innovative instruments.

In the case of real interest rates, higher rates hurt financial inclusion. The reasoning is simple. When financial institutions charge more for their services and products, consumers, especially low-income groups, will shy away from using them. Conversely, in the case of bank credit to the private sector, the contrary is true: financial depth is positively correlated with financial inclusion. Financial systems that are deeply penetrated are more likely to deliver access for all.

Another example of a control variable that is a potential candidate to understand cross-country variation in financial inclusion relates to the efficiency of the overall financial system. In financial systems with large operation inefficiencies reflected, *inter alia*, in a high degree of bank concentration, financial services might only be offered at high costs, above those found in more competitive systems. High costs tend to reduce the usage of financial services. As a result, the level of concentration of the financial system is expected to be negatively associated with inclusion.

Finally, the last control variable included in this study — the z-score — is utilized as a measure of bank stability. The higher the z-score, the lower the risk of banks' insolvency and the higher the stability of the financial system. Although evidence is not well developed, in theory, if banks are more resilient and stable, they can offer more products and services, especially for low-income groups. In this case, the expectation is to find a positive relationship between z-score and financial inclusion.

Table 5: Empirical Results of Cross-country Linear Regressions Testing the Impact of Global Standards on Two Indices of Financial Inclusion

	Model 1	Model 2
Intercept	-8.50***	1.60
	(2.05)	(1.69)
nplreg	-0.04	0.06
	(0.13)	(0.11)
countercyclereg	-0.50	-0.02
	(0.40)	(0.33)
macroprudreg	-0.12**	-0.08*
	(0.05)	(0.04)
capitalreg	-0.13	-0.36*
	(0.22)	(0.18)
inforeg	0.21**	0.15*
	(0.10)	(0.08)
realintrate	0.01	-0.01
	(0.02)	(0.02)
inflation	0.06*	0.01
	(0.03)	(0.03)
gdppc	0.87***	-0.13
	(0.23)	(0.19)
zscore	-0.03*	-0.01
	(0.02)	(0.01)
concentration	0.01	-0.01
	(0.01)	(0.01)
privatecredit	0.04***	0.00
	(0.01)	(0.01)
R-square	0.66	0.31
Adj. R-square	0.56	0.11

NOTE: Standard errors are in parentheses. \*, \*\*, \*\*\* indicate significance at the 10 percent, five percent and one percent levels of confidence.

Source: Author.

Table 5 shows the results of the regression analyses. All three general hypotheses are confirmed, suggesting that there is no unequivocal impact (positive or negative) of global standards on financial inclusion. For instance, information disclosure requirements are positively correlated with financial inclusion at the five percent level of confidence in model 1 and at the 10 percent level of confidence in model 2. The higher the level of compliance of a country with those requirements, the more likely it is that its financial system is more widely used both through traditional and innovative instruments. More

specifically, for each unit increase in information disclosure restriction (for instance, if banks were now obliged to disclose their off-balance-sheet items to the public), there is a 0.21 standard deviation increase in the index of financial inclusion through traditional instruments and a 0.15 standard deviation increase in the index via innovative tools. The impact of information disclosure requirements is thus stronger on the usage of bank accounts, debit cards and loans than on the usage of financial services provided through cell phones.

Conversely, greater adherence to macroprudential regulation is associated with lower levels of inclusive financing. This result is statistically significant at the five percent level of confidence in model 1 and at the 10 percent level of confidence in model 2. For each extra factor considered in the assessment of systemic risk, there is a 0.12 standard deviation decrease in the level of financial inclusion through traditional instruments and a 0.08 standard deviation decrease in the index via innovative tools. Compared to the results of information disclosure, the effects of macroprudential regulatory reforms are substantially less important.

Although the impact of capital adequacy requirements on inclusive financing through traditional instruments is statistically insignificant, greater capital stringency is associated with lower levels of inclusion via innovative instruments. This result is statistically significant at the 10 percent level of confidence. For each risk included in the measurement of minimum capital requirements, there is a 0.36 standard deviation decrease in the use of innovative financial instruments, such as the use of cell phones to make payments.

Another interesting finding is that dynamic provisioning — operationalized as either a more stringent definition for non-performing loans or the existence of various tools to dampen boom-and-bust cycles in credit flows — is not statistically significant, suggesting that this recommendation has not had (at least for now) any impact on financial inclusion. This could be due to a variety of factors, but likely, this is one aspect of international financial regulation that has not been implemented to a large degree by developing and emerging countries. Indeed, 65 percent of the countries from the sample used here have not yet implemented any regulation in order to dampen boom-and-bust cycles in credit flows. This lack of cross-country variation makes it difficult to measure the relationship between dynamic provisioning and financial inclusion.

Ultimately, it is worth noting that the control variables generally behaved as expected, despite some non-statistically significant results. Similar to what previous studies have found, inclusive financing is larger in more affluent countries (measured by GDP per capita), at least when considering inclusion through traditional instruments. Similarly, bank credit to the private sector is positively associated with higher levels of inclusion. The only important exception is the result for the bank stability

proxy (z-score). Instead of a positive relationship, the negative result in model 1 suggests that banks may become more risky if aggregate credit growth (resulting from financial inclusion) is excessive. The direction of such a relation deserves further research.

Together, the independent variables explain 66 percent of the variation in the index of financial inclusion through traditional instruments and 31 percent of the variation in the index of inclusion through innovative instruments. As robustness tests, the same regression models were run with slightly different operationalization of certain predictors. For example, instead of using the World Bank's survey question "do banks disclose to the public?" (q. 10.5), the question "do supervisors require banks to publicly disclose?" (q. 10.6) was employed. The models yielded comparable results. Regression models, which included an extra independent variable that accounted for the sometimes much higher de facto capital requirements in poorer countries (q. 3.3.1), were also run. Again, the results remained unchanged.

## Implications for International Financial Regulation Coordination Efforts

Financial inclusion practices and initiatives vary significantly depending on each country's economic, financial, social, political, legal and technological context. As such, the implementation of global regulatory standards, originally designed to ensure the stability of established formal financial systems in developed countries, can be counterproductive and a source of difficulty in the process of working toward wide access and use of financial services. In order for recommendations by SSBs to effectively encourage financial inclusion, as consistent with their mandates called for by the G20, a useful and constructive approach is for SSBs to promote principles of proportionality.

This is not always an easy task. SSBs have different mandates, which can provoke conflicting recommendations on the same issue. National regulators may lack the technical capacity to apply the proportionality principle when complying with global standards. The costs and benefits of regulatory reforms may be hard to measure and they may differ across stakeholders.

This paper has assessed to what extent global regulatory standards have been applied in a proportionate manner, using original indices of financial inclusion for a sample of 90 developing and emerging countries. Except for the case of information disclosure, the evidence suggests that global standards have been applied, but not necessarily in a proportionate manner. More specifically, the results of the cross-country regressions show that the inclusion of macroeconomic factors in regulators' evaluation of systemic risks constitute a hindrance to inclusive financing. In the particular case of promoting the use of financial services through innovative instruments, the inclusion



of market and operational risks, beyond credit risks, in the calculations of capital adequacy ratios has also impaired the participation of disadvantaged groups in the financial system. The more stringent capital requirements are, the lower is a country's level of inclusion.

Taken together, these results suggest there is room for improvement. SSBs need to coordinate their actions better to find new ways to encourage proportionality. One way is to provide more extensive peer-learning platforms for national authorities to learn from each other's diverse experiences in fostering inclusion while at the same time mitigating the threats to financial stability. Another way is to revise some global standards to recognize the special characteristics and peculiarities of developing and emerging economies, and leave room for the simplification or adjustment of requirements, based on each country's risk profiles. This is not to say that global standards should be completely revamped; what seems to be necessary is a "fine-tuning" of global standards.

The BCBS's document "Revisions to the Standardised Approach for Credit Risk," released on December 22, 2014, is an example of such fine-tuning efforts. Among other recommendations, it proposes to replace references to external ratings (as currently used in the standardized approach) with a limited number of risk drivers identified by the BCBS. The direction of movement and fine-tuning in the BCBS has been to reduce rather than to increase the level of allowable national discretion. The results from this study suggest that this may be the opposite of what is required to promote greater inclusion.

Financial inclusion, which is a far more important issue for developing countries, has been recognized by developed countries as a priority objective in international financial regulatory coordination efforts. However, the influence emerging countries have exercised in defining the agenda of regulatory reforms that consider financial inclusion has been limited. The fact that there is very little focus in the BCBS or the FSB on consumer protection — an area that is closely related to financial inclusion — is just an indication of this restricted influence. The fact that Basel III has been pushed forward despite the expectation that it will lead to reduced lending to borrowers of all kinds, including the relatively poor, is another sign. The results of this study constitute yet another example of emerging countries' circumscribed role. For financial inclusion to become a reality, all parties need to be more active in its promotion and emerging countries have to become more engaged in global financial governance.

## Appendix

Table 1: Summary Statistics for the Independent Variables

Independent Variables	N	Minimum	Maximum	Mean	Standard Deviation
inforeg	88	0.00	7.00	5.602	2.098
capitalreg	88	0.00	4.00	2.398	1.189
coutercyclereg	88	0.00	1.00	0.341	0.477
macroprudreg	88	0.00	12.00	7.034	3.975
nplreg	88	0.00	7.00	5.443	1.611
privatecredit	79	4.41	123.56	41.766	28.753
realintrate	68	-33.65	40.46	4.184	9.515
inflation	86	-0.36	53.23	7.748	6.840
gdppc	87	152.00	34378.92	5042.552	6409.919
zscore	90	-3.29	57.57	16.200	11.818
concentration	85	28.15	100.00	65.267	20.350

Source: Author's own compilation based on the World Bank's World Development Indicators, the Database on Bank Regulation and Supervision, and the Financial Structure Dataset.

Table 2: Correlations Among Control Variables

	privatecredit	realintrate	inflation	gdppc	z-score	concentration
privatecredit	1.0	-0.106	-0.237	0.494	0.247	-0.080
realintrate	-0.106	1.0	-0.374	-0.224	0.028	0.054
inflation	-0.237	-0.374	1.0	-0.245	-0.152	-0.068
gdppc	0.494	-0.224	-0.245	1.0	0.120	0.180
z-score	0.247	0.028	-0.152	0.120	1.0	-0.005
concentration	-0.080	0.054	-0.068	0.180	-0.005	1.0

Source: Author's own compilation based on the World Bank's World Development Indicators and the Financial Structure Dataset.

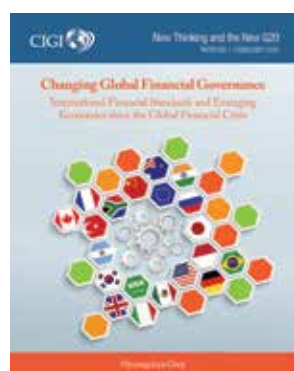
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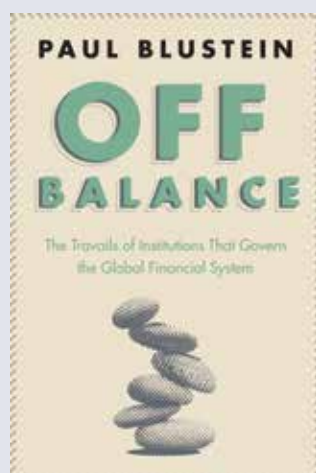
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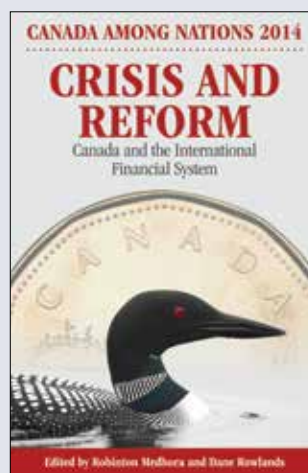
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Since China's pilot scheme for RMB cross-border settlement was launched in 2009, it has become increasingly important for monetary authorities in terms of macroeconomic policy frameworks. The authors use an analytical model that includes monetary supply and demand to examine the influences of RMB cross-border settlement on China's domestic interest rate, asset price and foreign exchange reserves. They also look at how RMB settlement behaves in different ways with the various items in China's balance of payments.



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The measures regulators have largely agreed on for a strengthened and internationally harmonized financial regulatory regime, which were endorsed at the 2014 G20 leaders summit in Brisbane, are a major step toward achieving a robust and less crisis-prone global financial system. There are, however, a number of specific measures that need to receive closer attention in order for the G20 leaders to declare their reform program a success. This paper discusses what policy makers and regulators should focus on in 2015 and why closer international cooperation in implementing regulatory reforms will be essential for success.



## The Risk of OTC Derivatives: Canadian Lessons for Europe and the G20

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*Chiara Oldani*

Over-the-counter (OTC) derivatives played an important role in the buildup of systemic risk in financial markets before 2007 and in spreading volatility throughout global financial markets during the crisis. In recognition of the financial and economic benefits of derivatives products, the G20 moved to regulate the use of OTC derivatives. Attention has been drawn to the detrimental effects of the United States and the European Union to coordinate OTC reform, but this overlooks an important aspect of the post-crisis process: the exemption of non-financial operators from OTC derivative regulatory requirements.



## The Trade in Services Agreement: Plurilateral Progress or Game-changing Gamble?

*CIGI Papers No. 53*  
*Patricia M. Goff*

Trade analysis in the current moment is understandably focused on mega-regional negotiations, but plurilateral talks also deserve our attention. Plurilateral negotiations leading to a Trade in Services Agreement (TiSA) is the focus of this paper. Barriers to trade in services are distinct and their removal consequential; thus inviting careful consideration and, ideally, public debate. This paper seeks to illuminate developments in negotiations toward the plurilateral TiSA. Just as it has become commonplace to ask whether regional agreements advance economic and political agendas, so is it useful to explore the promise and peril of plurilateral agreements such as TiSA.

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