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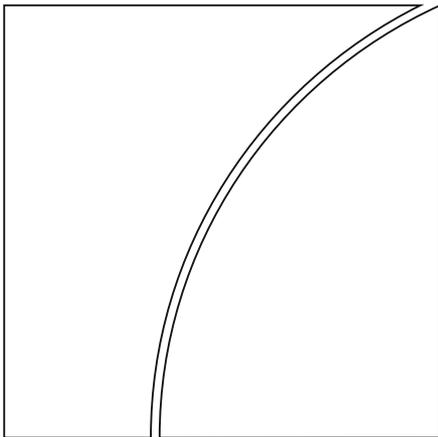
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Globalisation and financial stability risks: is the residency-based approach of the national accounts old-fashioned?

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Globalisation and financial stability risks: is the residency-based approach of the national accounts old-fashioned?

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Abstract

The Great Financial Crisis of 2007-09 and its aftermath have emphasised the need for a global approach when assessing financial stability risks. One difficulty is that the traditional apparatus, especially the System of National Accounts (SNA), relies on the criterion of residency to capture statistical information within countries' boundaries. This paper analyses how to collect meaningful data to assess consolidated risk exposures. In particular, it argues that data collected along the residency-based SNA concept can be usefully complemented by a nationality-based, global approach. This requires the establishment of a framework for assessing financial positions on a so-called "nationality-basis", that is, at a globally consolidated level.

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Introduction

The Great Financial Crisis (GFC) of 2007-09 and its aftermath have emphasised the need for a global approach when assessing financial stability risks. This is because of one key aspect of the financial system, ie the importance of system-wide common exposures/interlinkages. This “cross-sectional” dimension of systemic risk relates to how financial risk is distributed within the system at a given point in time. It explains why an apparently idiosyncratic shock can propagate itself to the entire market, both within a country and across borders due to two main factors (Caruana, 2010). First, the fact that economic agents’ balance sheets are interconnected, so that a shock hitting one institution can quickly spread to the other connected institutions that are otherwise sound. Second, non-directly connected institutions can be affected by the same shock because of their common exposures, for instance if they are similarly exposed to a specific asset class. A variety of financial factors, eg asset prices, market liquidity and funding conditions, can drive these common exposures effects.

The importance of globalisation when assessing risk exposures reflects several evolutions. First, there has been a growing integration of domestic economies in a world characterised by freely mobile capital flows across currencies and borders (Heath, 2015). In particular, the financial liberalisation initiated in the 1980s has made funding easier and presumably cheaper to obtain for a wider range of borrowers. The result, however, is that financial interconnections have increased, facilitating the propagation of systemic risk around the globe. Second, financial systems worldwide have changed markedly and have become extremely diversified in terms of actors and products, allowing for a greater interaction with the “real economy”. Third, the globalization of the financial system has heightened the likelihood for financial imbalances to occur simultaneously across countries due to common, global factors. This highlights the powerful role played by “global liquidity”, a concept that encompasses the degree of ease in worldwide financial conditions. A key element is the role played by international funding currencies which are increasingly used outside the issuing country’s borders (McCauley et al, 2015).

To assess exposures, one will focus on the “potential loss” that can be triggered by the materialisation of various risk factors. Such a loss is usually assessed as a financial amount, but may be more difficult to quantify precisely (eg in the case of reputation or strategic risks). In the specific case of commercial banks, for instance, the Basel standards require that *“all material risks faced by the bank should be addressed in the capital assessment process (...although...) not all risks can be measured precisely”*. At a minimum, the exposures related to credit risk, market risk, operational risk and liquidity risk should be explicitly considered.²

The remainder of the paper is organised as follows. Section 1 argues that data collected along the residency-based SNA concept can be usefully complemented by a nationality-based, global approach. This requires the establishment of a framework for assessing financial positions on a so-called “nationality-basis”, that is, at a globally consolidated level. Section 2 presents several steps that have to be taken in this endeavour. One is to classify economic units by sector and nationality. A second is to properly define the concept of control between two economic units, which may depend on the perspective retained (eg statistical standards, business accounting,

² Basel Committee on Banking Supervision (2006): International Convergence of Capital Measurement and Capital Standards, A Revised Framework - Comprehensive Version, June (pp 732, 742).

financial supervision). A third is to look at information aggregated at the “corporate group” level. The completion of these steps can allow for assessing the consolidated exposures of global entities, especially those related to cross-border and cross-sector positions, even though there are a number of challenges. Section 3 reviews some important datasets that are already presented on such a basis, underlining the usefulness of this approach for policy purposes. Section 4 concludes.

1. Information needs: a global approach for assessing exposures?

The *System of National Accounts, 2008* (2008 SNA; see European Commission et al (2009))³ mainly considers the risk exposure of a creditor on the economic performance of the issuer, depending on the financial instrument being involved, ie debt versus equity (#26.104). But it also refers for further interest to the External Debt Guide,⁴ which provides for an extended concept and in particular expands external debt liabilities to cover risks transfers (#9.44), building explicitly on the approach developed by the BIS for its consolidated International Banking Statistics (IBS; see Section 3 below). Referring to the global crisis of 2008–2009, the Guide emphasises the usefulness of “*augmenting residence-based data*” in order to look at liabilities according to the “*ultimate risk concept*” (#9.42). The main point is that countries’ potential liabilities to non-residents could exceed external debt measured on a residence basis, for instance if residents have provided guarantees to non-residents, or if branches of domestic institutions located abroad run into difficulties so that their own head offices have to provide necessary funds.

1.1. The international Data Gaps Initiative (DGI)

Public authorities realised on the occasion of the GFC that important information had been missing on the financial system and had to be collected. Hence a key element of the policy response after the crisis was to enhance the availability of financial statistics esp. to address financial stability issues (Borio, 2013). In 2009, the International Monetary Fund (IMF) and the Financial Stability Board (FSB) issued *The Financial Crisis and Information Gaps* report to explore information gaps and provide appropriate proposals for strengthening data collection (International Monetary Fund and Financial Stability Board, 2009). This initial Data Gaps Initiative (DGI-I) endorsed by the G-20 comprised 20 recommendations focussing on various statistical domains.

This initiative was the occasion, in particular, to recognise the data deficiencies related to cross-border exposures, such as the implicit guarantees provided by resident corporates to offshore entities set up to raise finance abroad, or the corporate exposures to exchange rate derivative products booked outside domestic jurisdictions. Specifically, the DGI Recommendation #13 asked for a “*more*

³ Available at <http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf>. For an introduction to the national accounts framework, see, for instance, Lequiller and Blades (2014) or Carnot et al (2011), Annex I.

⁴ International Monetary Fund (2014).

comprehensive approach (... to...) identify such cross-border exposures” and to “address the methodological and practical issues of handling the concept of consolidation and the definition of corporate groups”. The organisations member of the IAG⁵ were thus invited to *“investigate the issue of monitoring and measuring cross-border, including foreign exchange derivative, exposures of nonfinancial, and financial, corporations with the intention of promoting reporting guidance and the dissemination of data”.* This objective was completed with the publication of an IAG Reference Document on “Consolidation and corporate groups: an overview of methodological and practical issues” in 2015,⁶ on which the present paper is building on to a significant extent.

While the initial phase of the DGI highlighted the limited availability of reliable and timely statistical data in various domains, it also showed that imperfect statistical harmonisation at the international level is challenging the collection of comparable data. To address these challenges, the international community decided to launch in 2016 the second phase of the DGI (DGI-II) in order to implement *“the regular collection and dissemination of comparable, timely, integrated, high quality, and standardized statistics for policy use”.*⁷ As for the first phase, the second DGI phase entails considerations that are specifically targeted to cross-border exposures, with a focus on non-financial corporations (Recommendation #14). International organisations are invited to improve the consistency and dissemination of data on non-bank corporations’ cross-border exposures, including those through foreign affiliates and intra-group funding, to better analyse the risks and vulnerabilities arising from such exposures including foreign currency mismatches. This work should draw on existing data collections by the BIS and the IMF, and on the development of the OECD framework for Foreign Direct Investment (FDI). The development of an improved “infrastructure” for consolidating granular data for corporate positions and related exposures was in addition recommended.

1.2. Can the residency-based approach of the national accounts...

The increased focus on the global financial system as a whole requires a different type of information compared to the aggregated, country-based statistics that are usually available. What is needed is worldwide information for properly assessing firms’ group-level balance sheets and sources of potential financial stress. A growing part of corporates’ domestic activities is now governed by parent companies located abroad, rather than by the (resident) reporting institutional units. Symmetrically, residents’ actions are increasingly influencing the actions of other “controlled” agents located in other sectors and/or countries.

As regards the *non-financial corporations* sector, one issue is that multinational enterprises (MNEs) contribute to a large part of countries’ exports and imports of goods and services. This reflects the increasing opportunities to organise production

⁵ The Inter-Agency Group on Economic and Financial Statistics (IAG) comprises the Bank for International Settlements (BIS), the European Central Bank (ECB), Eurostat, the International Monetary Fund (IMF, Chair), the Organisation for Economic Co-operation and Development (OECD), the United Nations (UN) and the World Bank (WB). It was established in 2008 to coordinate statistical issues and data gaps highlighted by the global crisis and to strengthen data collection.

⁶ See IAG (2015); available on <http://www.bis.org/ifc/publ/iagrefdoc-oct15.pdf>.

⁷ See International Monetary Fund and Financial Stability Board (2015) and, for a general analysis of the initiative, Heath and Goksu (2016).

chains globally, leading to a rise in cross-border flows exchanged within the same conglomerate. In addition, internationally operating companies behave globally, as they “...allocate resources, price intra-company transactions, and bill transactions in a manner that is designed to reduce their global tax burden. As a result, national accounts measures based on MNEs’ business records may not accurately reflect the underlying behaviour of the real economy in the countries where they operate” (UNECE (2011)).⁸ A case in point is that the financing of investment may be completely disconnected from the country in which this investment is actually made, reflecting decisions made by head offices based on group-level factors (eg strategy, cost of financing, risk appetite).

As regards *financial corporations*, globalisation has raised challenges that are similar (Heath, 2015). Initially, these institutions operated mostly out of their home country to conduct their operations; their resulting positions were therefore well captured by the home country’s residency-based statistics. But they have been increasingly following a multinational model, with the establishment/acquisition of entities located outside the domestic area, first in major financial centres or offshore markets, and then more generally in all regions of the world. But their operations through foreign affiliates⁹ can only be captured by the respective residency-based statistics of the “host” countries, and not by those of the “home” country. For the banking sector in particular, this feature has progressively increased the provision of complementary information on consolidated banking group data – that is, information encompassing operations both in home and host countries. And, indeed, this complementary information proved particularly useful when the GFC occurred, despite persistent limitations.

However, given that the controlling and controlled units forming a corporate group usually belong to different economies and different sectors, the aggregation of group-level information cannot be consistent with the traditional residency-based SNA framework. This framework can only record assets and liabilities of the economic units that are resident in a specific economic territory, information that is progressively losing its relevance with globalisation. What is needed is to capture the claims and liabilities of groups’ affiliates that can have an important impact at the level of the parent company, since it is accountable for the business of all the entities under its control and is ultimately bearing the related risks. This is the only way to provide relevant and consistent information on global, group-level balance positions and risk exposures.

In fact, the 2008 SNA itself recognises that “for certain purposes, it may be desirable to have information relating to a group of corporations as a whole” (#4.51). That means complementing the SNA framework – which relies on the classification of institutional units by using strict geographical and sectoral boundaries – with a second approach, which is to rearrange institutional units so as to identify corporate groups operating across countries and across sectors.

⁸ See Landefeld, Moulton and Whichard (2011).

⁹ There are two main types of foreign financial entities often considered in the financial sector, subsidiaries and branches. While a *branch* is an organisational unit of the home company and not an independent legal entity, it will nevertheless be treated in the SNA framework as an institutional unit that resides in the host country (2008 SNA, #4.43, 47).

1.3. ... be complemented?

The objective is to complement residency-based statistics (ie positions of the group's units that are resident in the "home" country of the parent company) with information on the positions of the group's units that are resident in foreign, "host" countries. This consolidated group-level approach is often described as "nationality-based". That is because the information of the various institutional units belonging to a group characterised by a specific "nationality" has to be collected and consolidated independently of the residency of each of these units. Such an alternative approach would indeed be closer to business accounting practices, which require firms to produce consolidated financial statements.

Nationality-based consolidated data facilitate the understanding of who makes underlying economic decisions, who takes on the final risk and who needs to hold sufficient buffers to cover global potential losses. By allowing the identification of the ultimately responsible unit, this approach helps to analyse the ways in which economic decisions are made and, in times of stress, which company is ultimately impacted. Such information is crucial for fiscal, monetary and prudential authorities alike. It can be mobilised to enhance the stability of the financial system at the macro level, by facilitating the monitoring of the borrowing activities of global groups outside their resident markets through their offshore affiliates (an activity which has numerous implications for the conduct of national policies).

Indeed important vulnerabilities resulted from the various currency, maturity or interest rate mismatches discovered at the parent group level once the GFC hit. Difficulties in assessing such mismatches were due to the lack of data covering cross-border exposures, with ("onshore") corporates raising funds "offshore" and providing implicit guarantees in a way that was not well captured. These issues highlighted the usefulness of a group-level consolidated approach. One telling example was that of European banks which had been accumulating dollar-denominated assets before the crisis (McGuire and von Peter (2012), Goldberg et al (2011)). The problem was not solely the quality of these assets, but also the group-level impact of the sudden disruptions in financial markets. When liquidity evaporated in the wholesale interbank funding market, European banks were unable to raise dollars: they could only access their retail deposits, mainly denominated in euros.

It is however important to stress that, from a financial stability perspective, the residency- and nationality-based approaches are complementary and not mutually exclusive. Residency-based statistics do contain valuable information: they make it possible to ascertain where financial claims and liabilities are created and held. For instance, the financial strength of a foreign bank affiliate located in a specific economic area, and its ability to provide credit to its residents in an efficient way, can be influenced by its capacity to fund itself domestically instead of relying exclusively on its parent funding.¹⁰ Symmetrically, nationality-based statistics are not always

¹⁰ The distinction between the types of affiliates can have important policy implications in this context:

- First, there has been a tendency in a number of jurisdictions since the GFC to move away from the "branch model", as host regulators faced challenges to stem the flow of liquidity away from branches (rather than from local corporations); for a discussion of these issues, see, for instance, Fiechter et al (2011).

sufficient: they are by design unable to assess inter-office positions, limiting the understanding of cross-border flows as well as of interconnections between financial sectors resident in different countries. During the GFC, indeed, the financial results of several global banks suffered from the poor quality of the US “subprime” assets they were holding, especially through their affiliates resident in the US. These intragroup relationships were key to understanding the propagation to the rest of the world of financial tensions that originated in the US, and only residency-based statistics could have provided this information.

To sum up, the GFC underscored the importance of these issues for financial stability analysis. It also suggested that connecting residency-based and nationality-based statistics could be very valuable: many financial and non-financial corporations faced stress that arose in specific affiliates, was transmitted through their inter-offices operations, and then had an impact at the level of their globally consolidated balance sheets. Thus, as highlighted by Fender and McGuire (2010), it is recommended to “*complement essential data on banks’ consolidated balance sheets with information that provides a geographically disaggregated picture of those balance sheets*”.

1.4. A Framework for assessing financial positions & exposures

At the theoretical level, a simple framework can be set up to complement the residency-based approach with the nationality-based approach to financial positions.¹¹ As summarised in Chart 1, the *residency-based* approach groups together the balance sheets of all resident institutional units, irrespective of their nationality (ie residents with domestic nationality and residents with foreign nationality), and classifies them by sector.

The activities and positions of these domestic and foreign units resident in the “home” country are captured by residency-based macro statistics, considered within the borders of this specific “home” country. They are therefore delineated *horizontally* (comprising all the cells displayed horizontally in Chart 1 and marked in bold italics). This approach is also referred to as “*locational*”.¹²

By contrast, the *nationality-based* approach delineates financial positions *vertically*, ie across different jurisdictions (covering all the shaded cells, displayed vertically in Chart 1). First, it only comprises the resident units that are domestically controlled – ie the resident domestic units of the “home” country – and excludes the resident foreign units – ie the residents which are affiliates of parent companies with a foreign nationality from the home country perspective. Second, it consolidates (by aggregating and removing the intragroup positions) the financial positions of the resident domestic units with the positions of their non-resident affiliates. As a result,

- A second issue relates to ring-fencing, ie when regulators ask for a local unit’s balance sheet to be separated even though it is operated as part of the global group. The objective is to limit the costs for host authorities of having to rescue local affiliates in case of difficulties faced by their parent foreign bank. For a discussion of these issues, see CGFS (2010).

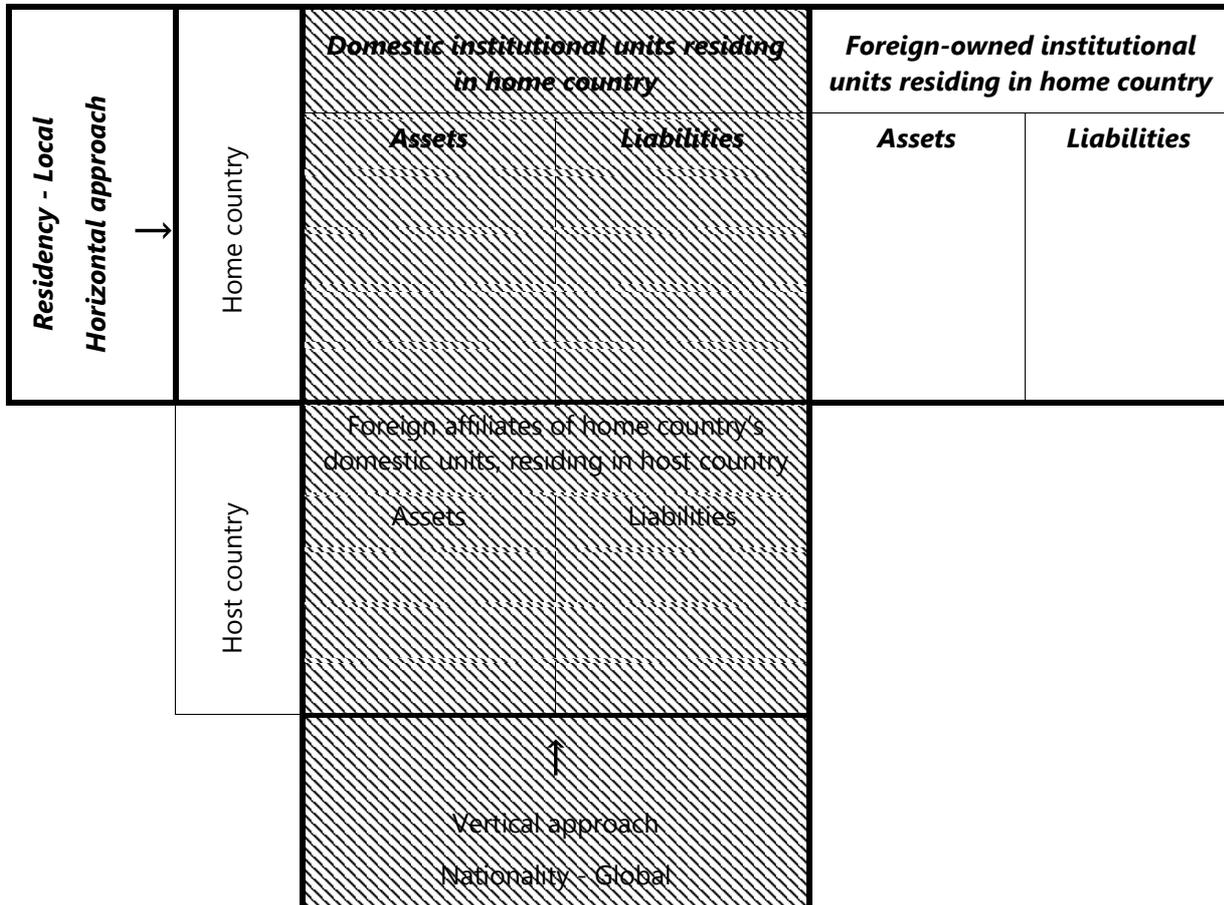
¹¹ See Cecchetti et al (2011), who draw on the structure of the BIS IBS to show how residency- and nationality-based statistics can be used in a complementary fashion.

¹² “Locational” information is always collected on a residency basis. That said, one of the BIS locational datasets (BIS locational banking statistics by nationality) is complemented by an indication of the nationality of the residents (but this information is not consolidated, in contrast to the nationality-based approach).

one can assess the global positions consolidated for the entire domestic groups that have the “nationality” of the home country. This nationality-based approach is therefore also often called “global”.¹³

Financial positions on a residency and nationality basis

Chart 1



Source: IFC, 2012.

2. Accessing group-level information

2.1. Three main approaches to group-level information

The way to measure financial positions on a nationality (ie globally consolidated) basis depends on the approach followed. In a nutshell, the statistical standards rely almost exclusively on the concept of residence, while on the contrary business accounting

¹³ This is an approximation since a residency-based approach could also be characterised as “global”. For example, the residency-based BIS locational IBS includes nationality information to cover all worldwide offices (resident or not in the country of the parent bank) of any parent bank with a given nationality. It can thus be labelled as “global” even though information is not consolidated at the group level.

standards focus on the international group-level position of a firm; supervisory standards are between these two “extremes”.

As regards international **statistical standards**, data compiled by national authorities, the IMF, the OECD and – to a lesser extent – the BIS are largely based on the residency concept. For example, the national accounts, the balance of payments statistics, and the BIS locational IBS rely on residency-based data. However, some statistics have extended the residency/local approach towards one based on nationality/global principles (see Section 3).

Turning to **business accounting standards**, they follow the principle of global consolidation for corporates, and information on their consolidated financial statements is available in (regular) financial reports. Even though there has been significant progress as regards harmonisation, the reconciliation between financial accounts of entities operating in different jurisdictions can however be complex in practice.¹⁴ For instance, if the consolidated financial statement of a group is compiled according to IFRS but the individual balance sheets of its local subsidiaries follow local generally accepted accounting principles (GAAP), there is a need to have parallel accounting systems. The comparison of consolidated financial statements among different groups following different rules could also present challenges (eg in the evaluation of derivatives positions). And even if the same accounting rules were used, principle-based standards always involve some judgment and can allow for national interpretation.

The picture is more mixed for **supervisory standards**. Consolidation approaches have been developed in recent decades, and the regular reporting of key supervisory information distinguishes between “home” and “host” country responsibilities. A supervisor typically acts both as home supervisor and host supervisor and, in practice, the nationality of a group can be identified as the country where the home supervisor is in charge of its global consolidated supervision.

However, there is no single global supervisory concept of consolidation across financial activities: supervisory consolidation is thus often partial, ie it does not include the full accounting perimeter of global financial groups, which comprise banks and non-banks and have a mixed and rapidly evolving nationality structure. To address these challenges, global standard-setting bodies, like the Basel Committee on Banking Supervision (BCBS), have made recommendations¹⁵ to avoid uncertainty as to which supervisor is in charge of the consolidated supervision of a banking group operating across countries. The same would apply for a financial group operating across sectors, for instance when there is a need to identify the primary supervisor of a conglomerate comprising banks and insurance companies.¹⁶

Nevertheless, attributing the nationality of a parent group to all of its foreign affiliates is a simplification of reality. First, a financial group operating across sectors and countries remains subject to the supervision of multiple supervisors (BCBS

¹⁴ The G20 and the FSB have emphasised the need to achieve a single set of high-quality global accounting standards after the crisis. A particular response has been the work of both the International Accounting Standards Board (IASB) and the US Financial Accounting Standards Board (FASB) to enhance convergence between IFRS and the US GAAP, notably regarding consolidation.

¹⁵ The broader aspects of home-host cooperation are covered in *Report on the supervision of banks' foreign establishments* (the Concordat; BCBS (1975)) and other documents related to cross-border supervision, accessible at www.bis.org/list/bcbs/tid_24/index.htm.

¹⁶ See Joint Forum (2012).

(1979)). Second, the extent to which a parent is legally responsible for the liabilities of its controlled local entity will depend on several factors: type of the affiliate (eg branch versus subsidiary); nature of the guarantee provided by the parent; measurement of risk transfers and assessment of ultimate risk-bearing entities; etc. Third, specific group policies and practices, especially related to the way they fund their affiliates, will also have an impact (McGuire and Tarashev, 2008).

A further complication is that all the above factors may play out differently depending on circumstances. For instance, a parent company may be willing to cover the liabilities of an affiliate in “normal times” – say for reputational issues – but may react otherwise if the liabilities exceed a certain threshold and/or in case of a systemic crisis. The corollary is that cross-border exposures of banking systems on a consolidated basis may have different financial stability implications depending on circumstances.

2.2. Classification of economic units

A proper classification of economic entities is a prerequisite for any meaningful analysis at the “macro” level. This is particularly true for those authorities tasked with dealing with financial stability issues: they have a keen interest in grouping economic agents by similar type of risk so as to monitor specific segments of the financial system, assess their vulnerabilities, and take appropriate preventive and/or remedial action.

Sectoral classification

The SNA framework represents a key starting point for assessing financial positions at the level of any basic unit. Each one is considered to be a resident of one (and only one) country. It is allocated to a specific institutional sector of that country according to its principal economic activity. In particular, the classification of financial institutions has been gradually refined in the SNA over time and provides a useful instrument for analysing the financial system.

One issue, however, is that the development of comprehensive financial accounts is still in its infancy in a number of countries (Tissot, 2016). Another is that there may be room for refining sectoral classification: some financial subsectors such as hedge funds are not identified as a separate category, although they are playing an increasing role in today’s financial markets. At the same time, the developments observed since the GFC have led some observers to question why central banks are classified within the financial sector and not within the government sector (BIS, 2012).

Another important point is how to approach the rest of the world (“ROW”) sector. The transactions and positions of the domestic economy with the ROW are often treated as an aggregate in the SNA. But it is also possible to split the ROW along several dimensions (eg by country or sector). Such a granularity is particularly useful in the context of balance of payments statistics as well as the newly developed approach to measure the “global flow of funds” (see Errico et al (2013)). The experience with the BIS IBS is indeed that significant value can be derived from differentiating (i) between the countries comprising the ROW aggregate, and (ii) within each of these countries, between their various sectors (eg foreign governments, foreign households, etc.).

Nationality classification

The situation is somewhat more problematic as far as the nationality classification is concerned. Institutional units need to be “assigned to” a particular home country. The issue is being able to distinguish residents that have a truly domestic nationality from those that are foreign units because they are controlled by a resident of another country.

A key challenge is international consistency: the nationality of a specific economic unit could be identified differently by various national authorities. It may thus be useful to carry out a reconciliation exercise amongst various home and host countries. In the case of the BIS IBS, for instance, reporting central banks provide a list of all the surveyed banks that reside in their respective countries, with an indication of the individual nationality that they assign to those institutions. The BIS ensures that the global list by bank nationality is up to date, consistent and validated by all the reporting countries.

For other financial and non-financial corporations, one view is that business registers could be shared by supervisors and statisticians to carry out such reconciliation exercises. How such registers could be effectively used in practice to correctly define the nationality of corporations remains an open question, however, given in particular the significant challenges related to the sharing of such granular information both across and within countries.

2.3. The concept of control

As discussed above, the nationality of a unit can be defined as the country of residence of the parent by which it is controlled. Hence, in order to identify the controlling unit, one has to clarify the concept of “control”, which can take various forms depending on the statistical, business accounting and supervisory standards applied.

The statistical framework

Ownership¹⁷ is a precondition for exertion of control in the SNA and thereby the differentiation between a corporation and the one by which it is controlled, the parent company. The “*control of a corporation is ultimately exercised by the shareholders collectively*” (#4.40-f) and “*in general an individual institutional unit or group of units owning more than half the voting shares of a corporation can exercise complete control by appointing directors of its own choice*” (#4.69).

When the “half of the voting shares” principal criteria cannot be followed, a number of separate indicators have to be looked at collectively. But specific arrangements can vary considerably and it would be difficult to establish a definitive list of factors. This is particularly the case for corporations controlled by government, for which the 2008 SNA provides more explicit guidance (#4.80). Such a guidance is less explicit for other cases, although the same type of reasoning can be applied to assess control relationships (for instance as regards the control of a corporation by a

¹⁷ The concept of ownership defined in the SNA distinguishes two types: legal and economic ownership. In many cases, the economic owner and the legal owner of an entity are the same; if not, “ownership” is usually understood to be held by the economic owner.

non-resident unit). Another type of control described in the SNA framework relates to a head office (#4.53) which exercises some aspects of “*managerial control*” over its subsidiaries.¹⁸

Another issue is to be able to differentiate between “*influence*” (which can be “*significant*” or not) and “*control*”. One example is that of an *associate corporation*, a form of entity over which the investor has a significant degree of influence but which is not a subsidiary or joint venture. Another example is a direct investment relationship between a foreign parent company and a resident entity (OECD (2008)): it is primarily based on the concept of “*significant influence*” (ownership of between 10 and 50% of voting power) but can also take the form of a “*controlling relationship*” (more than 50%). To clarify the situation, especially as regards the analysis of multinationals, the OECD has decided to complement the “*influence*”-based approach of the FDI statistics with a “*control*”-based approach, which relies on the concept of the Ultimate Controlling Parent (OECD (2013)).

To sum up, while institutional units are primarily allocated in the SNA to sectors and subsectors based on their residency and principal economic activity, they can also be presented under the concept of “*control*” (despite the associated challenges). The SNA in particular distinguishes between those controlled by the government (“*public corporations*”), those controlled by a non-resident unit (“*foreign-controlled corporations*”), and the remaining national private corporations.

The business accounting framework

The IFRS define the principle of control and also establish control as the basis for determining which entities are to be consolidated in the financial statements (IFRS (2011)). An investor controls an investee if and only if (s)he has: (i) power over the investee; (ii) exposure, or rights, to variable returns from involvement with the investee; and (iii) the ability to use power over the investee to affect the investor’s returns (in the simplest cases, such power arises when the parent owns more than half of the voting rights granted by shares).

But the assessment of control can be more complex in practice. When power is exercised through shares, it may be difficult for third parties to identify controlling entities: most globally operating corporations have a very diversified and international shareholder base; ownership can change rapidly over time; it is difficult to trace shares because they can be held through different group entities; subsidiaries whose shares are unlisted may not be subject to the disclosure requirements;¹⁹ etc. In addition, power can also result from other means than voting shares, for instance contractual arrangements. This may allow for the control of entities without equity ownership, for instance in the case of special purpose entities (such as securitisation/structured vehicles, which played an important role during the GFC). Conversely, an investor with more than half of the voting rights would not control the

¹⁸ The head office should be allocated to the institutional sector of the majority of its subsidiaries.

¹⁹ There is an obligation under most listing rules to disclose a company with holdings of over 10% (IOSCO (2010)).

investee if its relevant activities are directed by other entities (for instance, if the direction is set by government).²⁰

The wide range of possibilities to define power relates to the welcome fact that business accounting standards have been adapted in recent years to make more transparent the risks to which investors are exposed through their involvement with controlled entities and to better consolidate those exposures that used to be “off balance sheet” before. Nevertheless, the consequence is that the application of the business accounting approach may require the assessment of a variety of factors.²¹

The prudential framework

The notion of control is key in defining jurisdiction where the company’s home country supervisor is located and hence the nationality of a group. Supervisors have to assess risk exposures and attribute them to the controlling entity, by “looking through” the chain of controls so as to identify the ultimate risk holder.

Here also, there are a number of caveats. One is that a parent entity may be able to determine policy at the consolidated group level without necessarily having the majority of the ownership rights. Moreover, the complexity of the chain of ownership, control or power, can make supervisory identification challenging. Another issue is the need for adequate international supervisory coordination, even though substantial progress has been made in the past decades. Yet there may still be some uncertainty regarding the involvement of various jurisdictions in times of stress, for instance in relation to the different depository safety schemes that would apply.

2.4. Defining a corporate group

Once the “sector” and “nationality” of a specific institutional unit have been determined, the question arises as to which entities form part of the same global “corporate group”. This concept should be harmonised to the extent possible to ensure that internationally active firms are identified in a consistent way.

The concept of control between institutional units is obviously crucial for delineating a corporate group.²² There are thus three different possible approaches, each related to one of the three main ways of defining a controlling relationship – statistical, business accounting and supervisory. The SNA framework does provide a concept for “conglomerates” (#4.51) but in practice the financial positions of corporate groups are usually not presented on a consolidated basis. In contrast, business accounting standards take a very broad view of a group definition. The

²⁰ Business accounting frameworks distinguish between *control* and *significant influence* – which is, under IFRS, typically when the investor has existing rights that give ability to participate in the financial and operating policy decisions of an entity but is not in control of those policies (it is presumed that the investor has significant influence if (s)he holds, directly or indirectly, 20% or more of the voting power of the investee). Interestingly, this 20% threshold differs from the 10% retained for the definition of *significant influence* in the SNA / FDI framework (see below).

²¹ Another complexity is that the rights have to be substantive to provide control, ie the holder must have the practical ability to exercise these rights; this identification requires judgement as several factors have to be considered.

²² Since the relationship of a parent corporation to a subsidiary is defined in terms of control in the SNA framework, “*this relationship must be transitive*”, ie control can be passed down the chain of ownership as long as control exists at each stage.

functional view of supervisors is somewhat narrower but can be more meaningful for the purpose of financial stability analysis.

The statistical view of corporate groups

In principle, the 2008 SNA recommends classification according to the main economic activity at the level of the institutional unit, and not at the corporate group level. Moreover, this framework by design describes the economic activities of the units residing in the economic territory of the country of interest: this de facto limits the scope for having a consolidated view of (cross-border) groups.

For specific purposes, however, the 2008 SNA suggests arranging institutional units into groups of corporations according to the concept of control, irrespective of their principal functions, behaviour and objectives. This SNA approach is theoretically in line with business accounting practices: *"Large groups of corporations, or conglomerates, may be created whereby a parent corporation controls several subsidiaries, some of which may control subsidiaries of their own, and so on. For certain purposes, it may be desirable to have information relating to a group of corporations as a whole"* (#4.51). Groups that include corporations resident in different countries are usually described as *"multinational corporations"* (#4.74).

That said, this broad approach is not recommended in the SNA, for several reasons. One is that controlled subsidiaries often remain responsible and accountable for the conduct of their own economic activities. Another is that groups are not always well defined or easily identified in practice, or may not have closely integrated data covering all their activities. Many conglomerates are too large and heterogeneous to be treated as single units, and their size and composition may be constantly shifting over time as a result of mergers and takeovers. To sum up, each individual corporation has basically to be treated in the SNA framework as a separate institutional unit, whether or not it forms part of a group, including subsidiaries that are wholly owned by non-resident corporations.

Group financial positions according to business accounting standards

Accounting standards require a group to be considered as a single economic entity for the purpose of presenting its financial statements. Typically, such a group encompasses a parent company and all its subsidiaries, and the parent company will be required to present consolidated financial statements covering all the entities under its control. The application of the business accounting view can thus be very broad. The "group" identified this way can be a rather complex conglomerate, covering all subsidiaries and joint ventures controlled by the parent unit, for all the locations of its business and all the sectors of its activities.

There are exceptions to this general principle, as specific treatments may apply. In general, assets under custody or under management – for which the ownership, including the holding of the related risks, is exercised by a third party – are treated differently from the group's own assets. Moreover, the presentation of financial statements can vary along the controlling chain: when an entity's parent does not produce consolidated financial statements, the next most senior parent is defined as the first parent in the group above the immediate parent that produces consolidated financial statements. Furthermore, there may be exceptions to the principle that all subsidiaries should be consolidated (for instance "investment entities" in IFRS).

The prudential view of group financial positions

Compared to the business accounting approach, the prudential view of a consolidated group will generally be narrower. In banking regulation, for instance, "*banking groups are groups that engage predominantly in banking activities*" (BCBS (2006)). Under this functional approach, an individual banking group of a given nationality has to consolidate all its positions independently of the residency of the institutional units that are part of it. Such globally consolidated positions may provide a much better reflection of the overall risks and exposures and therefore of the underlying solvency of the considered banking group. This functional delineation appears analytically appealing and is clearly of interest to banks' internal risk managers and their supervisors, as well as to financial stability analysts.

But many special cases and exceptions exist in practice. In particular, the common supervisory practice under the BCBS framework is to encompass the various financial activities of the controlling group that are ancillary to the business of banking, but not to include its insurance activities (and not, of course, any potential non-financial activities). As a result, insurance corporations are treated separately from banks, sometimes even if they are subsidiaries of a bank. Other financial entities, such as pension funds and non-financial corporations, are also excluded from the supervised financial positions of a banking group, sometimes depending on national supervisory practices and applied accounting frameworks.

One example of the functional supervisory approach is followed by the BIS for consolidating its IBS data.²³ Guidelines have been set up to deal with specific cases,²⁴ for instance a situation in which a bank (or banking group) is controlled by a non-financial corporation, or in which non-financial subsidiaries are controlled by a bank parent. In such cases, the nationality of the bank is that of the highest-level controlling entity over which consolidated supervision is exercised by prudential authorities (ie insurance, banking or securities supervisors), regardless of whether that highest entity is a bank or a non-bank. As a result, the BIS consolidated IBS may include a number of banks that are attributed a nationality X but that are controlled by non-financial corporations located outside of country X.

The specific case of conglomerates – the prudential supervision of large complex financial services companies

As noted above, a conglomerate in the SNA framework is synonymous with a "*large group of corporations*", with a key role played by "*holding companies (#4.54)*". In the business accounting framework, the term "*conglomerate*" is de facto understood as encompassing the full spectrum of a group, made up of different, seemingly unrelated businesses in various sectors. In both cases, financial conglomerates can comprise different types of financial corporations, and perhaps also some non-financial corporations and non-profit institutions.

In contrast, the financial supervision view of a group is typically narrower, with a separate focus on "*banking groups*" and "*non-bank financial groups*". Hence one will

²³ That approach differs slightly from the functional approach usually followed by banking supervisors as regards the treatment of insurance companies: the level of (banking) supervisory consolidation does not typically include insurance entities, while the whole spectrum of prudential regulation is considered for defining control in the context of the BIS consolidated IBS; see BIS (2013).

²⁴ See BIS (2013), available on www.bis.org/statistics/bankstatsguide.pdf.

normally not have a single supervision for *conglomerates* comprising various companies providing financial services (eg insurance, banking): such large groups may thus be subject to a number of different capital and other regulatory requirements, and operate in several supervisory jurisdictions.

However, it makes sense, especially for financial stability purposes, to construct broader aggregates and consolidated statistics for monitoring such conglomerates. Steps have been taken indeed to at least partially address the issue posed by “*financial conglomerates*” (still leaving open the issue of the broader conglomerates that comprise financial and non-financial activities). According to the definition of the Joint Forum (Joint Forum (2012)), a financial conglomerate is an organisation whose primary business is financial and whose regulated entities engage to a significant extent in at least two of the activities of banking, insurance and securities. Of particular interest – especially from a European perspective – are so-called bancassurance groups, which are financial conglomerates that combine banking services and insurance activities.

For sure, one risk is that excessively aggregated group-level information would reduce transparency for those various micro supervisory authorities in charge of monitoring parts of the conglomerate’s activities. Nevertheless, significant cooperation already exists among supervisors (BCBS (2014); Joint Forum (2014)). Moreover, information on large and complex financial institutions can be very relevant and complementary. That would definitely be the case for microprudential analysis, ie at the level of the individual conglomerate being considered. Aggregate information on complex groups may also be appealing from a more macroprudential or financial stability perspective, for instance for analysing the interconnections between financial and non-financial entities that are controlled by the same parent.

2.5. Challenges in constructing consolidated statistics

As discussed above, consolidation can be done by aggregating and removing the intragroup positions at geographical (eg cross-border) and/or at the sectoral level (eg cross-sector), for single units or for a group of them. A number of consolidated (ie nationality-based) datasets have been developed by the BIS and can serve as interesting examples. In particular, the compilation of the international banking statistics (IBS) and the international debt securities (IDS) has proved the usefulness of assessing economic positions/flows based on nationality information during the GFC (see Cecchetti et al (2011)). A similar approach has also been developed for derivatives statistics and work on shadow banking in support of the Basel-based Committees and the Financial Stability Board (FSB); see Section 3 below.

Other international organisations have also developed some expertise in this area. The IMF Financial Soundness Indicators Guide (IMF (2006)) presents consolidation concepts and rules for compiling Financial Soundness Indicators (FSIs). Turning to the OECD, the Activities of Multinational Enterprises (AMNE) statistics provide measures of the operations of multinational enterprises, covering both parent companies and affiliates (see OECD (2005)); the data are collected in a manner consistent with the SNA and capture the residency of both the affiliate and its owner based on the notion of “control”.

However, existing data collections show that the nationality-based approach can face significant challenges at the operational level.

First operational challenge is access to granular data. Since the controlling and controlled units forming a corporate group usually belong to different economies and different sectors, data aggregated on a corporate group basis cannot be derived easily from data aggregated on a residency basis. The construction of nationality-based statistics requires access to granular, institution-level data that have then to be consolidated at the perimeter of the whole group. But the computation of such granular datasets is uneasy because it requires the sharing across sectors and across countries of institution-level information. Strict procedures have to be set up to ensure accuracy, confidentiality, completeness and timeliness of these statistics, which can have a very important market value in case of leaks.

A second challenge is comparability. In the case of banking supervisory statistics, for instance, a particular effort has been made to coordinate national reporting guidelines so as to achieve international consistency. One problem however is how to correctly and consistently assess the “nationality” of each unit, implying that such data collection exercises have to rely on adequate international cooperation. Another problem is that accounting standards continue to differ across regions; certainly, some convergence is being developed by the international community, but the concrete application of these standards in each domestic jurisdiction is often judgement-based and may still leave substantial room for differences across countries.

A third operational issue is how to collect consistent group-level information when the group is made of various entities located in different countries, acting in different sectors, and using various legal structures. Some kind of common identifier has to be available to make sense of the very large amount of institution-level data that is required, avoid double counting / information gaps, and apply adequate aggregation rules. Addressing this third challenge should be facilitated by progress in the standardisation of reporting financial operations. A particular initiative endorsed by global authorities since the crisis has been the introduction of the Legal Entity Identifier (LEI)²⁵ code to identify legally distinct entities that engage in financial transactions. In addition, work is ongoing to develop principles and standards for aggregating this information at the level of ultimate parents, through the identification of parent relationships between LEIs.²⁶ Furthermore, additional progress is also under way in the standardisation of the reporting financial operations – including the definition of a unique transaction identifier (UTI) and unique product identifier (UPI).

²⁵ The LEI is a 20-digit reference code to uniquely identify legally distinct entities that engage in financial transactions. Work is ongoing to develop principles and standards for collecting and consolidating information on the direct and ultimate parents of legal entities.

²⁶ See <https://www.leiroc.org/>, and in particular LEI ROC (2016).

3. Usage of consolidated data: can they add value? – the BIS experience

3.1. Consolidated international banking statistics

The international banking statistics (IBS) collected by the BIS cover both the residency-based, “locational” IBS, and the nationality-based, “consolidated” IBS. The consolidated IBS comprise quarterly data on internationally active banks’ foreign claims broken down by the nationality of the reporting parent banks at the top level of consolidation and by the country of residence of the counterparties.²⁷ Hence the data cover, for all the banks headquartered in the BIS reporting area, their foreign financial positions, comprising: their cross-border claims on a specific foreign country; and the local claims of their affiliates (branches and majority-owned subsidiaries) in local and non-local currencies located in that foreign country. The aggregation is done on a worldwide consolidated basis: that is, the positions between related offices of a same banking group are excluded.

Two subsets of the consolidated statistics are compiled. In the first, which consists of data on an *immediate counterparty basis*, claims on the rest of the world are attributed to the country where the original risk lies. Hence consolidation is only applied at the level of the reporting entities, to measure the exposures of the parent banking group to all the borrowers that are resident in a counterparty country. The second subset of the consolidated IBS is presented on an *ultimate risk basis*. Claims are attributed to the country where the final counterparty resides, after adjusting for credit risk mitigants such as guarantees and collaterals. For simplicity’s sake, the consolidation concept is applied here at the reporting bank level, as for the immediate counterparty basis, but also at the level of the counterparties of the reporting bank. That is, the positions of each initial (immediate) borrower are reassessed to take into account the transfer of risks to the ultimate borrower, which can be the parent company guaranteeing the immediate borrower, or a different entity which has, for instance, sold protection to cover the potential default of the initial borrower. BIS statistics provide information on the various ways a claim can be transferred from the country of “immediate risk” to the country of “ultimate risk” (defined as the country in which the guarantor of a financial claim resides and/or the country in which the head office of a legally dependent branch is located).

The consolidated IBS build on measures used by banks in their internal risk management systems and are broadly consistent with the consolidation scope followed by banking supervisors. As such, the IBS consolidated data yield a comprehensive picture of the *national lenders’* risk exposures, in particular to country risks.²⁸ This can be particularly useful when tensions arise in specific debtor countries, for instance to assess which national banking system would be exposed in case of default of the (ultimate) borrowers.²⁹

One telling example of the usefulness of these data was their ability to provide information on the main lending banking systems to Russian borrowers (banks and

²⁷ For the IBS guidelines, see BIS (2013) and www.bis.org/statistics/about_banking_stats.htm.

²⁸ For the list of BIS reporting countries, see www.bis.org/statistics/rep_countries.htm.

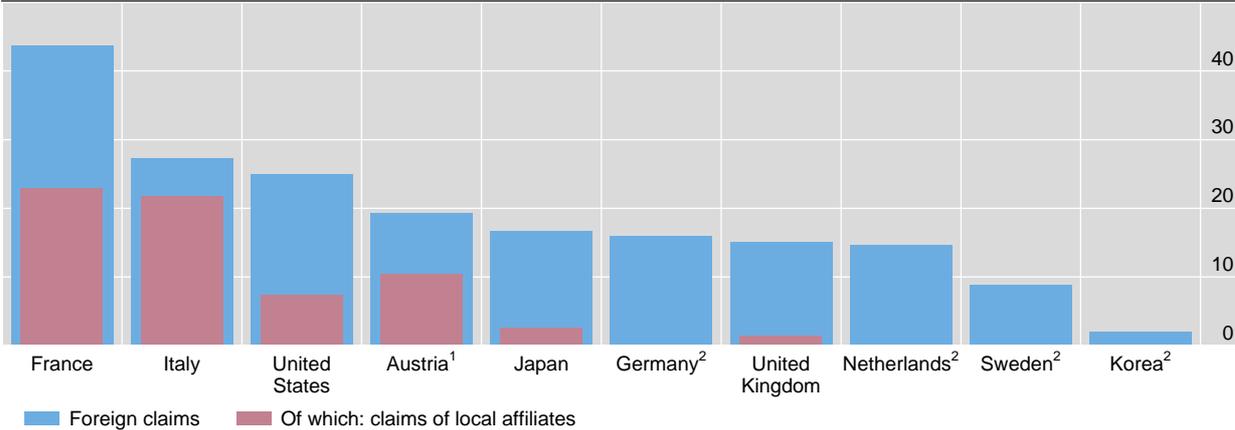
²⁹ See, for instance, McGuire and Wooldridge (2005) on the usefulness of the consolidated IBS, and Degryse et al (2010) for an application on cross-border exposures and risk contagion.

non-banks) which fell sharply in the course of 2014 in the face of falling oil prices and economic sanctions (BIS, 2015a). The consolidated IBS showed that foreign claims on Russia represented about \$200 billion on an ultimate risk basis, with French, Italian, US and Austrian national banking systems being the most exposed. These data also allowed for analysing separately “pure” cross-border claims and the claims that were booked locally by foreign banks’ affiliates (ie by their offices resident in Russia). These locally-booked claims represented almost half of the foreign claims, and the vast majority were denominated in roubles. Since most of such local claims in local currency are financed by rouble-denominated liabilities to Russian residents, they tend to hold up better than cross-border claims in case of financial stress (eg devaluation pressures). Hence the data allow for a deeper analysis of the exposure of foreign banking systems (cf Chart 2). For instance, French banks’ foreign claims (the blue bar) were roughly evenly split between cross-border claims and claims booked by their local Russian affiliates (the pink bar). At the same time, local claims accounted for the vast majority of Italian banks’ foreign claims, while Japan banks’ foreign claims mostly took the form of cross-border exposures.

Foreign claims (ultimate risk basis) on Russia, by nationality of reporting bank

At end-September 2014, in billions of US dollars

Chart 2



1 For Austrian banks, local claims represent claims in Russian roubles only and exclude claims in currencies other than rouble.
 2 Due to confidentiality, the amount of local claims was not shown.

Source: BIS consolidated IBS; BIS (2015a).

Another key issue is country coverage, since banking offices are not captured by the consolidated IBS if their head offices are located outside the set of reporting countries – one alternative way is to use the other, residency-based locational IBS data set,³⁰ which can then be reordered by nationality. Certainly, this only constitutes a partial mitigation since this IBS locational data set is not consolidated for inter-office positions.

One example of the use of these data relates to the situation of China, which is not yet reporting the IBS statistics but which can nevertheless be captured by using counterparty information provided by reporting banking systems (BIS, 2014). China

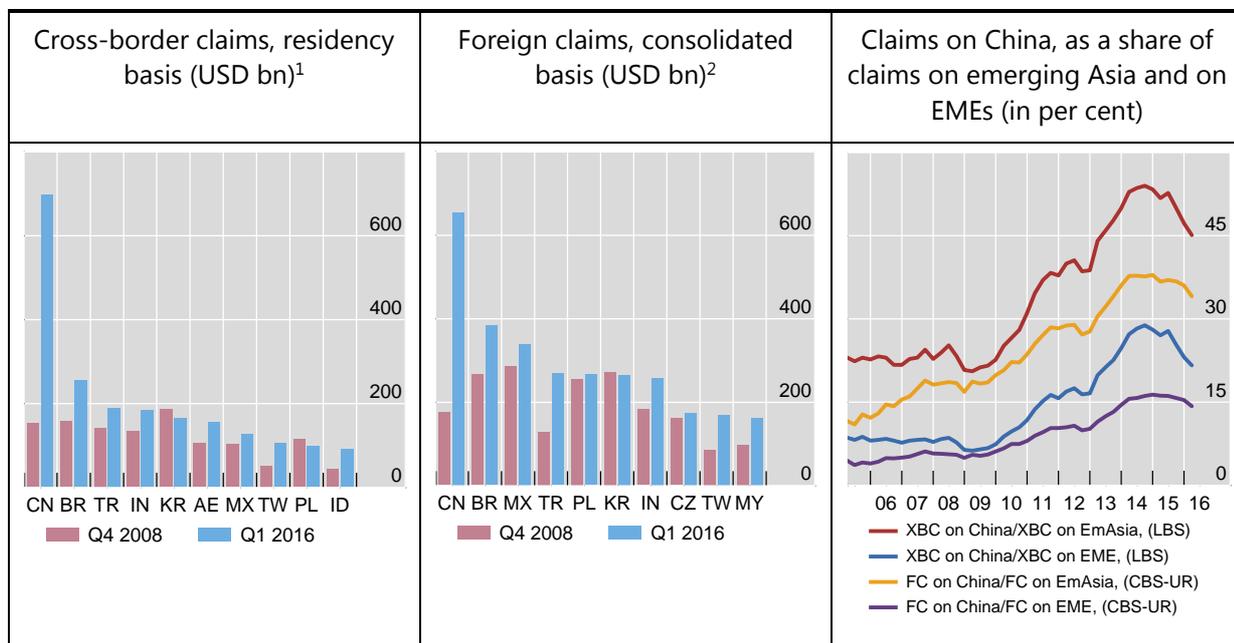
³⁰ This dataset first comprises a much larger set of reporting countries; in addition, reporting countries provide information on all the offices of the banks from foreign countries (even the non-reporting foreign countries) that are affiliates located in the areas of these reporting countries.

has dominated banking inflows to EMEs in recent years and has become by far the largest EME borrower for BIS reporting banks. The locational IBS allow to capture the cross-border claims reported by international banks on residents of China, representing around \$0.7 trillion at the beginning of 2016. This is well above the amounts registered for other large EMEs, such as Brazil, India, Korea or Turkey (Chart 3, left-hand panel). A key factor behind this evolution has been the large transactions between Chinese mainland offices (not captured by the IBS statistics on a residency basis, because China is not an IBS reporter) and overseas offices of Chinese banks (captured by the resident statistics of the BIS reporting countries where these Chinese affiliates are located), as well as between foreign groups and their local affiliates in China.

The rise of China as an international bank lending destination

Claims of BIS reporting banks on emerging market economies, outstanding end-of-period stocks

Chart 3



AE = United Arab Emirates; BR = Brazil; CN = China; CZ = Czech Republic; IN = India; KR = Korea; MX = Mexico; PL = Poland; RU = Russia; TR = Turkey; TW = Chinese Taipei; EmAsia = emerging Asia-Pacific; EME = emerging market economies; XBC = cross-border claims; FC = foreign claims; LBS = locational IBS; CBS-UR = consolidated IBS on an ultimate risk basis.

¹ All reporting banks' cross-border claims (including banks' positions vis-à-vis their own offices) on the 10 largest EME borrowers as of end-Q1 2016. ² All domestic banks' foreign consolidated claims (ultimate risk basis) on the 10 largest EME borrowers as of end-Q1 2016.

Sources: BIS locational and consolidated IBS; BIS (2014), updated.

The consolidated IBS can shed some light on this aspect from the creditors' point of view, by excluding inter-office transactions for reporting banks and taking account of their foreign claims that are booked via their affiliates located in China. Using this metric, BIS reporting banks' exposure to China was almost twice as large as that to any other emerging market economy (Chart 3, centre panel) – yet a more modest position in relative terms than the one suggested by the locational IBS.

The current status of China as the first EME international bank lending destination is the result of a remarkable evolution that has taken place largely since the GFC (Chart 3, right-hand panel). As recently as 2009, China was not even among BIS reporting banks' top five foreign EME exposures. On an unconsolidated basis, as

recently as at end-2008, China accounted for roughly 5% of cross-border claims on all EMEs (blue line) and 20% of those on emerging Asia (red line). By 2016, those two shares had reached around 20% and 45%, respectively (despite a recent decline in the past few years). On a consolidated basis, similar dynamics have played out, but China's shares (the purple and orange lines) are relatively lower because of the importance of inter-office positions in channelling foreign bank credit to Chinese borrowers.

3.2. International debt securities statistics

Another important BIS data set collected on a consolidated basis is the international debt securities (IDS) statistics. It is compiled from a granular, security-by-security database that enables unique identification of each security. This allows all bonds issued to be identified by the specific residency of the issuer and by its nationality defined as the residency of the parent company controlling it. One can thus compare debt issuance activity from a residency- and a nationality-based perspective. In addition, one can distinguish between the risks associated with the issuer ("immediate risk") or the economic group it belongs to ("ultimate risk").³¹

Work conducted at the BIS (Gruić and Wooldridge (2015)) has shown the usefulness for financial stability analysis of comparing residency- and nationality-based data on securities issuance – for instance, when assessing the international issuance of emerging market borrowers through the foreign entities controlled by them. The combination of these statistics with BIS banking statistics can help to better understand the evolution of the provision of global credit, characterised by two specific phases in the recent decades.

The first phase in the second half of the 20th century saw the expansion of cross-border operations of internationally active commercial banks: according to the IBS, the outstanding amount of banks' global cross-border claims has steadily increased, from about 5 trillion USD in the mid-1970s to around 30 trillion in the late 2000s – it has since stabilised at around this level (BIS, 2015b). This second phase of global liquidity (Shin (2013)) has entailed a shift from bank lending to market finance, with the sharp expansion of international debt securities issued by financial and non-financial corporations. This has reflected in particular the increased issuance by emerging market borrowers in advanced markets and / or offshore centres, either directly or through their controlled affiliates (that is, on a consolidated basis). International debt issuance now represents more than 20 trillion of USD, compared to just 5 trillion at the beginning of the 2000s. As can be seen in Chart 4, the evolution is different among EMEs: debt issuance has become the main source of funding for Brazilian companies (right-hand panel), while Chinese borrowers still rely primarily on foreign banking credit (centre panel).

The BIS debt securities also allow for a granular identification of possible fragilities. One recent example is the large and growing part of outstanding international debt securities of non-financial corporations headquartered in major EMEs that has been issued through subsidiaries abroad (Gruić et al, 2014). This debt does not show up in the residence-based external debt statistics, which therefore paint an overly benign picture of the related exposures. Moreover, the risk profile of offshore debt is likely to be very different depending on whether the issuing affiliate

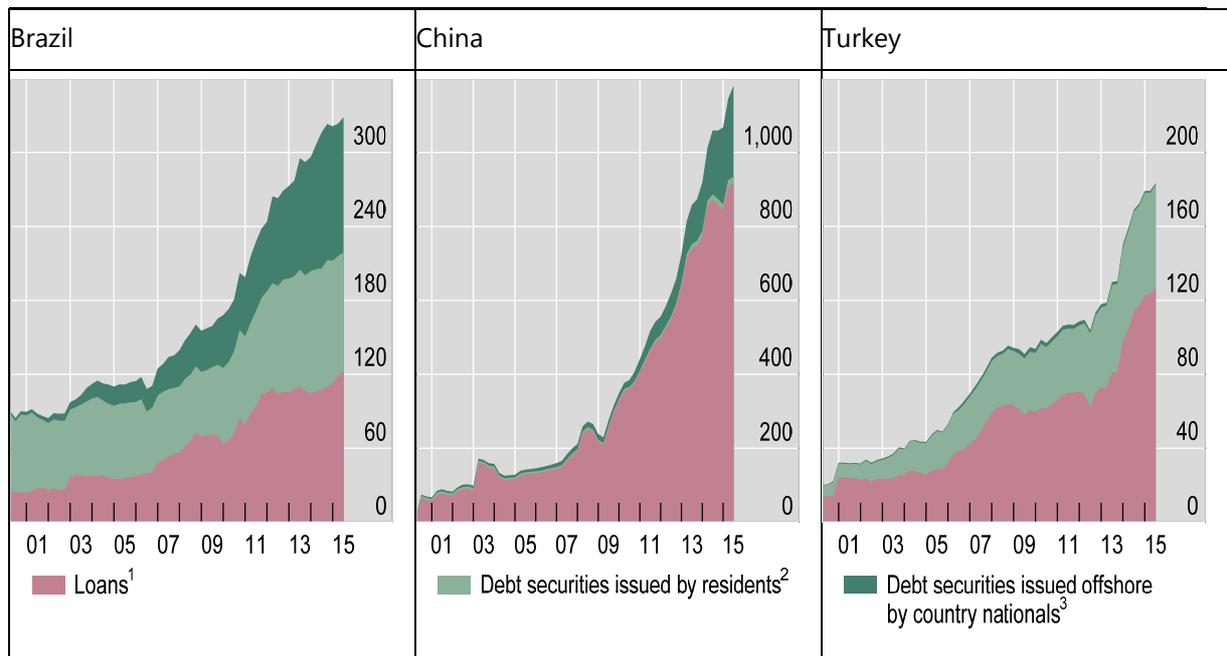
³¹ See also the Handbook on Securities Statistics (BIS et al, 2015).

is a fully-fledged firm with significant operations in the country of residence or if it is merely a conduit channelling funds to the parent. The reasoning is that “pure” financial affiliates of non-financial corporations that are mainly engaged in providing funding for their parents can entail significant risks. Chart 4 shows that issuance by Chinese borrowers is almost exclusively done by their affiliates resident abroad of China (centre panel, dark green);³² in contrast, international debt issuance by Turkish companies (right-hand panel, light green) is almost exclusively done by Turkish resident units and is therefore correctly captured by residence-based data like Balance of Payments statistics.

Credit to non-banks including offshore issuance

In billions of US dollars

Chart 4



¹ US dollar-denominated loans to non-bank residents of the country listed in the panel titles. For China, locally extended US dollar loans are estimated from national data on total foreign currency loans, assuming 80% are dollar-denominated. ² Outstanding US dollar debt securities issued by non-bank residents of the country listed in the panel title. ³ Outstanding US dollar-denominated bonds issued offshore (ie outside the country listed in the panel title) by non-banks with the nationality listed in the panel title.

Sources: BIS locational IBS by residency; BIS International Debt Securities Statistics; national sources; BIS calculations.

3.3. Derivatives statistics

A third BIS data set collected on a consolidated basis relates to the over-the-counter (OTC) derivatives markets (Tissot (2015)). These BIS statistics are split into two data sets. One is the Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity (amounts outstanding), which is the most comprehensive source of information on the size and structure of derivatives markets conducted every three years. Its coverage, initially limited to 26 countries in 1995, has been progressively expanded, to 53 jurisdictions in 2013, representing data collected from around 1,300

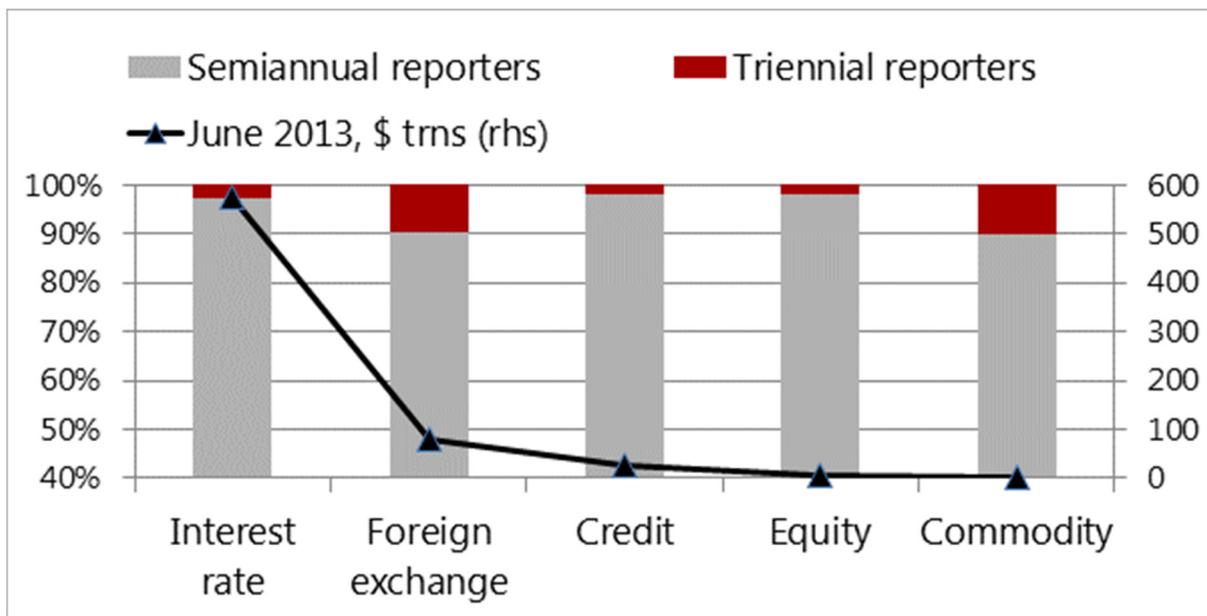
³² One example that has raised growing attention in recent years is the debt issuance by real estate firms headquartered in China through their non-financial foreign affiliates.

banks and other dealers. This survey takes a snapshot of the market at a specific date (end-June 2013 for the most recent one at the time of writing). The second data set is the semiannual survey of OTC derivatives, whose collection started in June 1998 and involves only 13 jurisdictions and also covers data on notional amounts outstanding and gross market values for all types of OTC contracts. Because of its higher frequency, this survey is a key source supporting the regular monitoring of activity in the largest OTC derivatives markets.

BIS reporting of OTC derivatives: shares of the reporting by semiannual reporters and triennial¹ reporters

2013, by type of contracts

Chart 5



¹ The grey bars cover the data reported by the jurisdictions that are semiannual reporters; the red bars cover the jurisdictions that are only reporting data on the occasion of the Triennial surveys.

Source: BIS calculations.

A key element is that the triennial and semiannual surveys both cover the worldwide consolidated positions of reporting dealers on a worldwide consolidated basis. They exclude intragroup positions but include the positions of all their foreign affiliates worldwide (ie the branches and majority-owned subsidiaries of the head offices located in the reporting countries). This has several important implications. First, it explains why the coverage of the global market by the semiannual survey is quite good, despite what the limited number of reporting jurisdictions (13 versus 53) may suggest. The reason is that the financial institutions of the 13 jurisdictions participating in the semiannual survey control a large number of affiliates around the world and report a very large part of the market activity that is located outside these jurisdictions (Chart 5).

The second implication is that operations between affiliates of the same institution are excluded from the reporting: for instance, hedging operations conducted by a local branch with its parent entity, which merely reflect intragroup risk management practices, are excluded. Partly mitigating this drawback, the BIS conducts another "Triennial Survey" to measure turnover in OTC derivatives and foreign exchange markets. That "turnover part" (in addition to the first part on data

on amounts outstanding reported on a consolidated basis) provides a split between local and cross-border transactions, so as to allow for an estimation of the size of local turnover (ie when both counterparties reside in the same country) versus cross-border activity. A key element is that the trades are collected on an unconsolidated basis: the basis for reporting is the location of the "sales desk" of any trade, even if deals entered into in different locations were booked in a central location. Thus, transactions concluded by offices located abroad should not be reported by the country of location of the head office, but by that of the office abroad (insofar as the latter is a reporting institution in one of the other reporting countries). In addition, the survey identifies the "related party" trades between desks and offices, and trades with their own branches and subsidiaries and between affiliated firms, in the reported aggregates (BIS, 2015c).

3.4. FSB Shadow Banks monitoring

The GFC underscored the importance of innovation in the financial system and the development of new channels for intermediating funds between borrowers and savers when assessing financial stability risks. A key phenomenon has been the expansion of shadow banks. These can be broadly defined as entities outside the regulated banking system that perform core banking functions (eg credit intermediation) and play therefore a very active role in providing leverage-based maturity and liquidity transformation as well as (imperfect) credit risk transfer (Kodres, 2013).

In the context of the DGI, the FSB has set up a system-wide monitoring framework to track non-bank credit intermediation that may pose bank-like systemic risks to the financial system (FSB (2011)). The first, "broad" step was to mobilise the national accounts framework to track these entities and assess their importance relative to "traditional" banking intermediation channels. In particular, the SNA allows for the monitoring of detailed subsectors within the "Other Financial Institutions" (OFI) sector that contribute decisively to the provision of shadow banking activities, such as investment funds (eg equity, fixed income), broker dealers, structured finance vehicles, finance companies and money market funds.

Yet in practice, the identification of shadow banks can still be challenging – cf for instance the difficulties to capture hedge funds or the role played by affiliates located in offshore centres. The FSB has therefore developed a more granular, activity-based approach, which relies on five main types of economic functions performed by shadow banks (FSB, 2015). This "narrow" measure of shadow banking that may pose financial stability risks was \$36 trillion in 2014: shadow banks represent around 55 to 60% of GDP in major advanced and emerging economies, and about 10% of their financial assets (compared to about 50% for "traditional" banks").

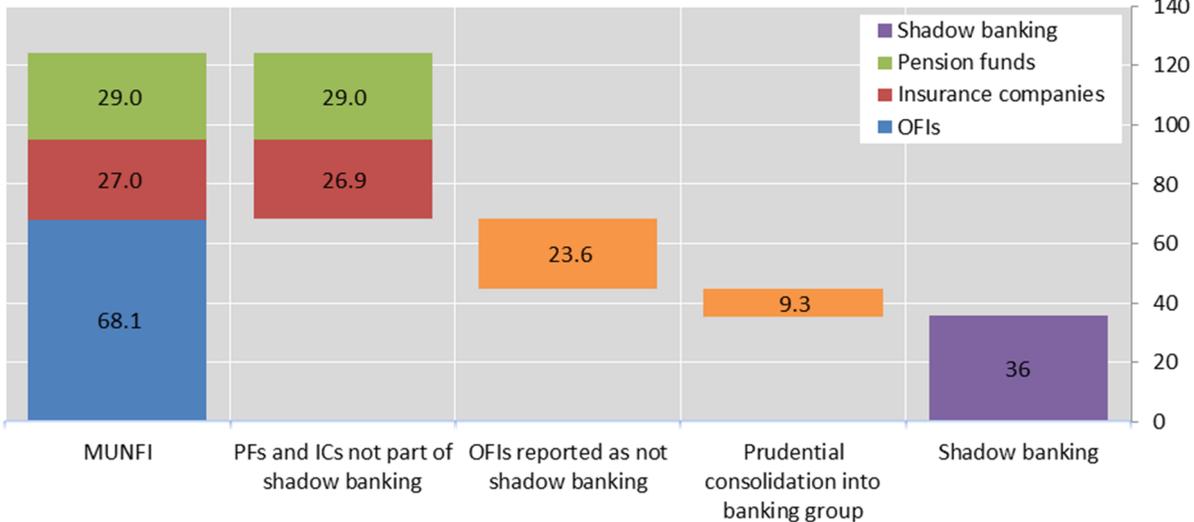
Group-level consolidation is an important aspect of this narrow approach, which (among other factors) excludes from the scope of shadow banking those entities that are already consolidated into banking groups for prudential purposes. The reason is that such entities providing "shadow banking services" (typically broker-dealers, finance companies and structured finance vehicles) are usually subsidiaries of a banking group and are therefore within the consolidation perimeter of their (regulated) parent company. Their activities being already subject to appropriate regulation/supervision, they can therefore be excluded from the measure of shadow banking that may pose financial stability risks. Based on a sample of 23 jurisdictions,

the FSB estimated in 2014 that a proper consolidation of the shadow banking sector would reduce its size by \$9 trillion – this represents one fourth of the entire FSB narrow estimate of shadow banking (cf Chart 6).

Contribution of prudential consolidation to the FSB narrowing down exercise for assessing shadow banking

End-2014, USD trillion

Chart 6



Notes: MUNFI = Monitoring Universe of Non-bank Financial Intermediation; PFs = Pension Funds; ICs = Insurance; OFIs =Other Financial Intermediaries. Companies; Prudential consolidation into banking group = assets of classified entity types which are prudentially consolidated into a banking group; Shadow banking = shadow banking based on the economic functions. Sources: National financial accounts data; other national sources; FSB calculations; 26 jurisdictions.

Source: FSB (2015).

Certainly, applying full consolidation makes sense in order to focus attention on those parts of the shadow banking system that are otherwise below the radar screen of public authorities. But transparency on the scale of shadow banking activities performed at the sub-level of a supervised (consolidated) group can also be useful, for instance by allowing a distinction to be made between the “traditional banking activities” of this group and its non-banking financial operations. Moreover, some caution should be exercised in disregarding shadow-type activities performed by a supervised group. In some jurisdictions, certain entities may be consolidated into the business accounts of a banking group even when waivers or exceptions exempt them from prudential requirements (ie these entities would not be within the supervisory consolidated perimeter of the group). Consequently, holdings in those unconsolidated undertakings have to be deducted when assessing the banking group’s capital position for supervisory requirements, to ensure that the bank is not bolstering its own capital (used to support its banking risks) with capital that is also used to support the risks of, say, its “shadow bank” subsidiaries.

4. Conclusion

The increased focus on global financial stability risks is posing challenges to the traditional statistical apparatus, especially the System of National Accounts (SNA). One extreme view is that this SNA framework has become old-fashioned, since it is no more enough – and may be even misleading – to rely on the criterion of residency to capture risk exposures. One possible middle view, as recommended by this paper, is that data collected along the residency-based SNA concept should be complemented by a nationality-based, global approach to assess risk exposures. Such an approach requires the establishment of a framework for assessing financial positions on a so-called “nationality-basis”, that is, at a globally consolidated level.

How should one proceed to collect meaningful data to assess consolidated risk exposures? There are important challenges to address. First, one has to classify economic units by sector and nationality, and this requires in particular strong international cooperation. Second, one should define the concept of control between two economic units; but the way to do so depends on the perspective retained (eg business accounting, financial supervision, and statistical standards) and there are many caveats associated. Third, one should try to look at information aggregated at the “corporate group” level. In general, business accounting standards take a very broad view of a group definition, while the functional view of supervisors is somewhat narrower. But a key issue is that the SNA framework, by design, makes it difficult in practice to present on a consolidated basis the financial positions of (cross-border) corporate groups, since this would require the re-allocation of institutional units that are residents in various economic territories and captured by different statistical systems.

Yet the international community has realised the importance of addressing these issues and significant work is under way to improve the way to assess global risk exposures. In particular, the OECD has launched a very ambitious work programme to better measure the activities of multinational enterprises and the interaction with their funding conditions. Other international organisations are also taking decisive steps in this area.

As regards the BIS and its central bank committees, they have been at the forefront of developing the nationality-based concept and in setting up consolidated data collections. Despite the challenges faced and numerous uncertainties, the related information has proved particularly useful especially to monitor the provision of global credit across and within economies. Moreover, they are broadly consistent with financial supervisory approaches, allowing for assessing the way risk exposures are created and managed. The new statistical exercises (eg derivatives, shadow banking, securities financing transactions, development of statistical identifiers) being developed in the aftermath of the GFC will undoubtedly help to move the knowledge frontier even further. This may prove a key opportunity for working on improving the guidance offered by the SNA framework to enhance our understanding of the issues posed by globalisation.

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