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DEBT VULNERABILITIES IN DEVELOPING COUNTRIES: A NEW DEBT TRAP?

Volume II: Policy Options and Tools

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UNITED NATIONS
New York and Geneva, 2018

United Nations publication issued by the United Nations Conference on Trade and Development.

UNCTAD/GDS/MDP/2017/4 (Vol II)

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INTRODUCTION

Yet again, unsustainable international debt burdens haunt the developing world and are fast becoming a core obstacle to the international community delivering on its repeated promises to enable sustainable development finance.

For the best part of two decades, the driving motor of the global economy has been debt, issued on a whim and traded for speculative purposes, rather than backing productive and long-term investment, including into the structural transformation of developing economies. With the world's total gross debt-to-GDP ratio nearing 250 per cent (BIS 2017: 283) and global debt stocks surpassing their record level at the onset of the global financial crisis (US $ 142 trillions) by over US$ 80 trillion in 2017, it is little wonder that international financial markets continue to show periodic nerves, and policy-makers in lead economies struggle to stabilize an increasingly volatile, fragmented and unbalanced global economy.

Advanced economies still hold the largest share of these debt stocks. This is as it should be in a context of sluggish recovery from a global economic crisis and impending stagnation. Yet, such continued dependence of world economic growth on debt, for the most part fuelling short-term speculative rather than long-term productive investments, is a constant source of instability as well as escalating income inequities. Governments in the core economies have been unwilling to tackle the systematic removal of toxic debt burdens, accumulated in the run-up to the global financial crisis of 2007/08, from non-bank private sector balance sheets in a comprehensive and orderly manner. In addition, with an irrational addiction to fiscal austerity, in particular in Europe, this has resulted in a surge of highly volatile international flows of cheap credit emanating from an excessive reliance on expansive monetary policies in these economies.

Not only have these policies failed to ensure a fast and lasting economic recovery based on closing the global demand gap, but the negative spill over effects of persistent deflationary tendencies in advanced economies and global financial fragility have by now had a profoundly disruptive impact on developing economies' prospects of sustained structural transformation. In this context, the growing stock of debt incurred by developing countries and transition economies – estimated to have reached $7.64 trillion in 2017, an increase of over 80 per cent since 2009 – is bound to become a serious liability for their immediate future.

While external debt-to-GDP ratios remain relatively low by recent historical standards, on average rising from 21 per cent in 2009 to 26 per cent by 2017, this masks much higher ratios in a growing number of individual countries, in particular in the Caribbean and African regions. Debt service and payment burdens have also risen markedly over the past few years. For all developing countries, the ratio of debt service-to-exports rose from 8.7 per cent in 2011 to 15.4 per cent in 2016, and, in poorer developing countries, debt service-to-government revenue ratio also climbed up steadily, from 5.7 per cent in 2008 to over 14 per cent by 2017. This increase in debt service burdens has hit the most vulnerable developing countries the hardest, including commodity exporters, countries dealing with large refugee inflows, and small island developing states.

Further signs of trouble on the horizon include a growing share of short- relative to long-term debt in total external debt stocks, as well as a significant slowdown in the growth of international reserves. These grew by only 4 per cent between 2009 and 2017, compared to 24 per cent between 2000 and 2008. The ratio of short-term debt to international reserves stood at just below 400 percent in 2016. While this is still substantially higher than the 230 per cent ratio at the start of the millennium, the relatively sharp decline since 2009, when this ratio stood at 580 per cent, is cause for additional concern (Report on external debt sustainability and development 2017, UN Secretary General).

The commodity price downturn that started in 2011 is, of course, a major factor in explaining the heightened dangers of sovereign debt crises across the developing world. Commodity price slumps have been accompanied by currency, banking and sovereign debt crises in vulnerable economies for centuries, and the current downturn is no exception. However, six years after the onset of the current slump, there a few, if any signs of a sustained recovery of commodity prices. While sector-specific aspects obviously vary, the common underlying reason for the prolonged stagnation of commodity prices is the lack of global macroeconomic policy coordination to facilitate a turn around. US expansion has been moderate and unstable which is unlikely to be helped by continued reliance on already overloaded monetary policy tools, including a return to 'normalised' interest rates, and humongous tax cuts for the super-rich. The EU is in even more dire straits, struggling to keep its diverse

economies under a shared political roof and exporting its deep internal macroeconomic imbalances between surplus and deficit countries to the rest of the world, rather than addressing these in-house. What few breaks there have been from continued downward pressures on commodity prices has been down to China's steady economic performance despite its own internal debt worries. But China alone cannot be expected to drag the world economy out of its fragmentation and lethargy.

In the absence of a strong and sustainable driver of global growth, downward pressures on most commodity prices are likely to persist, reflecting downward dynamics of excess supplies interacting with a continued lack of effective international demand. Most commodity exporters, left to their own devices, have little alternative but to compensate lower prices with higher export volumes, especially given that in many cases large investments into commodity export expansion had already been well under way when the price boom ended. This, together with continued slack in exports markets, is a recipe for a prolonged stagnation of commodity prices at historically low levels, even if global economic instability can also mean occasional short breaks from this downward trend, not least due to price speculation.

But depressed commodity prices and sluggish global aggregate demand, more generally, are not the only factors threating external debt sustainability in the developing world. Beyond these 'classical' issues, developing countries' vulnerability to financial and debt crises is much higher now than it used to be due to their fast rising exposure to complex and largely unregulated international capital and financial markets. What matters is not only, and perhaps not even primarily, the size of debt relative to broad macroeconomic performance indicators, such as GDP and exports, but also the composition, ownership and currency denomination of this debt.

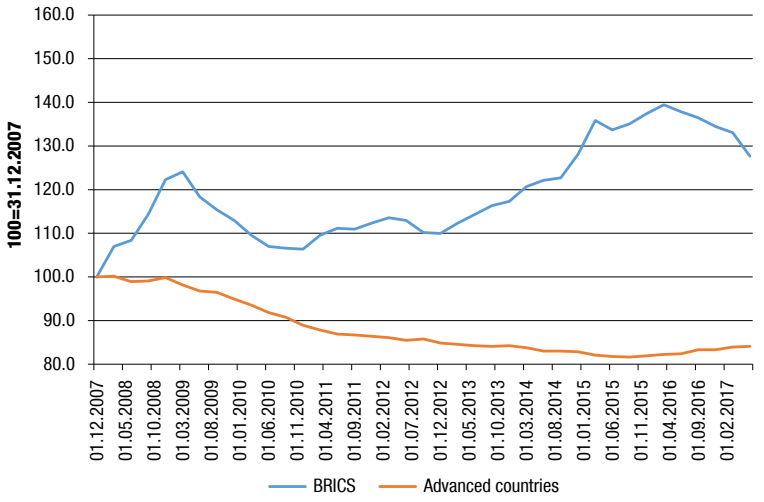
In larger emerging market economies, a main concern is the clearly unsustainable and badly hedged debt incurred by non-financial corporations in a context of their ample access to short-term foreign currency denominated debt. According to the IMF's Global Stability Report (2015), this rose from US$ 4 trillion in 2004 to US$ 11 trillion in 2010 and well over US$ 18 trillion in 2014 across major emerging market economies. The increasing reliance of non-financial corporations in emerging developing economies on debt rather than equity to finance investment is also apparent in a renewed marked rise of their debt-to-equity ratios after 2010, when these had contracted sharply from high levels immediately following the global financial crisis (McCauley et al 2015). The core driver of accelerated non-financial corporate indebtedness in these economies, reaching 140 per cent of combined GDP in 2016, has been excess liquidity in the international financial markets, coupled with the continued deregulation of developing country financial systems (UNCTAD 2016).

This also has meant rising debt servicing burdens. As the below graph illustrates, the debt servicing ratios of non-financial sectors in large developing countries have shown a steeply upward trend since the global financial crisis of 2007/08 that has only begun to reverse recently, in response to the reversal cheap credit flows to the developing world after 2014. These debt servicing ratios reflect the share of income used to service debt and are generally considered to be a reliable warning indicator of pending banking crises due to non-performing loans.

While the growth of problematic corporate debt in their non-financial sectors primarily affects middle- and upper-income economies with large domestic corporations, the growth of private sector foreign borrowing has increased debt vulnerabilities also in poorer developing economies as, for instance, Bonizzi and Toporowski in volume I of this publication argue for the case of Sub-Saharan Africa. For developing countries overall, the share of private non-guaranteed (PNG) debt in total long-term external debt stocks rose from 28 per cent in 2000 to almost 50 per cent in 2016. In Sub-Saharan Africa, this increased seven-fold in the first fifteen years of the millennium alone, from US$ 10 billion in 2000 to US$ 70 billion bz 2015. Such foreign currency denominated debt not only increases private actors' exposure to external shocks, but it poses a potentially systemic threat to their economies when private debt burdens become unsustainable and governments are forced to shift private debt onto public balance sheets to avoid serial bankruptcies and subsequent financial crises.

At the same time, there also has been a marked shift towards raising public debt finance in developing countries from the private sector rather than from official and multilateral creditors, owing to a combination of limited access to the latter, at least on acceptable conditionalities, and temporarily cheap private credit flows. Thus, the share of external public and publicly guaranteed debt (PPG) debt owed to private creditors accounted for 41 per cent of the total in 2000, but had increased to well over 60 per cent by 2016. Furthermore, bond debt now constitutes an important share of PPG debt in developing countries as a group, having increased from 24 per cent in 2000 to 43 per cent in 2014. The considerable downsides of this trend towards tapping into international capital markets through the issuance of sovereign international bonds

Debt service ratio average for private non-financial sectors, 2007 – 2017



Note: Advanced countries include Germany, Japan, United Kingdom and United States of America. Developing countries include Brazil, China, India, Indonesia, Mexico, Malaysia, Russia, Thailand, Turkey and South Africa.

Source: BIS debt service ratio statistics and UNCTAD Secretariat calculations

have become particularly apparent in the case of some least developed economies that took advantage of the availability of cheap private credit between 2011 and 2015, only to see themselves faced with impossibly high increases in yields on their bonds once fickle investor sentiments took a turn towards more caution. An example is Zambia, which issued $1.25 billion at 11.4 per cent in 2015 compared to 5.63 per cent for an issuance in 2012. Similarly, Mozambique paid a yield of 16.26 per cent for an international bond issuance in June 2016, compared to much lower yields on a couple of years earlier.

Recourse to issuing debt, whether international or domestic, in national currency is not the panacea it has been hailed to be. Until recently, greater reliance on domestic public debt and on domestic bond markets largely reflected a win-win situation, driven by excess liquidity in the international financial markets. For developing country governments, the case for borrowing domestically is compelling. Even though in these economies domestic borrowing is generally more costly than external borrowing, they can shift the currency risk to international lenders and reduce their vulnerability to exchange rate volatility. International lenders in search of higher yields than were on offer in their home countries, in the context of strongly expansionary monetary policies there, did show willing to lend under local jurisdictions and assume the currency risk. Consequently, the turn towards a reliance on local currency debt issuance and bond markets did not stop few and large non-resident investors, guided primarily by global financial conditions and erratic confidence in the host markets, from dominating developing countries' debt strategies for development.

Moreover, developing countries switching from external to domestic public debt could also be trading a currency for a maturity mismatch. Many developing countries are unable to issue long-term government securities at a sustainable rate of interest, yet need to be a position to pay off or roll over maturing and short-term obligations. This is the case, in particular, where domestic commercial banks with usually strong preferences for short-term portfolio allocation remain the dominant investor group in local currency bond markets, such as, for example, in much of Sub-Saharan Africa.

Last but not least, increased reliance on domestic public debt also raises complications for sovereign debt restructurings where these become necessary. External and domestic debts are no longer clearly separable, in terms of ownership structures, currency denomination and legal governance frameworks. From an economic point of view, there are strong and widely recognized arguments for treating domestic debt under local jurisdictions separately from external sovereign debt, essentially to avoid a deepening of economic contraction in the wake of the turmoil caused by external debt crises. But with an increasing proportion of locally issued public debt now held by non-residents externally, questions arise, for example,

as to whether to differentiate between resident and non-resident holders of local-currency debt. While outright defaults on domestic debt in developing and emerging economies are rare, given the huge social and political costs of such defaults, these are issues to be kept in mind.

As a result of these developments, by the end of 2017, the IMF assessed 22 low income countries with access to concessional funding (PRGT – eligible) to be at high risk of debt default, 28 at moderate risk and only 10 countries at low risk, with a further 5 countries already in default. This, of course, does not include the many developing economies, classified as middle-income countries, that are also on the brink of default on their sovereign debt or have already defaulted *de facto* if not *de jure*, in particular but not only in the Caribbean region. If more outright defaults on sovereign debt are not yet occurring, this is down to a combination of not necessarily encouraging reasons: In some emerging market economies, sensible anti-cyclical policy regime may be helping to stave off financial and debt crisis. But beyond these few economies, it is more likely that implicit defaults are simply not being declared and are not captured in the available official and international data. In addition, further shocks to many developing economies that may push them over the edge, are yet to come, for example if the as yet still cautious move to a 'normalisation' of monetary and interest rate policies in the advanced economies will continue.

Despite this dismal outlook, it is important to remember that debt instruments are an essential, even indispensable, element of any financing for development strategy. External debt is not a problem in itself. It only becomes a problem to the extent that the investments financed by such debt fail to boost income and export earnings required to service that debt. During the first decade of the 2000s, the external debt position of most developing countries improved markedly due to a combination of strong domestic growth, a favourable external economic environment and international debt relief, and interest payments consequently fell markedly, from over 15 per cent on average in the 1980s and 1990s to between 1 and 6 percent as recently as 2013. Easy access to debt refinancing in international financial markets and a heightened ability to attract investors to local currency denominated debt seemed to provide ample opportunities to continue on a path to transformational development. This path has, however, proven treacherous, and is by now showing its ugly head: Where external debt primarily results from speculative surges in cheap international credit, driven by policy decisions in advanced economies rather than by the promise of transformational investments, the link between external debt finance and productive income generation to service this debt is broken. Instead, cheap credit tends to finance trade and investment unrelated to the real economy, resulting in asset bubbles, currency destabilisation and overvaluation, maturity mismatches, conspicuous consumption imports and overall macroeconomic instability.

Under such circumstances, developing country debtors will soon be unable to generate the resources required to service their debt obligations. In a global economy that lacks any viable mechanisms for international policy coordination, the resultant macroeconomic imbalances can only amplify: Private investors will flee developing country destinations, no longer attractive for their short-term financial investment strategies, thereby acerbating the financing shortfall in these economies; developing countries, lacking policy space and multilateral finance to bridge liquidity shortfalls and sufficient development finance have little alternative but to "beggar-thy-neighbours" and compete for stagnant export markets through currency devaluations and related low cost-low income strategies as well as pursue counter-productive austerity policies, further undermining growth prospects and ultimately driving up relative debt levels.

To avoid this kind of debt trap spreading systematically across the developing world will require an international policy response far beyond 'business as usual'. Ultimately only a 'new global deal' (UNCTAD 2017: 147-164), that proactively promotes productive investment for more and better-quality employment, reigns in speculative and rentierist private interests and drives the reform of international institutions to accord developing countries an effective voice in international policy-making, will be able to mobilise and deliver sustainable development finance, including through leveraging sustainable debt instruments and systematic debt relief. In the meanwhile, and as the UNCTAD has repeatedly pointed out (e.g. UNCTAD 2015: 141-147), an urgent task is the creation of an international regulatory framework to facilitate sovereign debt restructurings, where these have become inevitable, with the objective to ensure timely, effective and fair sovereign debt workouts that safeguard the debtor country's future growth prospects and therefore its capacity to repay debt, as well as essential creditor rights.

The two volumes of this publication gather a range of contributions on specific aspects of this important and large topic. Volume I brings together papers that analyse different regional aspects of evolving debt dynamics in the developing world, detailing many of the issues raised in this introduction in these specific contexts. It also introduces an additional,

and often neglected, wider feature of these debt dynamics, namely the role of microdebt crises across the developing world and the bankruptcy of the microcredit model. Volume II turns to selected topics and policy options to mitigate developing country debt vulnerabilities in current circumstances, in which a 'new global deal' is unlikely to garner the required international political support.

In this volume, *Bichetti* and *Neto*'s contribution highlights the importance of adequate monitoring tools to facilitate developing country policy-makers task of mitigating the impact of financial instability and shocks on their economies. Since the global financial crisis of 2007/08 the role of improved monitoring and regulatory tool and mechanisms has loomed large in policy debates in advanced economies. However, despite the introduction of new national and international supervisory bodies and national financial reforms in these countries, financial innovation and engineering has continued to evolve fast, expanding into new products and markets. This has rendered the conventional duties and responsibilities of financial regulators and central bankers in developed countries ever more complex, at a time when the global financial crisis has highlighted the importance of interlinkages between shadow banking and more traditional forms of banking, and their interdependence with the rest of the economy.

Given the increased speed of many developing countries' integration into international financial markets, and their growing exposure to the spillover effects of international financial instabilities, financial markets in developing economies, too, have become more complex. The development of financial engineering and financialized globalization has facilitated access to financial markets through the introduction of liquid financial products easily available to investors in developed markets, notably Exchange Traded Funds (ETF) and other money pooling schemes. These products make it easier for international investors to pump relatively large amounts of liquidity in and out of those markets. At the same time, they also have increased interdependence and idiosyncratic market volatility. In some developing countries, the rise of domestic shadow banking further complicates the analysis of the national financial system. Thus, the capacity to monitor financial stability in those countries requires a complex understanding of the various forces at play, their interconnections and their impact on growth and developmental performance.

In this context, Bichetti and Neto provide a technical description and discussion UNCTAD's new Financial Conditions Indicators (FCI) for developing countries. These indicators combine variables with mixed frequencies and different time span using Dynamic Factor Analysis (DFA) to create a synthetic index. As Bichetti and Neto explain, the methodology used to construct these indicators builds on recent advances for financial stress indicators for advanced economies, but provides additional solutions to address issues of data omissions and data quality typical of most developing countries. The resulting country-specific FCIs are computable at high-frequency and in real time, a feature particularly relevant for effective use by policy-makers. Build with the specific difficulties and concerns of developing countries in mind, they take account of often very different macroeconomic conditions across a heterogeneous set of developing countries, and allow for the systematic and dynamic consideration of highly country-specific features.

From early warning systems, *Guzman*'s contribution moves to the other end of the spectrum of debt crisis prevention policy tools by considering the role of contingent debt instruments – specifically sovereign credit default swaps (SCDS) and GDP-indexed bonds – for the functioning of sovereign lending markets and debt restructurings. The core trade-off such contingent instruments should help to improve is that between the principles of sustainability and good faith. Sustainability requires that debt relief is negotiated in a timely and efficient manner and results in a stable debt situation for the debtor country, one that does not undermine developmental and growth prospects. Good faith requires that the amount of debt relief is the minimum necessary to restore sustainability, thereby safeguarding creditor rights. Since the amount of debt relief that will ensure sustainability depends on the future performance and capacity of repayment of the debtor, this is by definition uncertain. Well-functioning sovereign lending markets would help to minimise this uncertainty by delivering debt relief packages large enough to increase the probability of achieving sustainability ex-post, thereby also improving creditors' prospects of recovering their investments in the future.

Using the example of Argentina's litigation dispute over the restructuring of its sovereign debt, Guzman illustrates a number of inherent inefficiencies in the markets for SCDS, a form of tradeable insurance on credit events that allows bondholders to hedge against the risk of such events occurring. These inefficiencies include misaligned incentive structures and conflicts of interest that result in ineffective restructurings, generally providing too little debt relief to ensure a sustainable resolution to a debt crisis. This is particularly true for so-called naked or speculative SCDS for which the holder does not also own the underlying sovereign debt bond. Guzman also shows that the EU's 2011

ban on such naked SCDS did, in effect, result in a reduction of SCDS trade. However, for currently highly opaque SCDS markets to function properly – that is, in particular, to increase transparency in regard to perverse incentives and conflicts of interest – more systematic and encompassing regulation would be required. A more promising route to more efficient sovereign lending markets are GDP-indexed bonds, even though more work will be required to determine detailed designs of such bonds, ensure wide-spread adoption and improve data availability on these instruments.

While Guzman argues that sovereign lending markets can and should benefit from better practice and regulation of contingent debt instruments, such as SCDS and GDP-indexed bonds, he also points out that there are more direct policy options to ensure sovereign lending markets function efficiently to deliver both sustainable debt crisis resolutions from the debtor perspective as well as safeguard creditor rights. The most important is a multilateral regulatory framework for sovereign debt restructurings that aligns incentives bindingly and transparently ex-ante to achieve a balanced consideration of both the principle of sustainability and that of good faith.

Improved monitoring tools to facilitate early policy responses to situations of financial stress as well as better designed and regulated market-based debt instruments are certainly important steps towards more effective debt crisis prevention and resolution. However, debt crises will remain a frequent feature of the global economy in the absence of a well-functioning international monetary system that can be trusted to deliver global macroeconomic and financial stability, facilitate orderly adjustments to shocks that distribute the burdens fairly between surplus and deficit economies, and provide the international system with adequate liquidity. As *Kregel* argues, the Bretton Woods Institutions (BWIs) have proven woefully inadequate to this task, making regional organisations a serious and perhaps the only viable alternative, in particular for developing economies.

Kregel provides an in-depth analysis of the shortcomings of the Bretton Woods System (BWS), and of past and current policy and theory debates about the principles that should guide the design of a modern international monetary system (IMS). The core issue highlighted by Kregel in regard to the BWS is its well-known failure to delink the IMS from a national lead currency, the US dollar, thereby implanting a core inconsistency with wide-reaching consequences at its heart: the conflict of interest between domestic monetary policy priorities and those arising from the United States' obligations as the issuer of the international lead currency. Not only did this conflict of interest lead to the eventual breakdown of the BWS in its original post-war form, but with the US dollar retaining its role as international lead currency beyond the end of the BWS, this conflict has continued to destabilise international monetary and financial relations. As evidenced most recently by the impact of low interest rate policies and quantitative easing in the US and subsequent attempts at 'normalisation', US domestic monetary policy-decisions have impacted on the rest of the world through boom and bust cycles of cheap credit flows abroad. From a developmental perspective, the BWS also failed to accommodate the requirement of long-term macroeconomic imbalances to allow for catching-up development: it did not specify any mechanisms to handle sovereign debt and structural trade deficits incurred to finance development in the long run, rather than arising only from short-term liquidity or reserve constraints.

These limitations have resulted in an increasingly polarized and fragile global economic system that is structurally and institutionally incapable of providing reliable channels for development finance while also maintaining global macroeconomic and financial stability. In the search for alternatives, Kregel reminds us of JM Keynes's blueprint for the BWS and its core ingredient, an international accounting currency and clearing union. Despite drawbacks, relating primarily to an incomplete analysis of the international political institutions required to put this into practice, Keynes's blueprint remains the most substantial and radical proposition for a truly international monetary system capable of delivering both stability as well as development. However, with recent attempts at even piecemeal reforms of the BWIs stuck in limbo, Kregel turns to a discussion of regional policy spaces and experiences to create mechanisms and institutions that can deliver monetary institutional arrangements (payment systems and clearing unions) to meet both the financial requirements of transformational development as well as short-term liquidity issues. This includes a detailed discussion of the European Payment Union, as well as related projects across various regions of the developing world.

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MONITORING FINANCIAL STABILITY IN EMERGING AND FRONTIER MARKETS

David Bicchetti and David Neto

ABSTRACT

This paper outlines a methodology to build monthly financial conditions indicators (FCIs) for developing countries, including a Small Island Developing State (SIDS), least developed countries (LDCs), and transitions economies as defined by the United Nations' classification. The proposed composite index uses ragged-edge panel data as well as mixed frequency observations. FCIs are compiled using a Dynamic Factor Analysis (DFA) model in order to create a synthetic index in real time (as data is released). Also the choice of variables reflects typical emerging markets considerations given to interdependency issues and includes variables such as capital flows and real effective exchange rates. We show that the obtained indicators are able to capture periods of financial stress and near-miss events historically. In addition, although our FCIs are free from the business cycle, it is able to track GDP growth, in several cases with a clear leading effect. Our FCIs are therefore an interesting tool for policymakers and market participants since its predictive power allows them to assess financial stability in real time before financial shocks are transmitted to the real economy. Consequently, upcoming stormy macroeconomic conditions can be anticipated well ahead.

INTRODUCTION

Since the 2007-2008 financial crisis, the policy debate has focused on the tools and new regulations needed to avert a new global financial turmoil. Though the policy debate brought on new national and international supervising bodies, financial innovation and engineering have continued its expansion into new markets and products. Concomitantly, the combination of new prerogatives and financial innovations has increased the complexity of traditional duties of regulators and central bankers in developed countries. In addition, the global financial crisis has put on the forefront the interlinkages between shadow banking and more traditional forms of banking and their interdependence with the rest of the economy. For instance, the Dodd-Frank Wall Street Reform and the Consumer Protection Act of 2010 aim at ensuring macroeconomic and financial stability by curtailing the various banking activities in order to reduce interconnection and fast spreading financial contagion to all sectors of the economy. Recent political changes in the United States suggest a shift towards a regulatory framework similar to the pre-crisis one.

However, the spillover effects of financial instability on emerging and frontier markets[1] have remained under scrutinized even though those countries have gained importance in recent years. As a matter of fact, financial markets in those countries have become more complex and their complexity goes well beyond the usual issues of sovereign debt sustainability traditionally associated with financial crises. Thanks to the development of financial engineering and globalization, access to those markets has been made easier thanks to liquid financial products readily available to investors in developed markets, notably ETF and other money pooling schemes (often index-linked). Those products facilitate the capacity of international investors to pump relatively large amount of liquidity in and out of those markets and, at the same time, have increased market interdependence and volatility. Recent studies have shown that in the past few years, financial markets have become more prone to financial instability and volatility despite the emergence of new regulations (Filiminov et al., 2014). In some developing countries, the rise of domestic shadow banking further complicates the analysis of the national financial system. In other words, emerging and frontier markets are now subject to external as well as internal shocks whose occurrence has increased over the time .

Divergence in in monetary policy, cracks in the globalization process in advanced countries, and its spillover effects have highlighted the continuous struggle for macroeconomic and financial stability in emerging and developing markets. Thus, the capacity to monitor financial stability in those countries requires a complex understanding of the various forces at play, their interconnections and their impact on GDP performance. In this context, our measure and methodology for our Financial Conditions Indicators (FCIs) applied to a very heterogeneous set of developing countries is an attempt to fill in the lack of real time and reliable indicators for policy makers as well as market participants. If financial instability could be anticipated ahead of time or from the early onset, market participants might have the opportunity to alter their resource allocation and policy makers could possibly alleviate the crisis fallout.

In order to measure financial stability, our FCIs combine variables with mixed frequencies and different time span using Dynamic Factor Analysis (DFA) to create a synthetic index. DFA presents a number of advantages over other econometric models. In particular, it does not assume any sorts of relationship among the variables and it does not need a strong theoretical backing. By using mixed frequencies time series, we obtain a better coverage of possible sources of financial shocks and at the same time this allows us to overcome several data limitations typical of emerging countries and frontier markets, most importantly the lack of data availability. As a matter of fact, studying individual financial series in isolation or only same frequency variables may not yield the desired results as those variables may capture only a certain aspect of the economy and omit others. The resort to synthetic indicators with mixed frequencies is a logical way to overcome these limitations. Also, the choice of variables illustrates our deliberate goal to capture all sorts of interactions and interlinkages effects. We then show that our FCI correctly reacted during past financial crises in those countries. We also show that our FCI can lead GDP performance up to four quarters ahead. They are therefore valuable tools for policy makers because, as computed at high frequency (monthly) and in real time, policy makers can quickly assess the effectiveness of their macroeconomic stability choices and reaction to crisis. Also in the context of debt and financial issues, international organizations and partner countries are in a better position to evaluate the effectiveness of their policy recommendations and other conditionalities.

The paper is organized as follows. Section I reviews the literature on financial conditions and economic indicators, given special consideration to developing countries in section A and to developed economies in section B. Sections II introduces the model. Data and descriptive statistics are presented in Section III. Section IV is devoted to the estimation technique. We present our results in section V and we also show that the FCIs are leading determinants of the economic activity for emerging markets. Section VI concludes.

I. LITERATURE REVIEW OF FINANCIAL/ECONOMIC COMPOSITE INDEXES

There is a large body of the literature concerned with extracting signals from economic and financial time series to assess and predict the state of the real economy. For example, the term structure of interest rates has long been considered by many economists as an indicator of future inflation expectations and overall health of the economy (Bernanke, 1990). Originally in the early nineties, the literature focused on extracting signals from a set of variables and on measuring deviations from the average, in particular to predict currency or banking crises. Once the deviation was above or below a certain threshold, usually associated with a relatively high probability of a crisis, it was said then that the model issued a "signal" (see for instance Edison, 2000; Bell and Pain, 2000; Reinhart and Kaminsky, 1999; Kaminsky et al., 1998). However, the performance of those early econometric models, called Early Warning System (EWS), was mixed at best, because the use of a binary variable for crisis occurrences does not provide information on the intensity of the crises and near-occurrences. In addition, the research scope was too narrowly focusing mostly on currency crises.

From the early models, this literature has grown remarkably since 2008 thanks to the new prerogatives assigned to financial regulators within the post-crisis regulatory framework. In this context, the use of financial composite indexes has become a popular method to assess systemic risks in the aftermath of the global financial crisis. Nonetheless, the existing indicators diverge in coverage and methodologies as the literature does not provide a unified definition of financial stress, certainly because the notion of financial stress is intangible and cannot be observed directly like investment or interest rates. The intangible nature of financial stress implies also that there are no clear-cut methodologies to measure it. To take an analogy, in seismology, earthquake magnitude is often proxied for the energy released since energy is more difficult to observe. Similarly, when assessing financial stress, researchers are actually measuring the effect of financial stress, not financial stress per se, and consequently they try to capture latent conditions.

In addition, the literature traditionally distinguishes between Financial Stress Indicators (FSIs) and Financial Conditions Indicators (FCIs) and the definitions of financial stress can vary according to the authors (for a survey see Kliesen et al., 2012). For the sake of this paper, we define financial stress as a condition during a period in which financial markets are unstable because they are under strain and therefore are vulnerable to shocks and subjects to bouts of volatility with possible spillovers in the real economy. The main difference between FSIs and FCIs, though not absolute, is that the former relies mostly on prices while the latter uses quantities, prices, and other macroeconomic aggregates. By construction FCIs tend to be rather a mapping of financial conditions onto macroeconomic conditions and to relate directly to GDP thanks to its pure macroeconomic components (Kliesen et al., 2012). In this context, though our indicators include only financial variables (prices, volatility index, interest rates...) and do not comprise macroeconomic variables like production, investment, consumption or any other GDP direct components (in this sense our index is business cycle free), we still refer to them as FCIs as they exhibit leading features over GDP performance.

The review of the literature below should start by mentioning the seminal work of Illing and Liu (2006). The authors first created a continuous daily financial stress index for Canada by adopting a system wide rather than a market specific approach, where extreme values correspond to period of financial crisis by using a panel of time series variables. From that seminal paper on, research on macro-financial stability adopted a systemic approach as required by the new mandate entrusted to regulators after the global financial crisis. However, since large emerging countries remained to a great extent sheltered from the fallout of the global financial crisis in 2008, research on indicators of financial systemic issues and overall macroeconomic stability in those countries has remained somehow muted compared to advanced countries.

In spite of that, in this section, we aim to provide a non-exhaustive but brief overview of notable and recent work on composite indicators (FCI as well as FSI) on developed and developing countries. We start first by presenting notable work on FSI for developing countries in section A and on developed countries in section B.

A. EXISTING FCI/FSI FOR EMERGING AND FRONTIER MARKETS

The financial literature with regard to macroeconomic stability in emerging markets is relatively large. However, most of the literature is concerned with specific financial aspects (for example sovereign credit, exchange rate, or banks) or particular events (QE, tapering, Asian financial crisis, etc.). Only a few recent papers attempt to create an index of systemic financial stress for those countries, due to data availability, and most of those indices are simplified versions of existing FSI/FCI for developed countries. In addition, the econometric methodology applied to compute those indicators is often derived from a static specification, which overlooks technical issues typical of financial time series. An overview follows.

- IMF World Economic Outlook April 2009: The Emerging Markets Financial Stress Index (EM-FSI) presented in the IMF World Economic Outlook report of April 2009 builds on the IMF working papers versions of Balakrishnan et al. (2011) and of Cardarelli et al. (2011)[2]. The IMF EM-FSI is an adaptation to emerging markets of the Advanced Economies Financial Stress Index (AE-FSI) introduced in the World Economic Outlook of October 2008 (International Monetary Fund, 2008). Both index (AE- and EM-FSI) are built using a variance weighted average that comprises five indicators in nominal terms: an Exchange Market Pressure Index (EMPI)[3]; banking sector beta (as defined by the standard capital asset pricing model); stock market returns; stock market volatility; and sovereign debt spreads. The EM-FSI is computed for 26 countries[4] between January 1997 and December 2008. The authors find that financial stress spread rapidly to emerging economies and with a high pass-through depending on the depth of the financial linkages.

- Park and Mercado's FSI: In Park and Mercado (2014), the authors follow the methodology set by Balakrishnan et al. (2011) using the same five indicators in nominal terms mentioned above while introducing minor differences in data sources and computations for 25 countries[5]. Regarding the weighting method, they adopt the variance-equal weight but in addition they perform a static principal component analysis (PCA), where the first three components are simply summed up. Regarding missing values, the authors compute them by using the average of the preceding and succeeding monthly value.

- Osorio et al.'s Asia Financial Conditions Index: In Osorio et al. (2011), the authors computed a quarterly FCI for 13 developed and developing countries from the Asia Pacific region between 2001 and 2011 according to data availability[6]. They base their FCI on two methodologies: using the first one, they estimate a VAR model to derive weighted average parameters, while in the second one they employ a Dynamic Factor Model (DFM) framework from which they purge the obtained factors of their endogenous predictive component using standard econometric techniques. Finally, they compute a simple average of both approaches.

- South Africa Financial Conditions Index: In Gumata et al. (2012), the authors computed a FCI for South Africa using 11 nominal indicators divided between domestic (7) and international (4) variables and resorting to two different methodologies: PCA and DFA. When it comes to assess the real economy, they show that their indicator outperforms the leading indicator computed by the South African Reserve Bank with an in-sample and out-of-sample forecasting exercise. Their FCI also outperforms the individual financial variables that it includes. The authors therefore conclude that joint movements in financial variables effectively contain relevant information regarding the performance of GDP growth.

B. EXISTING FCI/FSI FOR DEVELOPED MARKETS

As explained above, the recent literature on a systemic financial indicator has derived directly from the need of developed countries to provide a measure of financial and macroeconomic stability in the aftermath of the global financial crisis. We expand the coverage to include also well-established and tested indicators of business cycles that combine methodological aspects relevant for the construction of FCI. A brief description of notable work follows.

- KOF Barometer: Produced by ETHZ, the KOF Barometer measures the business cycle of Switzerland by relying on a database of over 400 variables. This composite leading indicator exists since 1970s and it aims at predicting how the Swiss economy should perform in the near future. The KOF Barometer benefited from a thorough revision of its methodology in 2014 (see Abberger et al., 2014). Originally, the KOF Barometer relied on six variables to which a series of filter

was applied to reduce the noise-to-signal ratio. The set of variables was then extended to 25 in the 2006 revision. However, the DFA methodology adopted in 2014 eliminates the need of filtering the data and in addition allows the use of a large set of variables. Following the seminal work of Stock and Watson (2002a,b) on DFM, the method used to extract the principal component handles considerably the noise introduced by the large panel data and identifies the common variance of the variables rather than the noise and idiosyncrasies specific to some variables. Furthermore, despite a large dataset of over 400 variables, this methodology enables an automated selection procedure done once a year, as research has shown that pre-selected data improves the out-of-sample forecast accuracy rather than resorting to all available data (Bai and Ng, 2008).[7]

- Hatzius et al.'s FCI: In Hatzius et al. (2010), the authors used a DFA framework to create a FCI based on 45 financial series for the United States. Their choice of variables includes prices, interest rate levels and spread, but also stock and flow variables, and national surveys of financial conditions. The stock variables capture mostly shadow banking aspects of the financial system. Regarding the methodology, the authors allow for an unbalanced panel but they purge the variability in the financial variables that can be explained by the business cycle. By doing so, the component extracted captures only exogenous shocks.
- Chicago Federal Reserve National Financial Conditions Index (NFCI): This national and weekly FCI has been developed by Brave and Butters (2011) and uses third generation DFM (see section IV), as defined in the nomenclature established by Stock and Watson (2011), which combines the statistical efficiency of the state-space specification with the robustness of the principal component approach (see also section IV). The adoption of this method by the authors enables them to compute a real-time indicator as individual data are released thanks to the application of the Kalman filter. Also, the third generation DFM allows them to create the NFCI over the past 40 years based on 105 variables available at the weekly, monthly and quarterly frequency. Following Hatzius et al. (2010), the authors also created a purged version of their FCI (called Adjusted National Financial Condition Index or ANFCI) to study potential asymmetric response to shocks from financial and economic conditions.[8]

II. METHODOLOGY

A number of methodologies have been developed over time to create synthetic indicators from financial time series. As mentioned above in section I, the two most popular methods are a form of weighted average and PCA. However, in addition to a balanced panel dataset, both methods impose a static specification of the synthetic indicator and therefore do not account for autocorrelations and heteroskedasticity. This is rather overly restrictive for time series analysis, in particular for developing countries subject to bouts of relatively high volatility. Moreover, the above mentioned methodologies are impractical for emerging and frontier markets which are often characterized by time series with missing value and ragged-edge panel data. In all logic, we consider here a DFM to build our FCI. DFM for macroeconomic forecasting has received a considerable attention in the last decade by Stock and Watson (2002a,b), Mariano and Murasawa (2003), Giannone et al. (2005, 2008), Aruoba et al. (2009) and many others (see Bai and Ng, 2008; Stock and Watson, 2011, for surveys). The main appeal of this approach is that it allows for a time-varying factor and in addition it appears particularly suited for time series analysis in economics and finance. Recently real-time economic and financial conditions indicators have been built based on these models. One can cite the above already mentioned KOF Barometer for Switzerland and the NFSI of the Federal Reserve Bank of Chicago for the United States' economy. However, to our knowledge, there exist no studies which attempt to provide such real-time indicators for a large and diverse set of emerging and developing economies, including LDCs and SIDS.

The aim of the present study is then to fill this gap. Hence, the model is defined as follows:

$$X_t = \Lambda F_t + e_t \,, \; (1)$$

for $t=1,...,T$, where X_t is a $(n\times 1)$ observed stationary process, Λ is the $(n\times r)$ matrix of factor loadings, F_t is a r–dim unobserved stationary Gaussian process with mean 0, which represents the r common factor, *i.e. the real state of the economic or financial activity depending on the nature of the input variables, i.e.* X_t, e_t is a n–dimensional stationary process with mean 0 representing the idiosyncratic component which is assumed to be Gaussian and uncorrelated at all leads and lags with the common factor F_t. Notice that the identification of this model requires $r << n$. Equation (1) can be completed by specifying a dynamic process for F_t. A convenient way to parametrize the dynamic

component of the common factor is to use a finite-order stationary VAR process, which allows to write the model into a state-space form. Consequently, a Kalman filter procedure can be used to estimate parameters and the state vector.

III. DATA AND SUMMARY STATISTICS

The dataset consists of mixed frequencies time series (monthly and quarterly) for 11 emerging and other developing countries (the five BRICS, Angola, Ecuador, Jamaica, St. Vincent and the Grenadines, Thailand and Tanzania) over the period from 1995 M1 (the earliest) to 2017 M3 and from 1991 Q4 (the earliest) to 2017 Q1 for monthly and quarterly data, respectively. Data were extracted from Thomson Reuters Datastream and from the UNCTAD Financial Database. Tables 1 and 2 provide the details of our dataset (variables, frequencies, data transformation). Our FCI includes financial indicators (real interest rates[9], stock and bond market indexes, commodities market prices, volatility indexes, foreign exchange rate, etc.), which are monthly observed, as well as quarterly macroeconomic indicators (residential real price index, debt service ratio and capital flows). We also compute a number of variables by taking the ratio of a sector market capitalization with respect to the broad stock market. By doing so, we are better positioned to capture certain wealth effects, often crisis precursors, while at the same time addressing nonstationarity issues. To avoid currency valuation effects, potentially significant given our set of countries, all data are transformed into United States dollars and all nominal variables[10], which are computed as the spread between the rates of a country's sovereign 10 year bond and the United States 10 year Treasury Note. Notice that the real effective exchange rate, the carry trade indicator and the capital flow are crucial variables as they allow to take into account a possible direct interdependency between the countries of interest and the rest of the world. Consequently, each model can be estimated for each country independently from the others.

While macroeconomic data are in general nonstationary, we use deviations from different deterministic functions (a cubic trend which includes linear and quadratic trends as special cases is often sufficient to remove deterministic components). We also included dummies for possible outliers and structural breaks when it was necessary (a simple Chow test was performed for dating changes). Figure 1a,-b, and -c illustrate this upstream significant statistical treatment for some of the analyzed countries (South Africa, China, Tanzania and St Vincent & the Grenadines). The results of these transformations led to stationary time-series which were used as inputs in equation (1), i.e. the matrix of indicators X_t .

VI. ESTIMATION METHOD

Many techniques have been explored to estimate dynamic factor models. As the model (1) can be written into a linear state space form, an early method (first introduced by Stock and Watson, 1989) was based on the Kalman filter procedure which uses the time-domain maximum likelihood technique. While this approach allows to deal with data irregularities (missing values, mixed-frequencies or unbalanced panels – ragged edge)[11], it is limited, for numerical and estimator convergence reasons, to matrices of small to moderate dimensions only. A second option to estimate DFM uses standard PCA. This technique can handle large data panels but unfortunately PCA is not applicable to unbalanced panels (see Stock and Watson, 2002a,b). A third generation methodology is proposed by Giannone et al. (2005, 2008), and Doz et al. (2011). It consists of a two-step estimator which combines both previous approaches: PCA and Kalman filter. The main appeal of this hybrid method resides in its ability to deal with both large-scale unbalanced panels and data irregularities. Hence, this procedure allows a great flexibility, in particular for modelling developing economies for which the information (in terms of data availability and quality) is often reduced.

Concretely, Giannone's two-step estimator consists of applying a PCA on the balanced sample of the dataset in order to extract common factors. Loading and VAR parameters are then estimated by OLS. In the second step, factors are extracted from the whole sample using the Kalman smoother. This multi-stage methodology is particularly adapted and recommended for large scale models due to its numerical ease. Notice that the second step of Giannone's method (which exploits the state-space formulation) allows to bridge monthly data releases with the nowcast of quarterly information. The resulting index tracks the real-time flow of information and is therefore often called real-time measurement of economic/financial condition index or real time economic/financial stress index. In addition, not only the FCI created is able to provide a diagnostic of the overall economic conditions, but the relative contribution of each underlying variables, measured by the factor loadings, imparts indications on the analytical elements of financial and economic stability specific to a country.

We also ran the quasi-maximum likelihood estimator (QMLE) proposed by Doz et al. (2012) to take into account a possible misspecification of cross-sectional and time series correlation of the error term in equation (1). In addition, the QMLE can be more efficient when series are not Gaussian. As our set of indicators includes many financial variables (stock

returns, interest rate spreads, relative stock indices, etc.) which are known to exhibit extreme values and asymmetric distributions especially at high frequency, even though these features tend to vanish at lower frequency, we run and compare the QLME to the two-step estimator[12].

The retained r-dimension for our dynamic factor analysis is the one-factor model and the selected dynamic for our unique factor is an AR(1)[13]. For the five BRICS, we selected between 12 and 14 input variables while for the six others economies, n ranges between 8 and 13 (See Tables 1-2).

V. RESULTS

The results from the DFA estimation of the loading parameters are reported in table 1 and 2. Table 1 gives the estimation periods for our 11 countries, which vary according to data availability. Starting with macro quarterly variables, we observe disparities in signs and magnitude for the factor loading estimates specific to each country, which is of course a desirable feature. Also, the dynamism embedded in the model implies that, as time passing, the loading factor estimates may switch signs and change magnitude according to new information fed in by the release of the latest data points. Though the sign switching might seem an extreme occurrence, emerging countries and frontier markets are often characterized by the high volatility of their financial markets as well as of their macroeconomic variables. For example, residential property prices loading estimates are positive in countries where property prices boom and burst have been absent in the recent past but negative elsewhere. Similarly, the sign of the loading estimates for the debt service ratio is mostly negative except in China, where the loading is relatively high and positive. This could be explained by the heavily dirigiste approach to financial markets by Chinese policy makers where several prices and interest rates are not freely market-determined, while at the same time it highlights China's dependence on debt to continue growing.

Generally speaking, contributions of stock markets, fixed income and commodity prices indexes are important for all analyzed countries. Furthermore, we note that the volatility index is always negatively correlated with the common factor though the values of these estimates remain moderate except for South Africa.

Figures 2-a and 2-b plot the economic condition indexes obtained by the two-step procedure and QML estimation. Both estimates are very similar for all countries. These figures show that major crises and boosts are correctly captured by the indicators. For example, the FCI emphasizes accurately the severity of the crisis that hit Russia in summer 1998. Subsequent stressful periods are also clearly identified, in particular the global financial crisis in 2007-2008 and 2014 instability. The FCI records also periods of economic expansion, like in the early 2000s. For Brazil, the FCI highlights the recession of 2002-2003 caused by the political climate surrounding the presidential election back then, as well as the worst of global financial crisis in September-October 2008. It also relates to the current economic difficulties, which started in 2014. Thanks to the factor loadings, we can offer a succinct explanation based on depressed commodity prices, high debt servicing and a sunken real effective exchange rate. Regarding India, the FCI highlights the economic boost of 2010 and the weaker growth performance recorded from 2012 caused by a flight of foreign capital.

By including heterogeneous information in our index such as financial stock prices, housing price indexes, commodity prices, in addition to real macroeconomic variables, we expect our index to exhibit leading features of the real economic activity for the considered countries. Indeed, the insight of these last decades is that systemic crises are often preceded by dysfunction of the banking and financial markets. As a preliminary diagnostic, Figure 3 compares the yearly evolution of GDP growth to our FCI (value in December of each year). Though our FCI does not include GDP or any of its direct component, we can observe that our FCI tracks reasonably well the GDP growth path and sometimes with a clear leading effect (for example Ecuador). By using the FCI as a unique regressor to test its leading features over GDP instead of the full set of variables allows us to save degrees of freedom dramatically in the regression and to improve the reliability of the linear projections. Such a tool is particularly suitable for emerging and frontier markets for which the available information is often reduced.

Consequently, in order to investigate the leading feature of the FCI more thoroughly, we regress quarterly GDP growth upon the corresponding quarterly factors at the contemporaneous date and upon some lags (See Giannone et al., 2008). To match GDP frequency, we convert our monthly FCIs into a quarterly variable by taking the values in the last month of each quarter.[14] We use a seemingly unrelated regression (SUR) model (Zellner, 1962) to take into account possible correlations between countries, not already captured by the capital flow, the carry trade indicator and the exchange rate variables already included in the FCI.[15] Table 3 summarizes the results obtained by the feasible generalized least squares (FGLS) estimation and shows that a leading effect (for h=1, 2, 3 and/or 4 quarter ahead) is significant for most of the analyzed countries

except for China, India and Tanzania. However, for Tanzania the GDP is available only from 2008 which leave only 32 observations for the regression (with 26 degrees of freedom). Consequently, the results for Tanzania are somewhat unreliable. Furthermore, it is important to stress that our regressions are free from any endogeneity issues since our FCI does not include GDP or any of its components.

VI. CONCLUSION

This paper intends to measure country-specific financial conditions indicators for developing countries and transition economies by using DFM, in order to handle data irregularities (missing values, mixed-frequencies or unbalanced panels). Our FCI includes financial indicators such as real interest rates, stock and bond market indexes, commodities market prices, volatility indexes, exchange rate as well as macroeconomic indicators such as residential real price index, debt service ratio and capital flows. Thanks to the time-varying specification of the factor, the model permits to pose a dynamic diagnostic regarding the source of stress in the economy. Thus, we show that our indicators are able to capture periods of financial stress and near-miss events historically. In addition, although our FCI are free from the business cycle (it does not include GDP or any of its direct components), we also show that it is able to track GDP, sometimes with a clear leading effect. Such indicator has large implications for policy makers and market participants alike: it provides them with real time information on the state of the economy and assists them in their economic choices and resources allocation. It can also contribute to shed light on countries that might not be in the limelight of international institutions though they deserve better attention thanks to their very flexible structure. Finally, the FCIs are an important tool for sound economic governance and to track in real time the effect of some policy choices, as uncertainty increases. Further work in this venue includes the application of this methodology to a larger set of emerging and frontier markets.

ACKNOWLEDGMENTS

We would like to thank Stephanie Blankenburg & Richard Kozul-Wright for support in early stages, as well as Scott Brave, Prof. Didier Sornette, Dr. Klaus Abberger, Dr. Boriss Siliverstovs and Dr. Heiner Mikosch from the KOF Swiss Economic Institute for their valuable comments on the early draft. We are also very grateful to Khalil Rahman for his outstanding guidance and expertise on financial issues. Finally, we thank research assistant Esteban Arroba Del Castillo for his full engagement and Ksenia Khlopushina for managing data requests. All mistakes are ours.

Figure 1a: Examples of stationary transformations

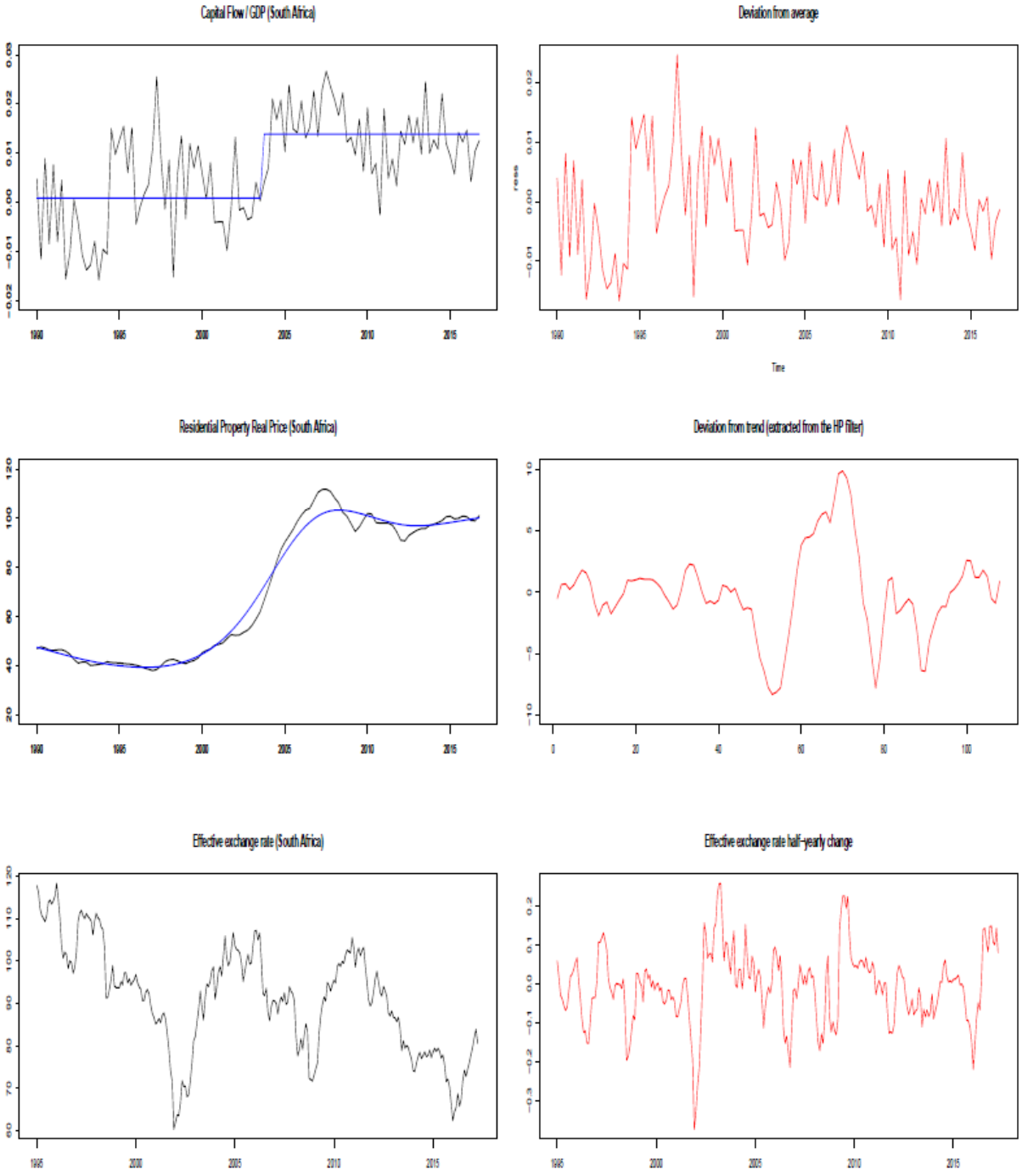

Figure 1b: Examples of stationary transformations

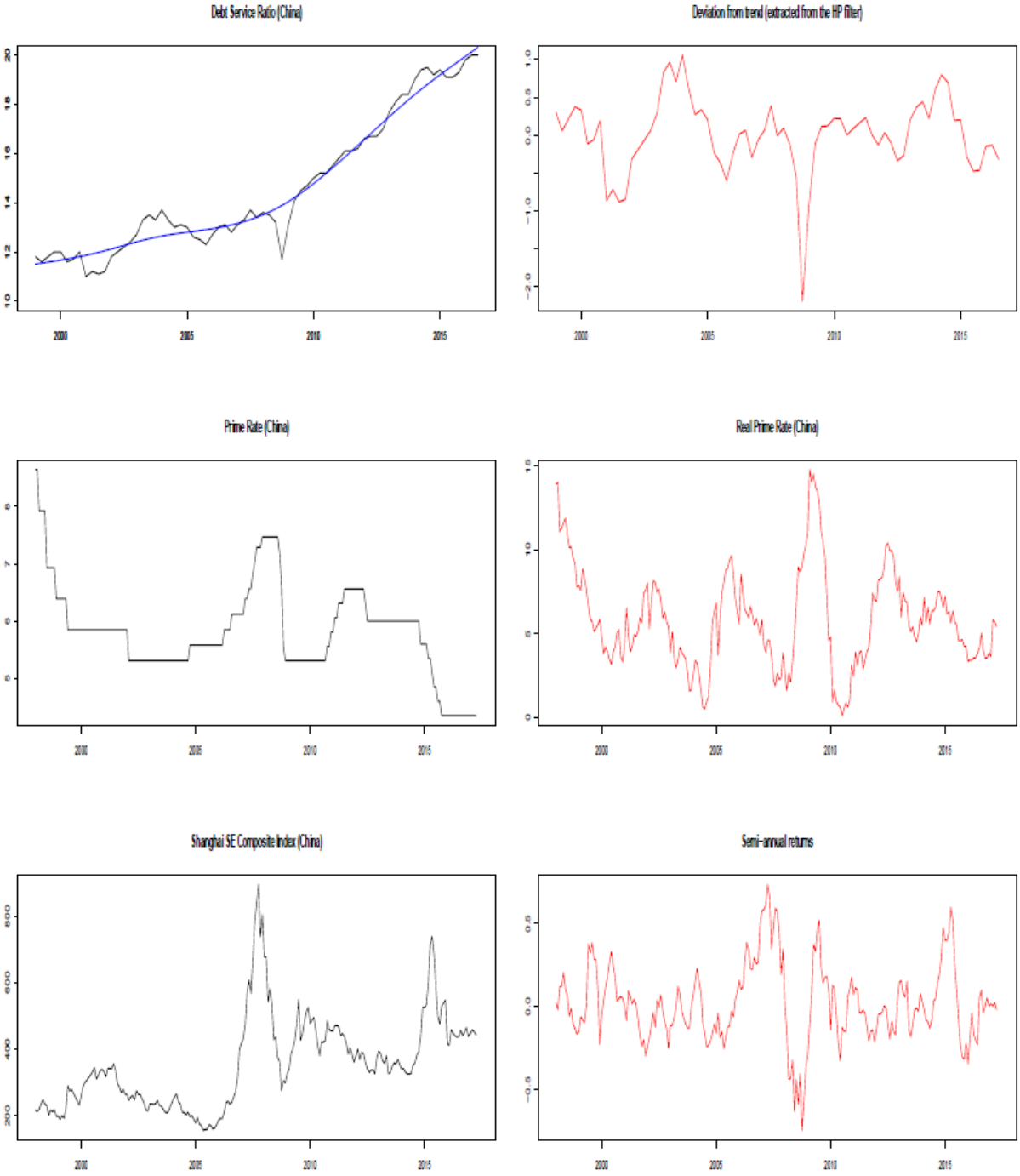

Figure 1c: Trend extraction using a total variation filtering procedure

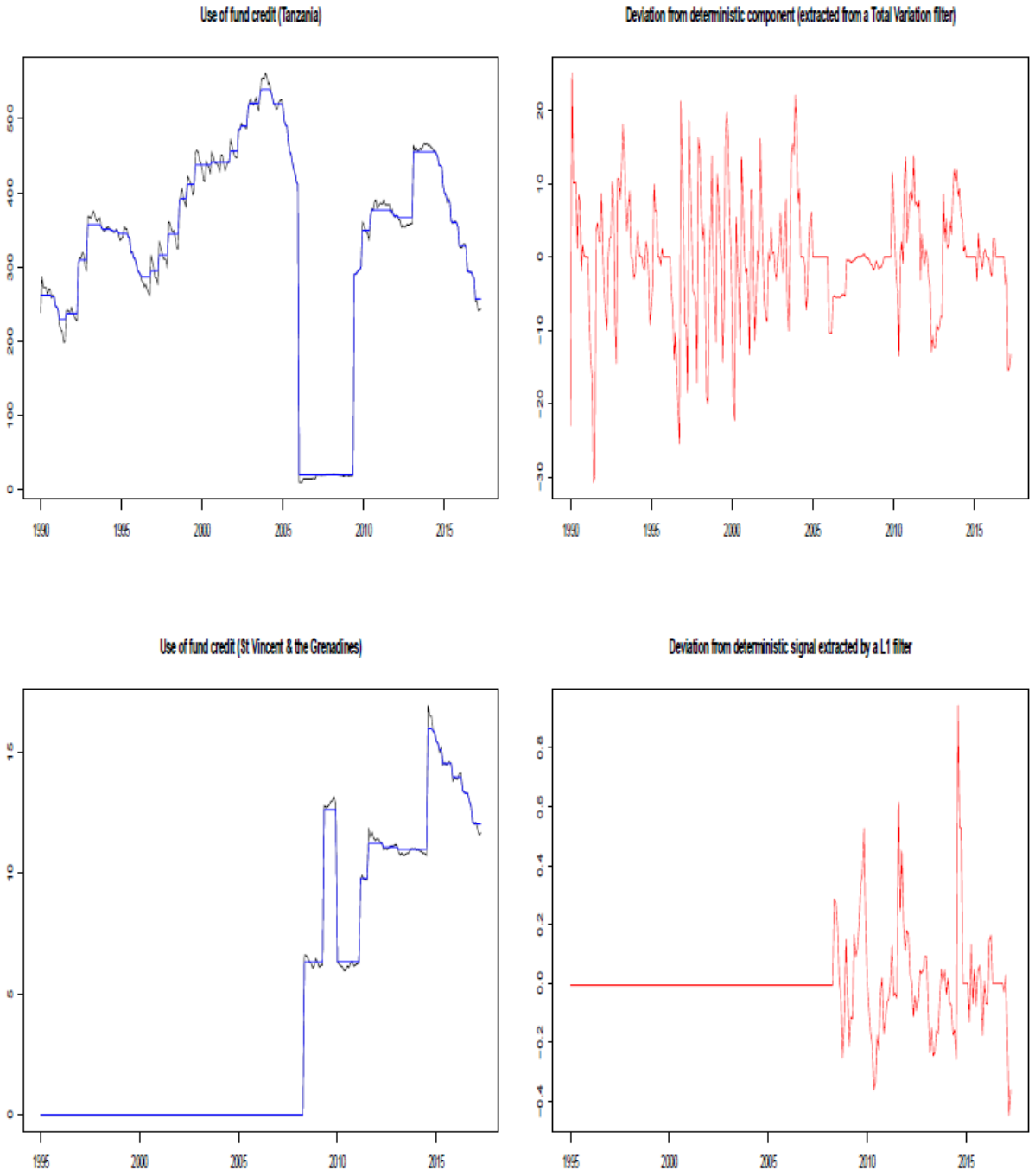

Figure 2a: Common factor extracted from both two-step procedure and QML estimation

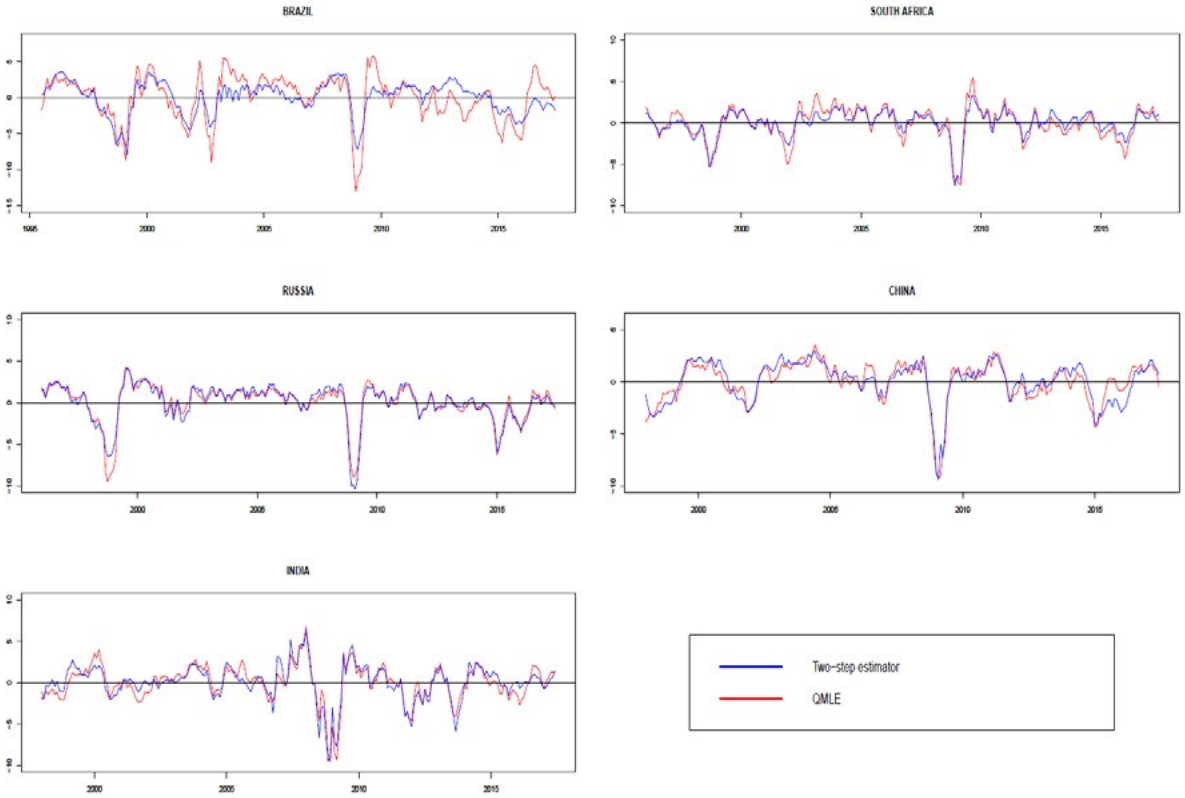

Figure 2b: Common factor extracted from both two-step procedure and QML estimation

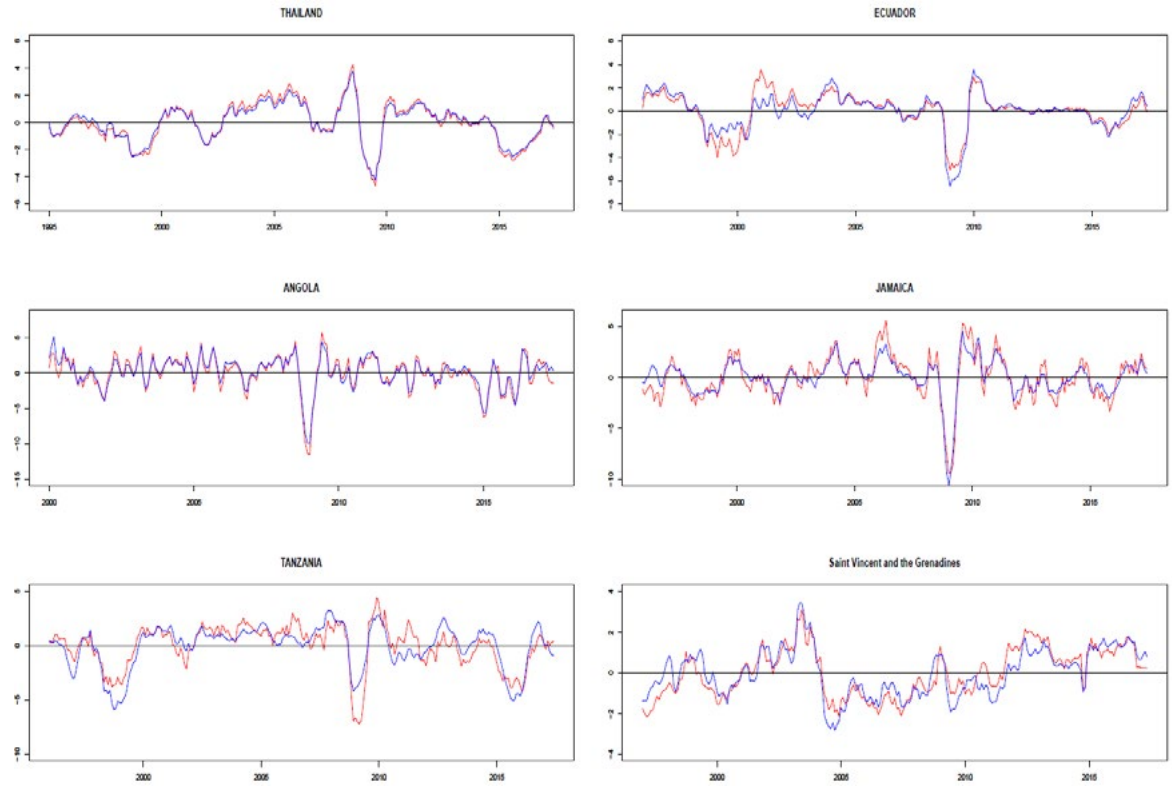

Figure 3: GDP annual growth rates vs. FCI

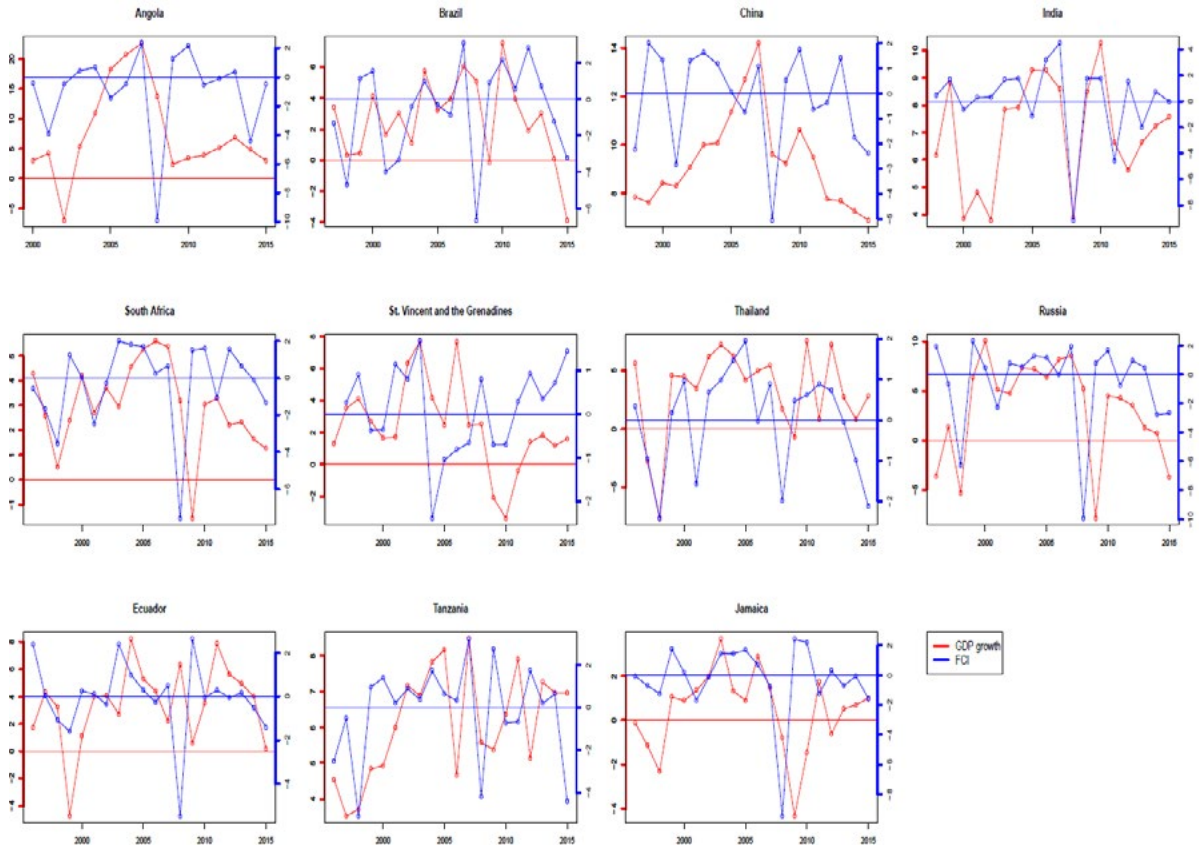

Table 1: Loading parameter estimates of core variables

Selected Variables	Freq	Transformation	Angola	Brazil	China	Ecuador	India	Jamaica	Russia	South Africa	St. Vincent	Tanzania	Thailand
Period of Estimation			Jan 00-June 17	July 95-June 17	Jan 98-June 17	Jan 96-May 17	Jan 98-June 17	Jan 96-June 17	Jan 96-June 17	Jan 96-June 17	Jan 97-May 17	Jan 96-June 17	Jan 95-June 17
Capital flow/GDP	Q	Level		0.016	0.042	0.046	0.021		0.013	0.008			0.025
Debt service ratio private non-financial sector	Q	DT*		-0.020	0.069		-0.020		-0.011	-0.003			-0.045
Residential property prices	Q	DT*		-0.011	0.039		-0.001		-0.010	-0.015			-0.063
Exchange rate /USD	M	returns**	0.020										0.025
Real effective exchange rate index	M	returns**		0.199	-0.201	0.131	0.084	-0.113	0.120	0.312	0.004	-0.060	
Real prime/interbank/overnight/discount rate	M	Level		0.008	-0.266	-0.018	0.008		-0.043	-0.001		-0.002	-0.573
Volatility index	M	Level		-0.022	-0.021		-0.053		-0.047	-0.106			
Financial sector index / stock exchange index	M	Level		-0.020	-0.062		0.110		0.040	-0.058			0.013
Real estate sector index / stock exchange index	M	Level		0.034	0.065		0.089		0.000	-0.065			0.049
Crude oil front month	M	returns**	0.382	0.190					0.126				
SPGSCI	M	returns**	0.382	0.197	0.334	0.207	0.116	0.265	0.135	0.300	-0.052	0.325	0.573
JPM EM BI	M	returns**	0.056	0.169	-0.199	0.317	0.017	0.125	0.118	0.155		0.020	
JPM ELMI +	M	returns**					0.120						-0.075
Stock exchange index	M	returns**		0.231	-0.007	0.194	0.150	0.065	0.133	0.364		0.003	-0.010
Gov10Y-Tbill 3/6/12M spread	M	Level		0.007	-0.024		0.036		0.071	0.066		0.012	0.047
Gov10Y-US10Y spread	M	Level					-0.036		-0.044	-0.038		-0.051	0.024

Table 2: Loading parameter estimates of additional variables for non-BRICS countries

Selected Variables	Freq	Transformation	Angola	St. Vincent	Ecuador	Tanzania	Jamaica
Official international reserves	M	%YOY	0.035				
Monetary aggregate	M	%YOY	-0.007	-0.185		0.096	0.099
JPM EMBI GLOBAL - Blended Spread	M	returns**	-0.067			-0.039	-0.132
Spread lending -O/N	M	DT*	-0.028				
Barclays EM	M	returns**	0.055		0.276	0.227	
CPI	M	%YOY	0.049				
Use of fund credit	M	DT*	0.092	-0.002		0.014	0.049
Domestic credit	M	%YOY	0.029				
Credit to non-resident	M	%YOY	0.014				
Credit to private sector	M	%YOY			-0.017		
Spread lending SV-10Y USD	M	Level		0.537			
Spread lending to deposit	M	Level		0.172			-0.035
Dow Jones Sugar Commodity Index	M	returns**		-0.014			
World price index Bananas	M	returns**		-0.171			
SPGSCI All Metals Spot Index	M	returns**				0.349	0.420
BOFA ML USD EMRG SOV Jamaica	M	returns**					0.132
LME-Aluminium	M	returns**					0.420
Raw Sugar	M	returns**					0.143

Table 3: P values from the FGLS estimates (Quaterly frequency)

	h=1	h=2	h=3	h=4
Angola	**0.062**	**0.006**	**0.008**	0.492
Brazil	**<0.001**	**<0.001**	**<0.001**	**0.053**
China	0.218	0.727	0.927	0.434
Ecuador	**<0.001**	**0.001**	0.344	**0.054**
India†	0.385	**0.023**	**0.036**	0.954
Jamaica	**<0.001**	**0.007**	**0.024**	0.174
Russian Federation	0.126	**0.098**	**0.087**	0.660
South Africa	**<0.001**	**<0.001**	**<0.001**	**<0.001**
St. Vincent and the Grenadines†	-	-	-	-
Tanzania†	0.126	**0.007**	0.109	0.783
Thailand	**0.006**	0.228	0.110	0.299

* In bold : significant effect at 5% and 10%

† Quaterly GDP not available for St. Vincent and the Grenadines, and available from 2008 Q1 for Tanzania.

NOTES

[1] In this paper, emerging and frontier markets follows the United Nations classification of developing countries and transition economies. Most notably, our definition excludes the new EU member states, which are commonly defined as emerging markets by the financial industry. For more details see http://unstats.un.org/unsd/methods/m49/m49regin.htm#developed

[2] The methodology developed in Cardarelli et al. (2011) has been adapted by the ECB in its Financial Stability Review December 2009 and in a number of subsequent ECB working papers.

[3] The EMPI developed by Eichengreen et al. (1996) is a composite index that captures currency depreciation and international reserves depletion.

[4] Some of the countries included in the EM-FSI are not considered to be emerging countries by the United Nations classification, specifically Czechia, Hungary, Israel, Poland, Romania, Slovakia, and Slovenia.

[5] The country coverage includes Argentina, Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hong Kong SAR, Hungary, India, Indonesia, Israel, Rep. of Korea, Malaysia, Mexico, Peru, Philippines, Poland, Romania, Russia, South Africa, Singapore, Taiwan Province of China, Thailand and Turkey. As already noted several of those countries are neither emerging nor developing according to UN's classification.

[6] The countries included are Australia, China, Hong Kong SAR, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand and Taiwan Province of China.

[7] For more details see: https://www.kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-economic-barometer.html

[8] For more details see: https://www.chicagofed.org/publications/nfci/index

[9] Real interest rates were calculated according to Fisher hypothesis. are deflated, except for indicators of carry trade

[10] According to the efficient market hypothesis, carry trade would not be a profitable strategy. However in the real world, investors exploit market imperfection to earn profits. In the case of carry trade strategies, investors base their decisions and, at the same time, capitalize on nominal interest rate differentials.

[11] Unbalanced panels can be due to different publication lags, asynchronous timing of data releases or any other issue of data availability.

[12] Doz et al. (2011) noticed that the two-step procedure also allows accounting for both factor dynamic and idiosyncratic heteroskedasticity.

[13] Since the size of the cross-section of our model being somewhat small, it does not permit us to test a large set of orders for the autoregressive process. Despite of that limitation an AR(2) dynamic was tested but was found not significant.

[14] The experiment could not be performed for St. Vincent and the Grenadines for which the quarterly GDP is not available.

[15] Furthermore, notice that for some countries these variables were not available: St. Vincent and the Grenadines, Tanzania, Jamaica and Angola (See Tables 1-2)

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CONTINGENT INSTRUMENTS IN SOVEREIGN LENDING MARKETS

Martin Guzman

ABSTRACT*

This paper explores the role of contingent instruments in sovereign debt restructuring, with a focus on sovereign credit default swaps (SCDS) and GDP indexed bonds. We firstly analyze a series of concerns with the current practices in SCDS markets and their consequences for the functioning of sovereign lending markets. We study the consequences of the ban for naked-SCDS trading announced in 2011 for EEA countries. We next turn to the analysis of the potential positive role that GDP indexed bonds can play for the functioning of sovereign lending markets. We claim that a more widespread adoption of these instruments would improve the natural trade-off between the principles of sustainability and good faith, and would help addressing the "too little" syndrome in sovereign debt restructuring. The study concludes that there are possible improvements in sovereign lending markets through a better management of contingent instruments.

* Original submitted in 2016.

INTRODUCTION

Sovereign lending markets are not working well. Debtor countries in distress are not being able to resolve their problems satisfactorily. In situations of debt unsustainability, the necessary restructurings come with significant delays, and more often than not are not the debt relief is not enough to ensure the recovery of sustainability.[1] A natural question of interest is what can be done to improve matters.

There are multiple reasons that lead to this suboptimal outcome. The main one is the lack of a multinational framework for sovereign debt restructuring, which leads to a set of incentives that are not aligned with the objectives of sovereign debt restructuring (cf. Guzman, Ocampo, and Stiglitz, 2016; Guzman and Stiglitz, 2016b). The United Nations is leading the way into reforming the existing system, but the process will be long and difficult. The International Capital Market Association has also suggested important positive reforms (ICMA, 2014). But alongside the lack of a multinational framework, other important features of the current system also create severe conflicts of incentives that delay the initiation and finalization of restructurings.

There is space for significant progress beyond the creation of a multinational statutory framework. Some changes in the use and design of contingent instruments associated with debt contracts could bring improvements. This paper focuses on use of sovereign credit default swaps (SCDS) and GDP indexed bonds.

SCDS markets are considered the most liquid credit derivative instruments in emerging economies.[2] They are extensively used for risk hedging but also for speculation purposes. Although there may be social justifications for both types of uses (in particular, a larger market is a more liquid market that can increase trading efficiency in the underlying sovereign bonds), there are also important incentive effects that regulations should take into account. While SCDS may play a positive role as insurance vehicles, the lack of transparency of these markets may create perverse incentives at the time in which the debtor must negotiate a restructuring with its creditors. A bondholder who holds a SCDS and the underlying bonds will naturally have fewer incentives to agree on a restructuring, as it will get paid in any case.

Incentive problems can also arise with *naked* SCDSs – SCDSs for speculative purposes in which the holder does not own the underlying bond. The owner of a naked SCDS benefits from the sovereign issuer's disgrace but does not get any benefit from its good fortune. Although trade of naked SCDS can increase liquidity in SCDS markets, this comes at a cost. These problems are particularly severe in opaque markets, as those in charge of judging the nature of a credit event for SCDS related payment decisions may also hold SCDS but do not need to disclose their positions.

On the other hand, the seller of the SCDS benefits from the ex-post debtor's good performance – and it should in principle have stronger incentives to increase the probability of the debtor's full repayment, if there was anything it could do in this sense. If all the actions related to a naked-CDS that are relevant for the issuer's state were exclusively circumscribed to the seller and the buyer, the game would be zero-sum, with positive or negative payoffs restricted to those two players. *If* the increases in trade also increased liquidity and *if* there was a gain from additional liquidity, from the global society's viewpoint the sum associated with the game would then be positive. This would be a case of positive spillovers, in which regulation should *encourage* rather than discourage trading of these assets. But matters may be (and generally are) different in practice: there may be multiple "imperfections" in the nature of the decentralized interactions that may also create negative spillovers. Particularly, if the actions of the holders of the naked SCDS contribute to delays in restructuring of the issuer's debt, then from the society's viewpoint the sign of the sum will be ambiguous: it will be positive if the efficiency gain from additional liquidity is larger than the efficiency loss associated with the delayed restructuring, or negative otherwise. And even if it is positive, the game would create distributional effects that would adversely affect the sovereign borrower. In any of these circumstances, there would be a set of rules that could lead to different and possibly superior outcomes, both in terms of efficiency and equity.

The potential negative spillovers associated with naked SCDS are leading to concerns in the international community. The most drastic measure to address this issue was taken by the European Union, which banned any trading in naked SCDS referred to sovereign debt issued by countries in the EEA area (subject to exceptions that are discussed in this study).

Another major issue faced at the time of the restructuring is how to resolve the trade-off between the principles of *sustainability* and *good faith*. The principle of *sustainability*, according to the UN GA Resolution 69/319 of September 2015, states that

"*sovereign debt restructuring workouts are completed in a timely and efficient manner and lead to a stable debt situation in the debtor State, preserving at the outset creditors' rights while promoting sustained and inclusive economic growth and sustainable development, minimizing economic and social costs, warranting the stability of the international financial system and respecting human rights*" (UN GA, 2015).[3] On the other hand, the principle of *good faith* for the debtor and its creditors, according to the same resolution, "*would entail [the debtor's and the creditors'] engagement in constructive sovereign debt restructuring workout negotiations and other stages of the process with the aim of a prompt and durable reestablishment of debt sustainability and debt servicing, as well as achieving the support of a critical mass of creditors through a constructive dialogue regarding the restructuring terms.*"

The trade-off between sustainability and good faith arises because the debtor's good faith would require that the amount of debt relief is the minimum necessary to restore sustainability, but no more. But on the other hand, at the moment of a restructuring the satisfaction of the principle of sustainability is uncertain, because it depends on the future capacity of repayment of the debtor, an object that cannot be observed in the present. Therefore, a larger debt relief increases the probability that sustainability will be achieved ex-post, but it also compromises the satisfaction of the principle of good faith, and vice versa.

In practice, debt crises resolution tends to err on the side of "too little" relief: in many occasions the size of the relief is not enough to ensure sustainability, leading to subsequent rounds of restructuring – a process that tends to delay the recovery of the debtor. Since 1980, 55.3 percent of the sovereign restructurings with private creditors were followed by another default or restructuring within a period of five years.[4] One exception was the case of Argentina following the 2001 default. The country got a relatively large debt relief (the face value reduction over the debt restructured in the swaps of 2005 and 2010 was 43 percent (see computations in Guzman, 2016), and the ex-ante haircut was 73 percent, according to calculations by Cruces and Trebesch, 2013), following also a relatively aggressive strategy towards its bondholders. But many (including the US courts) considered that the country acted as a "recalcitrant debtor", calling into question the good faith of the country during the process of negotiation. However, as we will analyze in section 3 of this study, matters were in fact more complex than what this simple interpretation suggests; this episode was of particular importance for understanding the potential usefulness of contingent instruments in sovereign debt restructuring. The adoption of GDP linked warrants, as we will demonstrate, drew important lessons for how to improve this trade-off – and there will surely be design problems that should be addressed when these instruments are implemented in the future (see Benford, Best, and Joy, 2016, Box 3, for a discussion).

GDP indexed bonds can play an important function to improve this trade-off. When bonds are contingent on the capacity of repayment of the issuer, sustainability naturally increases, as the debtor will pay more (or less) when the repayment capacity is larger (or lower). But they also contribute to ensure the satisfaction of the principle of good faith, as the actual payments increase when the realized capacity of repayment is larger. As the country's payments would be contingent on the capacity of repayment, there would be a distinction between the ex-ante haircut and the ex-post haircut. And the ex-post haircut, or the actual debt relief, will be more aligned with the country's actual needs.

The rest of the paper is organized as follows. Section 2 analyzes the role of SCDS in sovereign debt restructuring. First, it discusses the trade-offs between the benefits and costs associated with the expansion of SCDS markets. Then, it analyzes a recent case – the ISDA classification of Argentina's inability to transfer payments to creditors in 2014 as a default, following the injunction decided by Judge Thomas Griesa from the NY Southern District that blocked Argentina's payments to its exchange bondholders until it paid vulture funds and other holdout bondholders in full – that illustrates the opacity of these markets and the hypothetical conflicts of interests that could delay debt crises resolution. Finally, it analyzes the consequences of the ban on naked-SCDS trading imposed by the European Union in 2011 – that became effective in 2012 – for the evolution of the volume of SCDS trade in EEA and emerging economies. Section 3 focuses on the role of GDP indexed bonds. It shows how the adoption of GDP warrants may improve the satisfaction of the principles of good faith and sustainability, and describes the current proposals for increasing the scale of adoption of these instruments. Section 4 concludes.

I. SOVEREIGN CREDIT DEFAULT SWAPS

A sovereign credit default swap (SCDS) is a contract where one party (the seller) agrees, in exchange for a periodic premium, to make a contingent payment in the case of a defined credit event to the other party (the buyer).

If the buyer also holds the security that can be affected by the credit event (i.e. the underlying bond), the contract is a form of insurance. But unlike insurance,

SCDSs are actively traded. Some are even more liquid that the underlying bonds. Generally, they offer the buyer the possibility of reducing the exposure to risk, and as a consequence (and depending on the nature of the activities of the buyer), also allow for reductions in regulatory capital. In turn, they offer the seller the possibility of taking credit exposure without having to fund the position in full.

When the SCDS contract references a creditor with virtually zero probability of default (as it would be the case for most advanced economies), the purpose of trading is not actually buying insurance against non-payment but a bet on relative price movements.

A well-functioning financial system should provide the incentives to the lender to monitor its borrower (cf. Stiglitz, 1990, 2002). But the lender who is protected against a default may not be concerned with monitoring the borrower's credit quality. A premature default could even benefit the bondholder that is hedged by a SCDS as it could be possible to collect from the insurance at a gain. This problem in which the creditor has incentives to push the debtor into an inefficient bankruptcy or liquidation, or in the case of a sovereign to push it into a default, has been called the "empty creditor" problem (Hu and Black, 2008). Bolton and Oehmke (2011) show that in the presence of an empty creditor problem, creditors will over-insure in equilibrium, which in turn will give rise to an inefficiently high incidence of costly bankruptcy, or in the case of sovereigns, it will distort incentives to negotiate in good faith over long periods of time. Creditors will also have more incentives to avoid voluntary restructurings that would not activate SCDS payments, disrupting debt-restructuring negotiations.[5]

If the buyer doesn't hold the underlying bond, the trade is for speculation purposes. This is the case of naked-SCDS. The benefit of naked SCDS on bond markets is their contribution to market liquidity, as they increase the size of the relevant market. The cost is also a distortion of incentives in the form of another type of empty creditor problem. As the holder of a naked SCDS does not own the underlying bond, the distortion of incentives would not come directly from her reluctance to participate in a negotiation process under the principle of good faith, but from the possibility of exerting actions that lead to a premature default or that ensure that a restructuring is not voluntary. Another concern is that volatility in market sentiments could have amplifying effects under naked SCDS. The concerns over the negative effects of naked SCDS on the functioning of the sovereign lending markets led the European Union to prohibit trading of these assets – a decision whose consequences are analyzed below.

A. MARKET COMPLETION AND EFFICIENCY GAINS

The creation of markets could deliver efficiency gains, but this is not always the case. The issue is related to the results on the relationship between market efficiency and market completion. We say that markets are complete when there exists a contingent asset in each period for each state (where the term "state" refers to the possible economic scenarios) for all market participants. Formally, suppose there is a set of possible states Z and a set of assets J. Each state is denoted by $z \in Z$ and each asset is denoted by $j \in J$. The returns are governed by the function $\phi: z \longrightarrow \mathbb{R}$. Then, markets are complete if for all market participants, for each $z \in Z, \exists j \in J$ such that $\phi_j(z) > 0 \wedge \phi_j(\tilde{z}) = 0 \; \forall \tilde{z} \neq z$. SCDSs move bond markets in the direction of completion – but do not necessarily take them all the way there.

While fully completing markets would increase efficiency, just *approximating* to complete markets – but not getting all the way there – may harm rather than improve the performance of the system. This is a well-known result from the theory of the second best (see Greenwald and Stiglitz 1986; Stiglitz, 2014). Besides, the creation of a market that can be used for speculation purposes will create gambling opportunities that are increasing in the disagreement among market actors, increasing macroeconomic volatility (see Guzman and Stiglitz, 2015b, 2016c).

In summary, there is no theory that establishes that allowing for naked-SCDS markets would have unambiguous positive effects on the efficiency of the system – and there are theories that suggest that the opposite may be true.

B. INTERPRETATION OF SCDS CONTRACTS

The drafting and interpretation of SCDS contracts are the responsibility of the International Swaps and Derivatives Association (ISDA). Its contracts are exempt from securities and commodities standard regulations. ISDA has actively influenced domestic legislations to ensure this. In some countries it has even drafted the legislation that provides assurances that the provisions of ISDA Master Agreement (the central document used by most derivatives market participants) will be respected (see Partnoy (2002) for a description of the evidence, and Gelpern and Gulati (2012) for an extended discussion of ISDA contracts).

ISDA identifies "credit-related events" that trigger payments on SCDS – payments that must respect

an inverse relationship between the price of the SCDS and the price of the underlying bond. Most market participants follow ISDA standards on Credit Derivatives definitions because this makes their contracts more liquid. In practice, most CDS are documented using ISDA's standard forms (although some are customized according to the specificities of the nature of the transactions). Therefore, ISDA standards are highly relevant and influential.

The resolution of auction-related determinations is achieved through a decision process in charge of a Credit Derivative Determination Committee (CDDC). These committees are formed by fifteen members: ten CDS dealers (who must meet certain trade volume criteria) and five non-dealers (who must meet minimum size requirements). ISDA serves as the CDDC secretariat. The CDDC must answer standard-form questions chosen by market participants from a larger subset. CDDC decisions require a supermajority of 80 percent of the votes of its members. If the threshold is not achieved, the question is referred to External Review, which resembles a traditional arbitration process (Gelpern and Gulati (2012) report that an overwhelming majority of the decisions are unanimous, and only one case had been referred to External Review by 2012). The interpretations of the CDDC are binding on the parties of contracts under ISDA.

Credit event auctions should in theory pay the protected buyer the difference between the face value of the debt due and the recovery value. The recovery value is estimated from market prices at an ex-ante specified period following the credit-related event (see Das, Papaioannou, and Trebesch (2012) and Helwege et al. (2010) for more details).

C. ARGENTINA'S LITIGATION DISPUTE AND THE OPAQUE SCDS MARKETS

After Argentina defaulted on its debt in 2001, a long and complex debt restructuring was initiated. It included the presence of a group of notorious vulture funds, who bought large amounts of debt in default and litigated claiming full payment – full principal plus full interest, including extra interest as a compensation for the default. They won in the US courts, and managed to block the payment to all the bondholders that had reached an agreement with the country in the aftermath of the default (93% of the total bondholders) (see Guzman and Stiglitz (2014), Guzman (2016), and Chodos (2016) for a more extensive description of this event).

On June 30, 2014, it was the first time in history that a country had the willingness and capacity to repay its creditors but was blocked from doing so. Argentina's government sent the funds for debt interest payments to the trustee, the Bank of New York Mellon, but the trustee did not pass them to the creditors. Had it done so, it would have disobeyed a ruling of the US courts.

The unique nature of the event raised questions on whether the event was a default or not. This was relevant, as activation of SCDS payments required a definition for the event: What direction should the money go? Should the buyers of the SCDS on Argentina's restructured bonds continue paying premiums to the sellers? Or should the sellers make a payment to the buyers corresponding to the contingency of the default?

The litigant favored by the injunction from the US justice that blocked the payments to Argentina's other bondholders was NML Capital, a subsidiary of the hedge fund Elliot Management. As we will see below, the identity of the litigants will matter for understanding the conflicts of incentives for settling on a restructuring that SCDSs may create.

To define whether Argentina's failure to effectively pass the money to its creditors was a credit related event (i.e. whether it was a default or not), a CDDC had to interpret it. The question to be voted was "Has a Failure to Pay Credit Event Occurred with respect to the Argentine Republic?". The fifteen members that formed the committee were the following:

Bank of America N.A.
Barclays Bank
BlueMountain Capital Management, LLC
BNP Paribas
Citibank, N.A.
Credit Suisse International
D.E. Shaw & Co., L.P.
Deutsche Bank, AG
Eaton Vance Management
Elliott Management Corporation
Goldman Sachs International
JP Morgan Chase Bank, N.A.
Morgan Stanley & Co. International
Nomura International
Pacific Investment Management Co., LLC

The fifteen institutions voted "Yes": the event was a default. Note the perverse conflict of incentives: the same hedge fund that was suing Argentina, Elliott Management, was one of the members of the CDDC.

This author and other people tried to obtain information on Elliott Management's positions on SCDSs over

Argentine bonds, as well as on the positions of the other fourteen institutions and the other bondholders that were litigating against Argentina. But not surprisingly, it was impossible to obtain this information.

Holding SCDSs and having at the same time the power for deciding whether the contingencies that trigger credit-related payments are activated creates conflicts of interest. As discussed above, it makes voluntary negotiations less attractive. Moreover, in a case like this one, those that hold naked SCDS would have the incentives to avoid a resolution to the dispute that impedes the finalization of the restructuring – and could alter the outcome of the resolution if they had any say in the interpretation of the nature of the credit-related event.

D. THE EU BAN OF NAKED SCDS

On October 2011 the EU announced a ban on naked SCDS under the title "Short Selling and Certain Aspects of Credit Default Swaps". The ban went into effect on November 1, 2012.[6] The regulation covered the countries of the European Economic Area (EEA: the 27 countries of the EU plus Iceland, Liechtenstein, and Norway), including their agencies and their regional, local, and municipal governments, as well as any international financial institution established by at least two member states whose purpose is to mobilize funding and provide financial assistance to the members that are experiencing severe financing problems, and the European Investment Bank. Its reported aim was to reduce the risks of negative price spirals for sovereign debt and settlement failures caused by these instruments.

Under the regulation, market participants can buy SCDSs that refers to EEA sovereign debt only if they hold the issuer's underlying debt or if they have exposures that are "meaningfully" correlated with the relevant sovereign debt at the time of execution. To meet the "correlation" exemption, the hedged exposure must be to an entity in the same country, and the amount of protection bought must be proportional to the delta-adjusted size of the exposure.[7] The correlation criteria can be satisfied by a quantitative or qualitative test or by an analytic proof (e.g., by showing that the exposure is to an entity whose fortunes are significantly dependent on the relevant sovereign). The quantitative test is satisfied if the adjusted Pearson's correlation coefficient between the value of the exposure and the referenced sovereign debt over the previous 12 months is at least 70 percent. Transactions that do not meet these conditions are permitted only if they are related to market-making activities and primary-dealer operations.

The ban raised some questions and some concerns. An early analysis published in the Wall Street Journal argued that the effect of the ban was to move trading of SCDS towards emerging economies (Ruffoni, 2014). A follow-up study (Van Deventer, 2015) concludes that trading volume declined significantly in 10 of the 12 most heavily traded Member States of the European Union after the implementation of the ban. In the rest of this section we extend on those analyses and show how the patterns of trade in SCDS evolved since before the announcement of the ban until 2015.

Data

We use data from the Depository Trust & Clearing Corporation on the volume and number of trades, measured in equivalent US dollars. The volume of trade is reported as the average weekly notional, while the number of trades is reported as the average number of trades per week. We analyze the evolution of trade for 27 EEA economies and 31 non-EEA emerging economies for 10 semesters. The Appendix describes all the definitions and the composition of the sample.

Findings

Figure 1 (and Table 1 in the Appendix) shows the evolution of the average weekly notional trading volume for the whole sample, i.e. the EEA economies and the non-EEA emerging economies together.[8] The volume of trade was already decreasing by the time the ban was announced; it did not experience a decrease when the ban on naked SCDS became effective, but it started to decrease about a year later. It then stabilized by 2014.

Figures 2 and 3 show the evolution of the average weekly notional volumes of trade for the EEA economies and the emerging economies, respectively. The figures show that the volume of trade starts decreasing in the EEA before the ban becomes effective, but closer to October 2011, when it was announced. On the contrary, the announcement of the ban coincides with a large increase in the trade volume for the group of emerging economies. For both groups of economies, the volume of trade shows a decreasing path since 2013.

The evolution of the number of trades shows a similar pattern as the evolution of the volume of trade. For the EEA economies, figure 4 shows an increasing path until approximately the time of the announcement of the ban, and a decreasing path since then. On the other hand, for the non-EEA emerging economies the average number of trades remains stagnated before the announcement of the ban, it increases sharply some time before the announcement becomes effective, and stagnates again since the second semester of 2013.

Figure 1 Average Weekly Notional (billions of USD EQ)

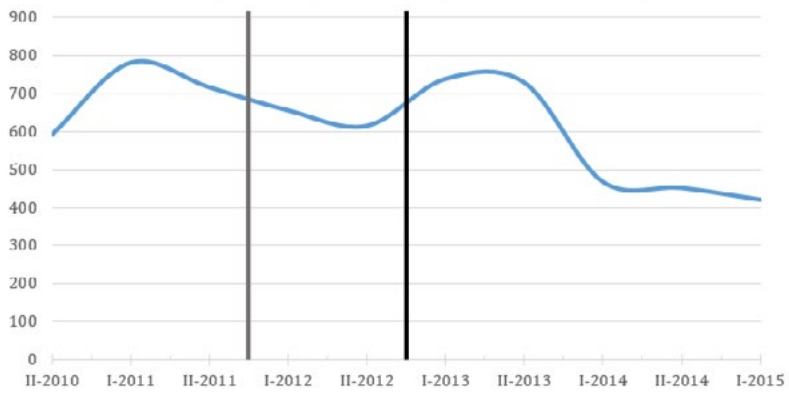


Figure 2 EEA: Average Weekly Notional (billions of USD EQ)

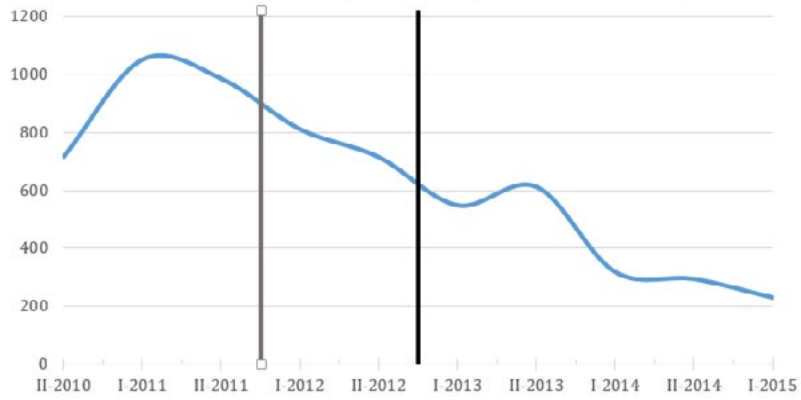


Figure 3 Emerging Economies: Average Weekly Notional (billions of USD EQ)

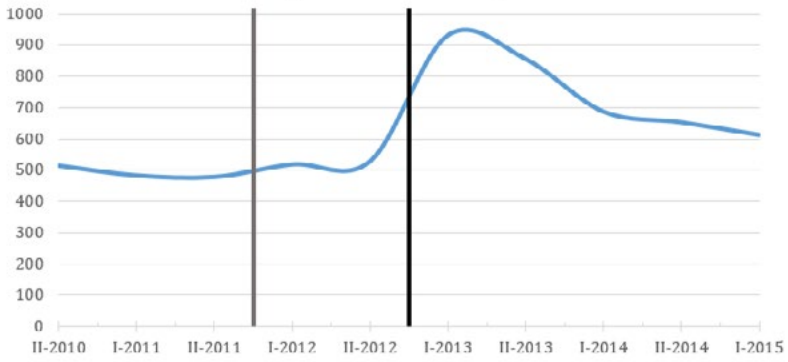


Figure 4 EEA: Average Number of Trades / Week

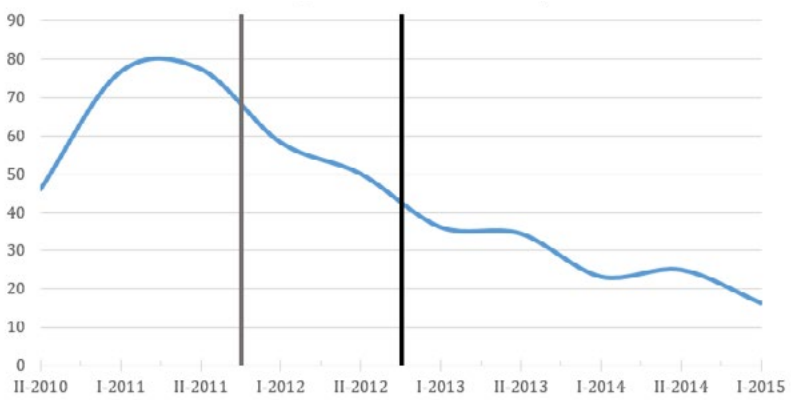


Figure 5 Emerging Economies: Average Number of Trades / Week

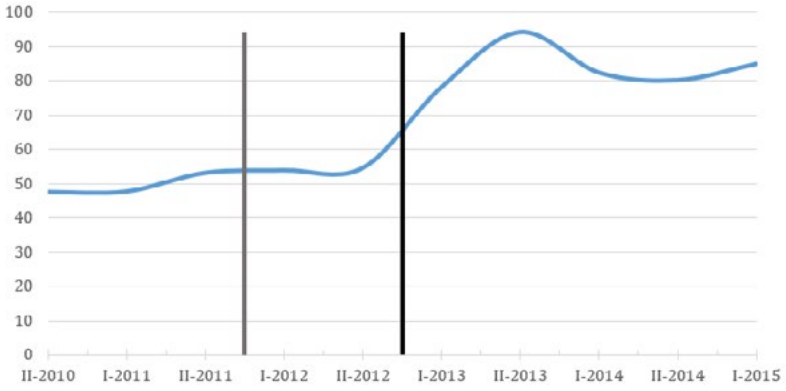


Figure 6 Average Number of Trades / Week, EEA & Emerging Economies

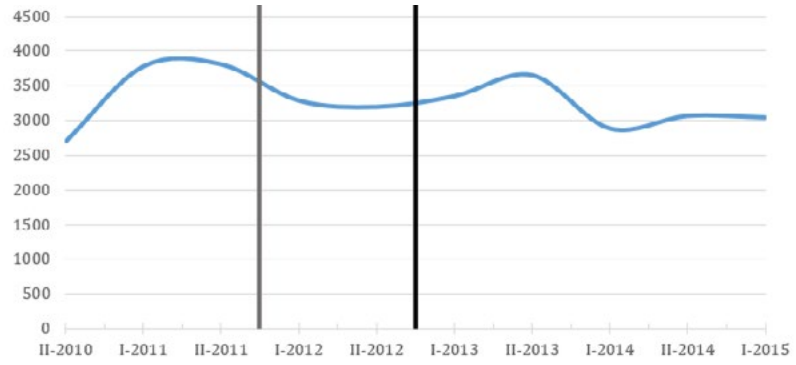


Figure 6 shows the evolution of the average weekly number of trades for the whole sample. It shows a decrease in the number of trades after the announcement, a partial reversion following its implementation (explained by the increase in the number of trades in emerging economies), a sharp decrease in the second semester of 2013, and a stable path since 2014.

Overall, the simple description of the volumes of trade suggests that the ban for naked SCDS for the EEA economies may have been effective to reduce the volume of trade in those countries. Trade could have moved initially to the non-EEA emerging economies, but the initial effects may have reversed over time.

The Depository Trust & Clearing Corporation also reports data on the volume of trade corresponding to the average daily notional (also in equivalent US dollars). Figures 7 and 8 show the evolution of trade for EEA and emerging economies respectively, for this alternative measure. The volatility in both figures is larger than for the average weekly notional volume of trade, as it captures shorter frequency variations. However, when we add the average daily information over weekly periods and obtain weekly averages, the patterns of trade replicate very closely those of figures 2 and 3. This is shown in figures 9 (where the blue line corresponds to the weekly averages obtained from daily averages and the yellow line is the same line from figure 2) and 10 (where the red line corresponds to the weekly averages obtained from daily averages and the yellow line is the same line from figure 3).

Figure 7 EEA: Average Daily Notional (billions of USD EQ)

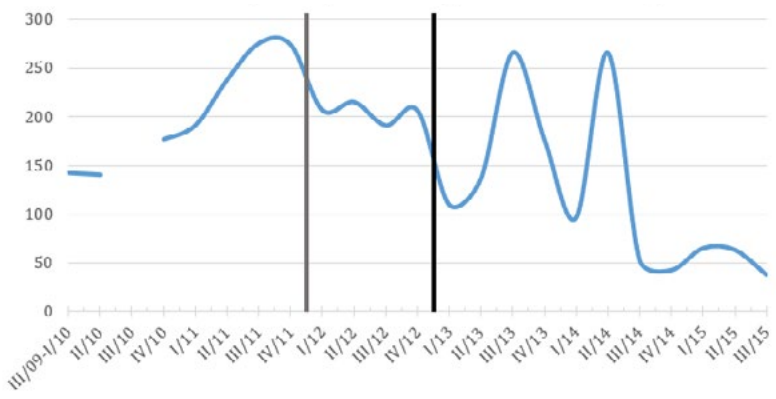


Figure 8 Emerging Economies: Average Daily Notional (in billions of USD EQ)

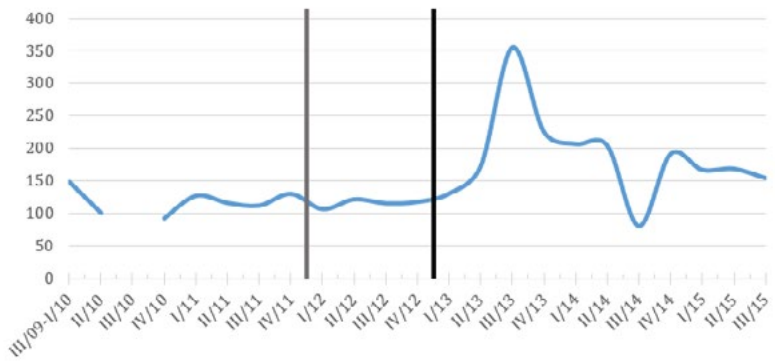


Figure 9 EEA: Average Weekly Notional (in billions of USD EQ)

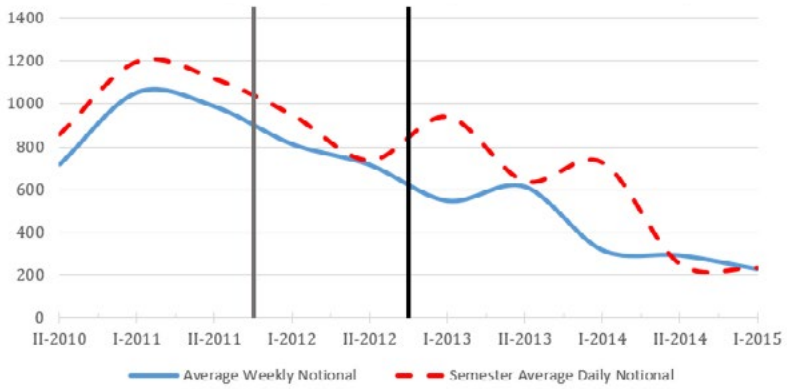
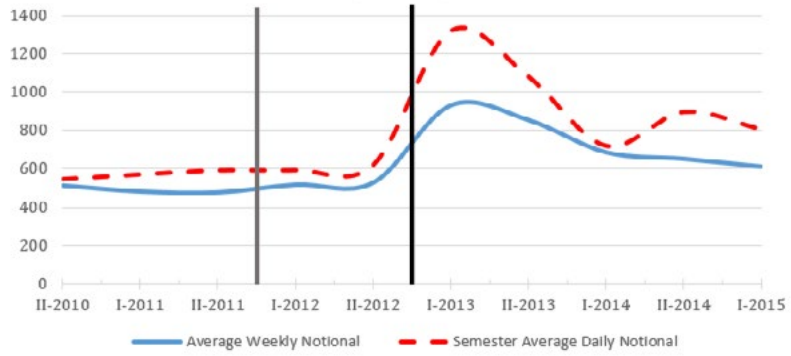


Figure 10 Emerging Economies: Average Weekly Notional (USD EQ)



Finally, we test whether there are significant statistical differences in the means of the trading volumes before and after the announcement and implementation of the EU ban. We compute the Average Weekly Notional (AWN) per semester per country, and we use that information to obtain the distributions for AWN per semester. We test whether the differences in mean traded volumes between semesters differ, for the four following cases:

1. Semester before the ban becomes effective vs. Semester that follows the ban implementation.
2. Semester before the ban is announced vs. Semester that follows the ban implementation.
3. Semester before the ban becomes effective vs. Last semester for which we have data (2015, Semester II).
4. Semester before the ban becomes effective vs. Second semester of 2014.

Table 4 in the Appendix shows the results (the parenthesis refer to the significance levels of the differences). For cases (i)-(iii), there is a significant decrease in mean trade for EEA economies (at the 10 per cent level of significance in cases (i) and (iii), and at the 1 per cent level of significance in case (ii)). There is also a significant increase in the mean volume of trade for the emerging economies for case (ii) (at the 10 percent significance level), but these effect vanishes over time, as suggested by the results of cases (iii) and (iv).

These results confirm that there was indeed a decrease in SCDS trade in EEA ecomomies together with an initial increase in SCDS trade in emerging economies, but this "migration effect" was reverted

later on. But of course, there are many other factors apart from the ban that may determine the volume of trade in SCDS. Generally, the levels of uncertainty in the system and the differences in beliefs regarding that uncertainty will be a major factor for understanding the volume of SCDS trade. Ultimately, the data analyzed in this section raises important hypotheses that deserve further analysis.

II. GDP INDEXED BONDS

There is a large and increasing literature that describes the benefits of GDP indexed bonds for sovereign debt issuances (see Borensztein, Mauro, Ottaviani, and Claessens (2004); Barr, Bush, and Pienkowski (2014), Shiller (2003), Sandleris and Wright (2013), Consiglio and Zenios (2015), Benford, Best, and Joy (2016), among others). Issuing bonds indexed to GDP growth brings some of the benefits of a contingent rule. But despite their benefits, in practice GDP indexed bonds have been issued only in a few episodes of sovereign debt restructuring—and never in normal times. The use of these contingent bonds could (and should) be more general. They could address the problem of insufficient debt relief that is generally observed in situations of debt distress. Their value is especially large in the current global juncture, in which many countries will be soon be exposed to debt troubles (Reinhart, 2015).

This section describes the current debate on the possibilities for increasing the scale of adoption of these instruments and it shows how a more widespread adoption could ameliorate the "too little" problem. It illustrates the latter claim by describing the role that GDP warrants played during Argentina's restructuring following the default of 2001.

A. THE CURRENT DEBATE

The recent global financial crisis and the end of the commodities boom have left legacies of public debt over GDP ratios that in many countries could soon become unsustainable (see UNCTAD, 2016). This issue is raising the awareness of the need for better instruments for handling sovereign debt distress. In this context, the attention on GDP indexed bonds is increasing.

The effect of GDP indexed bonds on creditors' risk is ambiguous. On the one hand, it *all else equal* increases creditors' risk, as creditors would be absorbing part of the GDP risk. But on the other hand, there is no *all else equal*: the probability of costly payments disruptions would decrease, as lower payments in the downside states means that the probability of default in those states would be lower. Blanchard, Mauro, and Acalin (2016) have recently quantitatively explored these trade-offs, and concluded that in the current global context there is a case for a large increase in the scale of adoption of GDP indexed bonds in advanced economies (although they focus on a sample of advanced economies only, this does not mean that the same conclusions cannot remain true for the less advanced economies).

They identify a few concerns with their introduction. The main ones are the liquidity-risk and the novelty-risk. Coping with liquidity risk would require large initial issuances. Dealing with novelty-risk requires a good understanding of how these instruments work as well as positive publicity. The case of Argentina shows that this risk may be quantitatively significant (despite of the excellent ex-post performance of Argentina's GDP warrants, markets didn't give much value to them initially, as reflected in initially low prices), and may result in an excessive burden to the sovereign debtor.

This concern could be alleviated if they were issued by several economies at the same time, in a sufficiently large scale, and with the endorsement of international financial institutions. In this sense, the IMF has an important role to play, as it could make explicit mentions to the role played by GDP indexed bonds for public debt sustainability in its Debt Sustainability Analysis framework (DSA).[9] The constructive role currently played by the Bank of England and the Bank of Canada in fostering their adoption could also help to reduce the risk of initial novelty premiums.

Besides, the introduction of GDP indexed bonds could alleviate the problem of insufficient debt relief that many countries that engage into experiences of sovereign debt restructuring end up having. The "too little" syndrome has been recognized by the IMF (2014) and is receiving the attention of many scholars in the field (see for instance the various chapters in Guzman, Ocampo, and Stiglitz (2016), and Guzman and Lombardi, 2016). Using data on sovereign restructurings with private creditors from Cruces and Trebesch (2013),[10] and data on sovereign defaults from Bank of Canada (Beers and Nadeau, 2014), we obtain that since 1970, 55.3 percent of the restructurings with private creditors were followed by another restructuring or default with private creditors within a time period of only five years (see Table 5 in the Appendix for details at the country level).

This figure is not a conclusive proof of the *too little* problem, but it is (very) suggestive. The problem with determining what is the necessary amount of debt relief for restoring sustainability is that this assessment must be made *ex-ante*, i.e. before the realization of the states that will determine the actual capacity of repayment of the country, in crises contexts that are

generally largely uncertain. This creates a trade-off: a larger debt relief increases the probability that the restructuring leads to a sustainable situation ex-post, but it also increases the probability that the debtor gets a larger relief than the minimum necessary for restoring sustainability. A debtor that attempts to get a large ex-ante haircut could be accused of not negotiating in good faith, or of being a "recalcitrant debtor". But with GDP indexed bonds, a large ex-ante haircut would not necessarily mean a large ex-post haircut. And if the recovery is endogenous to the size of debt relief (as the literature on debt overhang implies; see Krugman (1988), Bulow and Rogoff (1991), Deshpande (1997), Elbadawi, Ndulu, and Ndung'u (1997), and Reinhart and Trebesch, 2016), then a large ex-ante relief combined with GDP indexed bonds could be a win-win situation, as it could help the country to achieve larger ex-post growth, hence also leading to a lower ex-post haircut (or equivalently, larger payments to creditors). As we will analyze below, this was what happened after Argentina's debt restructuring following the 2001 sovereign default.

B. THE CASE OF ARGENTINA

Argentina's default in 2001 was followed by a restructuring with private creditors that included two rounds of negotiations, in 2005 and in 2010. The holders of the defaulted bonds were offered a package with a new bond with a discount, and a GDP linked warrant, such that the country's payment would be larger if GDP was larger.

The initial haircut was large relative to the majority of other restructuring experiences. Besides, the country followed a strategy that made clear to the holdout bondholders that they would not be offered a smaller discount. Many considered the country's strategy as "too aggressive". Litigation under NY courts escalated, and the Second Circuit called the country a "uniquely recalcitrant debtor".[11] But the ex-post discount on the restructured bondholders turned out to be much lower once the returns on GDP-linked warrants are taken into account.

Argentina had to make payments on GDP-linked warrants in respect of any given reference year if the following three conditions were met:

1. For the reference year, actual real GDP exceeded Base Case GDP.
2. For the reference year, annual growth in actual real GDP exceeded the growth rate in Base Case GDP for such year.
3. Total payments made on a GDP-linked security did not exceed the payment cap for that GDP-linked security.

Payments had to be calculated each year on November 1 following the relevant reference year, beginning on November 1, 2006. The reference year was a calendar year, starting in 2005 and ending in 2034. There were surely design problems with this formula. Linking payments both to the level and the growth rate of output may have made pricing difficult, and the disparity between the year in which payments were made and the reference year for computing those payments implied that the payments might not be positively correlated with the country's performance (this happened in 2009, when the country had to make payments despite being a year of low growth, in the context of the global financial crisis). But the use of these instruments did align the country's ex-post capacity of repayment with the actual payments – although by then the country had already recovered the capacity of repayment to an extent in which the payment on the warrants would not harm debt sustainability.

Figure 11 compares the Base Case GDP growth with actual real GDP growth.[12] As shown in that figure, the default and restructuring were followed by a rapid and sizable recovery. On average, GDP grew above 8 percent from 2003 to 2008. Actual GDP growth fell below the Base Case in 2008 after the global financial crises erupted, but recovered again in 2010, exceeding the Base Case threshold for a large margin. The level of economic activity stagnated afterwards (until the present). This spectacular recovery was due in part to the countercyclical macroeconomic policies that could be implemented due to the larger fiscal space implied by the default and deep restructuring. As a result, the GDP warrants paid off handsomely.

Applying the data of figure 11 to the above formula for the different bonds issued under different legal jurisdictions, we obtain that the country made additional payments reference year 2005 to reference year 2011 of almost 10 billion dollars. Figure 12 shows the evolution of payments over time. Figure 13 shows the disaggregated payments for bonds denominated in US dollars (both under New York law and Argentine law), in euros (issued under English law), in Argentine pesos (issued under Argentine law), and in yens (issued under Japanese law). All figures are converted to US dollars.

The total eligible debt for the exchange offer of 2005 had a face value of $81.8 billion. In the first round, 76.15 percent of the eligible debt was exchanged for new debt of $35.2 billion in face value. In the second round of 2010, the percentage of eligible debt that was restructured increased to 92.4 percent (a face value of $75.5 billion), and the total value of the new debt did it to a face value $43.1 billion. This is an initial discount

Figure 11 Argentina's Actual real GDP growth and Base Case GDP growth

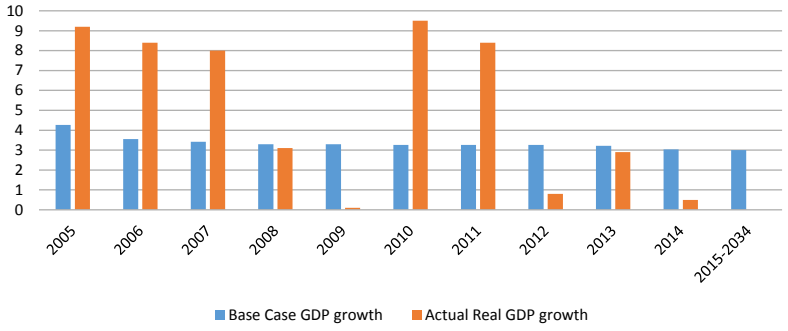


Figure 12 GDP linked warrants total payments (in millions of USD)

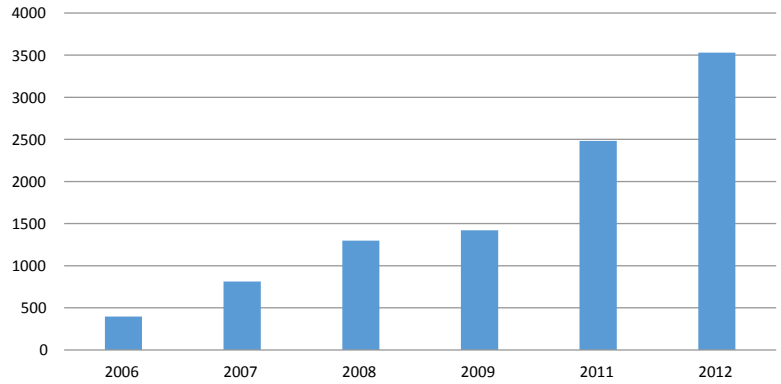
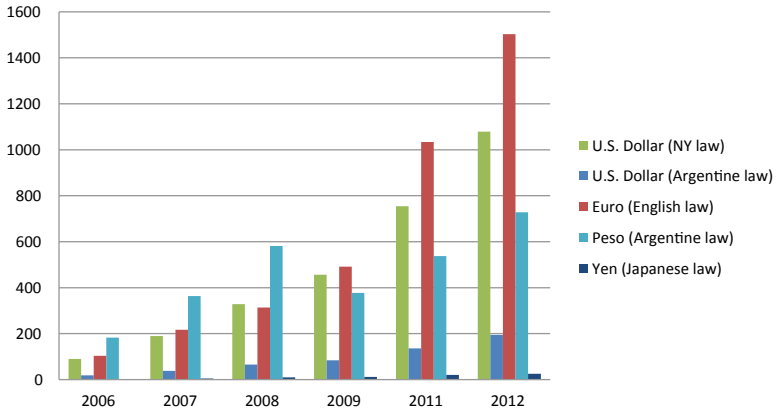


Figure 13 GDP linked warrants payments per bond series (in millions of USD)



of 43 percent on the face value (cf. Basualdo et al., 2015). Adding the $10 billions of payments on the GDP linked warrants, the face value discount decreases to just 30 percent.[13]

Cruces and Samples (2016) calculate the ex-post returns of GDP linked warrants, and they obtain that returns have been phenomenal not only in absolute terms, but also relatively to other alternative investments that exhibited high returns. They show that 1 US dollar invested in Argentina's GDP linked warrants on June 2, 2005 (when the first exchange was settled), assuming all dividends and returns were invested in the same original security, would have a value of $16.18 by 2015, larger than the value of having invested the same dollar in Apple computer stock ($12.89), or even larger than the return that would have been obtained in any investment in sovereign bonds issued by any other emerging economy. The value of a hypothetical portfolio of the seven most litigated bonds would have been 37 cents in 2005. If a holdout owning that portfolio would have settled by then and accepted GDP warrants, and all the coupons would have been reinvested in the same securities, the owner of that portfolio would have had a claim of $1.33 in 2015. Therefore, there would have been no haircut ex-post.

Interpretations on the meaning of this event vary. Some point out that the exchange has actually been very costly for Argentina in terms of the payments that were ultimately made; hence it was a mistake to issue GDP linked warrants. This author considers that the issue has to be seen through different lens. From the country's viewpoint, it's not the amount of payments what matters only, but ensuring sustainability at all times. Then, from the debtor's side is not only the value of what is paid what matters, but also the distribution of payments over time. On the other hand, from the creditors' viewpoint, what really matters mostly is not when payments are made, but the present value of the payments.

In this case, the country had a large relief when it was mostly needed (i.e. at the time in which there was a massive deficiency of aggregate demand that required expansionary macroeconomic policies), and paid more when it was able to do it. Besides, the hypothesis that the recovery was endogenous to the debt relief is well rooted in economic literature.

Ultimately, the restructuring and its aftermath showed that GDP indexed bonds can in practice improve the trade-off between the ex-ante amount of debt relief that the debtor requires to restore sustainability, and the payments in present value that respect the principle of good faith. However, as discussed earlier, and as rightly pointed out in the literature, the novelty risk may have been expensive – but that should not be a reason for a more widespread adoption of these instruments in the future; on the contrary, it should encourage large international and domestic institutions to foster a more coordinated adoption and better designed instruments at a large scale.

III. CONCLUSIONS

Sovereign lending markets could benefit from better practices in the design and adoption of contingent instruments. This study focused on two of them: the sovereign credit default swaps (SCDS) and the GDP indexed bonds.

If properly regulated, SCDS could play a positive role for the functioning of sovereign lending markets. At the moment, however, they are exempt from securities regulations and provisions that are keys for the correct functioning of financial markets (exemptions that ISDA has managed to secure through its influence in domestic legislation and regulation; see Gelpern and Gulati, 2012). The rationale is that these contracts are "exceptional", because they are indispensable for a better functioning financial system, and because they involve sophisticated parties. The argument is that in such a context regulatory failures could bring large costs, while good regulation would bring little benefits. But this is at least controversial. Precisely because of the conflicts of incentives they can create, and the consequent negative spillovers for sovereign debt restructuring processes, these instruments should be regulated. The opaqueness of these markets makes impossible to know what the incentives of the bargaining parties in restructuring episodes are. And non-aligned incentives in this context could lead to inefficient delays.

Despite of these concerns, it is difficult to assess precisely, in a quantitative manner, to what extent the functioning of SCDS markets (and in particular the empty creditor problem) is distorting the functioning of sovereign lending markets. More and better data and further research is necessary. However, data limitations respond in good part to the opaqueness of these markets. On the other hand, this study provided evidence that shows that the EU ban on naked SCDS was effective to reduce the volume of SCDS trade.

In spite of the lack of well-founded research, from a policy viewpoint it is important to consider the theoretical insights that point to the possibility of conflicts of incentives for sovereign bondholders during times of debt distress. Hu and Black (2008)

argue that disclosure of CDS positions of investors holding a significant fraction of the underlying borrower's debt could mitigate these concerns. Stiglitz et al. (2015) and Brooks et al. (2015) have claimed for full disclosure of SCDS positions for those with a seat at the bargaining table.

The analysis of this study also suggests that a more widespread adoption of well-designed GDP indexed bonds would improve efficiency in sovereign lending markets, and would also improve the trade-off between the principles of sustainability (that calls for more rather than less debt relief) and good faith (that calls on the debtor's side for less rather than more debt relief). As recent literature shows, the major concerns could be handled if the adoption is promoted at a large scale and if it is properly coordinated. The moral hazard concern (the idea that the borrower would have incentives to misreport GDP to pay less on the indexed coupons) could be addressed with formulas that include no discontinuities. Also, the eventual lack of statistics could be overcome through different methods, as proposed for instance by the Bank of England.[14] Variants of these instruments could link interest payments to the GDP of the trade partners, which would also help to alleviate moral hazard concerns.

The improvements in the adoption and the use of the contingent instruments discussed in this study are particularly important at this time, as it is likely that several economies will be under debt distress in the non-distant future.

APPENDIX

Section 1: Sovereign Credit Default Swaps

This section describes the dataset used for studying the evolution of the patterns of SCDS trading in the European Economic Area and the emerging economies following the EU ban for naked SCDS for EEA economies announced by the EU in 2011 and implemented in 2012.

Data Source: Depository Trust & Clearing Corporation

Countries from the EEA in the dataset: Austria, Belgium, Bulgaria*, Croatia*, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary*, Iceland, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland*, Portugal, Romania*, Slovakia, Slovenia, Spain, Sweden, and UK.

* Also Emerging Markets under IMF definition but only included in the EU group.

We use the definition of emerging markets of the IMF.

Non-EEA emerging economies in the dataset: Argentina, Bahrain, Brazil, Chile, China, Colombia, Egypt, Ghana, India, Indonesia, Jamaica, Kazakhstan, Lebanon, Malaysia, Mexico, Morocco, Nigeria, Panama, Peru, Philippines, Qatar, Russia, Saudi Arabia, Serbia, South Africa, Thailand, Tunisia, Turkey, Ukraine, Venezuela, and Vietnam.

Other countries (countries that are not EU neither Emerging Markets): Australia, Hong Kong, Israel, Japan, Korea (Republic of), New Zealand, Switzerland, USA

The dataset includes only transactions where market participants were engaging in market risk transfer activity. Risk transfer activity is defined as transactions that change the risk position between two parties. These transaction types include new trades between two parties, new cleared trades, terminations of existing transactions, and assignments of existing transactions to a third party.

All trading is converted to its USD equivalent using foreign exchange rates from the end of June. The average daily notional amounts are rounded up to the nearest 2.5 million for average daily amounts less than 25 million and rounded up to the nearest 25 million for all amounts over 25 million.

The **Average number of trades per day** represents the average number of transactions on each reference entity executed on a given day. The numbers correspond to the rounded number of transactions.

The **Reference Entity** is the reference entity name of the CDS trades as provided by Markit.

The **Average Weekly Notional (USD EQ)** is the aggregate of gross notional of all trading per reference entity name divided by the number of weeks in the observation period.

The **Average Daily Notional (USD EQ)** represents the average daily notional of transactions executed on each reference entity name. This notional represents the amount executed across the entire maturity spectrum for each of the reference entity. It does not represent the average amount traded at each maturity point or the amount traded at the five-year point.

The **Average Number of Trades per week** is the aggregate of contracts traded per reference entity name divided by the number of weeks in the observation period.

Table 1: Evolution of SCDS Trading Volume, EEA and Emerging Economies

Period	Average Weekly Notional (USD EQ)
II-2010	34,851,881,269
I-2011	46,016,004,599
II-2011	42,211,247,645
I-2012	38,650,644,398
II-2012	35,613,885,929
I-2013	42,764,815,206
II-2013	42,232,144,888
I-2014	28,075,564,088
II-2014	28,012,564,097
I-2015	26,528,259,561
Total	**364,957,011,680**

The potential number of observations in the sample is 670 (67 countries, 10 semesters). The potential number of observations for EEA and emerging economies is 280 and 300, respectively.

Table 2: Observations in SCDS sample

Variable	Missing	Total	Percent missing
Full sample			
awn	75	670	11.19
ant	76	670	11.34
sadn	97	670	14.48
EEA only			
awn	7	280	2.5
ant	7	280	2.5
sadn	8	280	2.86
eea	0	280	0
emerging	0	280	0
Emerging only			
awn	52	300	17.33
ant	53	300	17.67
sadn	71	300	23.67
eea	0	300	0
emerging	0	300	0

Notation:
awn: Average Weekly Notional (USD EQ).
ant: Average Number of Trades/Week.
sadn: Semester Average Daily Notional (USD EQ).
eea: Dummy=1 for EEA countries
emerging: Dummy = 1 for emerging economies.

Table 3: SCDS trade - Average Weekly Notional (EQ USD) - Summary Statistics

Total sample

Period	Dates	Obs	Mean	Std. Dev.	Min	Max	Variance	Skewness
1	*II-2010*	60	601.36	868.03	13.03	3985.86	753480.10	2.47
2	*I-2011*	62	766.94	1213.70	10.49	6382.37	1473071.00	3.10
3	*II-2011*	61	715.98	1216.38	6.62	6307.94	1479588.00	3.03
4	*I-2012*	61	655.40	1062.43	6.77	5155.90	1128758.00	2.67
5	*II-2012*	59	624.69	964.02	6.36	4839.71	929332.70	2.49
6	*I-2013*	61	725.33	1205.56	6.14	7000.70	1453381.00	3.15
7	*II-2013*	60	728.34	1047.60	9.82	4772.93	1097458.00	2.20
8	*I-2014*	61	476.73	925.87	3.61	4326.58	857234.00	2.91
9	*II-2014*	65	445.65	892.93	2.29	4507.93	797319.20	2.93
10	*I-2015*	67	408.63	841.66	1.54	4260.62	708398.10	2.93

Table 3: SCDS trade - Average Weekly Notional (EQ USD) - Summary Statistics (cont.)

EEA only								
Period	Dates	Obs	Mean	Std. Dev.	Min	Max	Variance	Skewness
1	*II-2010*	28	716.62	1091.27	16.35	3985.86	1190872.00	2.03
2	*I-2011*	28	1052.02	1674.59	10.49	6382.37	2804256.00	2.16
3	*II-2011*	27	986.11	1663.20	10.24	6307.94	2766234.00	2.19
4	*I-2012*	28	811.24	1409.69	13.53	5155.90	1987218.00	2.11
5	*II-2012*	27	714.64	1253.54	17.05	4839.71	1571352.00	2.14
6	*I-2013*	27	547.78	919.99	8.12	4228.51	846387.20	2.81
7	*II-2013*	27	612.77	1004.80	15.31	4385.07	1009625.00	2.52
8	*I-2014*	27	318.03	733.49	3.61	3744.59	538000.80	4.03
9	*II-2014*	27	293.86	705.37	2.42	3576.03	497542.40	4.00
10	*I-2015*	27	229.75	650.76	6.45	3388.97	423494.20	4.48
Emerging only								
Period	Dates	Obs	Mean	Std. Dev.	Min	Max	Variance	Skewness
1	*II-2010*	23	534.42	691.42	13.03	2957.67	478060.60	2.25
2	*I-2011*	25	498.04	583.51	10.64	2465.52	340481.80	1.74
3	*II-2011*	24	496.04	693.45	6.62	2955.64	480870.20	2.14
4	*I-2012*	23	539.23	694.80	8.70	2808.41	482748.80	1.76
5	*II-2012*	23	550.48	703.89	6.36	2753.03	495466.20	1.65
6	*I-2013*	25	968.28	1582.89	6.14	7000.70	2505538.00	2.57
7	*II-2013*	24	889.88	1241.18	9.82	4772.93	1540529.00	1.73
8	*I-2014*	25	713.90	1197.75	4.07	4326.58	1434593.00	1.95
9	*II-2014*	27	675.85	1155.19	2.29	4507.93	1334459.00	2.00
10	*I-2015*	29	632.08	1072.73	1.54	4260.62	1150750.00	1.99

Table 4: changes in average SCDS trade

| Δ |	(i) total	(ii) EEA	(iii) emerging
I	-121.9879 (0.379)	-437.8372 (0.0719) *	219.9666 (0.3)
II	-91.8075 (0.1511)	-318.9091 (0.0025) ***	169.3202 (0.097) *
III	-227.9847 (0.0876) *	-445.0949 (0.0633) *	-22.5775 (0.9106)
IV	-185.7756 (0.1698)	-373.9532 (0.119)	26.7436 (0.8974)

Notes:

1: Difference of average trade in the semester before the ban becomes effective v. semester after the ban becomes effective.

2: Difference of average trade in the semester before the ban is announced v. semester after the ban is announced.

3: Difference of average trade in the semester before the ban becomes effective v. last period in the sample (2015-I).

4: Same as 3 but for 2014-II.

Section 2: The "Too Little" syndrome and GDP indexed bonds

Table 5: "Too Little" – Frequency of restructurings with private creditors followed by another restructuring or default within 5 years since 1970

Country	Frequency	Number of restructurings
Albania	0.00	1
Algeria	0.50	2
Argentina	0.25	4
Belize	0.00	2
Bolivia	0.50	2
Bosnia and Herzegovina	0.00	1
Brazil	0.83	6
Bulgaria	0.00	1
Cameroon	0.00	1
Chile	0.80	5
Congo, Dem. Rep.	0.86	7
Congo, Rep.	0.00	2
Costa Rica	0.67	3
Côte d'Ivoire	0.00	3
Croatia	0.00	1
Cuba	0.67	3
Dominica	0.00	1
Dominican Rep.	0.25	4
Ecuador	0.60	6
Ethiopia	0.00	1
Gabon	0.50	2
Gambia,The	0.00	1
Grenada	0.00	1
Guinea	0.00	2
Guyana	0.00	2
Honduras	0.00	2
Iraq	0.00	1
Jamaica	0.86	7
Jordan	0.00	1
Kenya	0.00	1
Liberia	0.00	2
Macedonia, FYR	0.00	1
Madagascar	0.75	4
Malawi	0.50	2
Mauritania	1.00	1
Mexico	0.83	6
Moldova	0.50	2
Morocco	1.00	3
Mozambique	0.00	2
Nicaragua	0.50	6
Niger	0.67	3
Nigeria	0.86	7
Pakistan	0.50	2
Panama	0.33	3
Paraguay	0.00	1
Peru	0.50	4
Philippines	0.75	4
Poland	0.88	8
Romania	0.67	3
Russia	0.75	4
São Tomé and Príncipe	0.00	1
Senegal	0.75	4
Serbia and Montenegro	0.00	1
Sierra Leone	0.00	1
Slovenia	0.00	1
South Africa	0.67	3
Sudan	0.00	1
Tanzania	0.00	1
Togo	0.00	2
Trinidad and Tobago	0.00	1
Turkey	1.00	4
Uganda	0.00	1
Ukraine	0.75	4
Uruguay	0.60	5
Venezuela	1.00	3
Vietnam	0.00	1
Yemen	0.00	1
Yugoslavia	1.00	4
Zambia	0.00	1
Total	**0.553**	**184**

Table 6: Description of Base Case GDP for 2010 Argentina's exchange offer

Reference Year	Base Case GD (1993 pesos in millions)	Base Case Growth Rate (%)	Reference Year	Base Case GDP (1993 pesos in millions)	Base Case Growth Rate (%)
2009	327,968.83	3.29%	2022	486,481.92	3.00%
2010	338,675.94	3.26%	2023	501,076.38	3.00%
2011	349,720.39	3.26%	2024	516,108.67	3.00%
2012	361,124.97	3.26%	2025	531,591.93	3.00%
2013	372,753.73	3.22%	2026	547,539.69	3.00%
2014	384,033.32	3.03%	2027	563,965.88	3.00%
2015	395,554.32	3.00%	2028	580,884.85	3.00%
2016	407,420.95	3.00%	2029	598,311.40	3.00%
2017	419,643.58	3.00%	2030	616,260.74	3.00%
2018	432,232.88	3.00%	2031	634,748.56	3.00%
2019	445,199.87	3.00%	2032	653,791.02	3.00%
2020	458,555.87	3.00%	2033	673,404.75	3.00%
2021	472,312.54	3.00%	2034	693,606.89	3.00%

NOTES

1 The literature analyzing these issues has experienced an explosive increase over the last five years. See for instance Bohoslavsky and Goldmann (2015), Guzman and Stiglitz (2015a, 2016a, 2016b), Gelpern (2015), Gelpern, Heller, and, and Setser (2016), Gitlin and House (2016), Ocampo (2016), Herman (2016), Conn (2016), Howse (2016), Brooks and Lombardi (2015, 2016), Eichengreen and Woods (2015), ICMA (2014), IMF (2014), Mooney (2015, 2016) [there is Mooney 2015a and 2015b in the reference but not 2016], Raffer (2016), Lastra and Buchheit (2014), Li (2015), Buchheit et al. (2013), Kaiser (2016), among many others.

2 See Packer and Suthiphongchai (2003).

3 The concept of sustainability is not easy to define. We discuss this issue in section 3. See also Guzman and Heymann (2015).

4 See Table 5 in the Appendix, and Guzman and Lombardi (2016) for a more extensive analysis.

5 See Das, Papaioannou, and Trebesch (2012) for a more extensive discussion.

6 The regulation applies only to transactions executed after March 25, 2012.

7 The delta of the exposure (or "hedge ratio") is the ratio comparing the change in the price of the underlying bond to the corresponding change in the price of the derivative. The delta-adjusted is the same of the weighted deltas of all the individual derivatives held in the portfolio.

8 We use the IMF definition of emerging markets. We include countries in the category for which there is available data on SCDS transactions for at least one period (Argentina, Bahrain, Brazil, Chile, China, Colombia, Egypt, Ghana, India, Indonesia, Jamaica, Kazakhstan, Lebanon, Malaysia, Mexico, Morocco, Nigeria, Panama, Peru, Philippines, Qatar, Russia, Saudi Arabia, Serbia, South Africa, Thailand, Tunisia, Turkey, Ukraine, Venezuela, and Vietnam).

9 See IMF (2002, 2011, 2013) for a description of the DSA framework.

10 The database was updated in 2014.

11 NML Capital, Ltd. v. Republic of Argentina, 727 F.3d 230, 247 (2d Cir. 2013).

12 The original Base Case GDP was adjusted due to a change in the year of the base prices implemented by Argentina's National Institute of Statistics (originally, year 1993; after the change, year 2004). Table 6 in the Appendix shows the full description of Base Case GDP as incorporated in the exchange bonds prospectus of the second round of negotiations.

13 On top of this, although unrelated to the GDP indexed bonds argument, the 7.4 percent of remaining holdouts will receive approximately $12 billion, which decreases the total discount of face value to only 20.5 percent.

14 See Bank of England's indicative term sheet for GDP bonds, available at http://www.bankofengland.co.uk/research/Documents/conferences/gdplinkedbondstermsheet.pdf

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THE CLEARING UNION PRINCIPLE AS THE BASIS FOR REGIONAL FINANCIAL ARRANGEMENTS IN DEVELOPING COUNTRIES

Jan Kregel

ABSTRACT

Ever since the creation of the Bretton Woods system, developing countries have argued that their interests were not adequately represented by the major multilateral financial institutions. This has led to repeated calls for reform of representation of developing countries within the IMF governance system and at the same time for the introduction of IMF policies that are more supportive of economic development in the world's less-industrialised countries. In addition to the calls for the creation of regional financial institutions, many developing countries have called for the replacement of the US dollar at the center of the international financial system. This paper examines a number of proposals for alternative international financial architectures, one of which is Keynes's Clearing Union proposal, as well as analyses the experience of the European Payments Union and the trade flows among different regional groups.

INTRODUCTION

A. EVOLUTION OF THE INTERNATIONAL FINANCIAL SYSTEM

The major impetus for the creation of a new financial architecture after the Second War was to remove gold from the centre of the international financial system, but this objective was only nominally achieved, for the dollar retained a fixed parity to gold. Indeed, this was the source of the instability in the system that led to the collapse of fixed exchange rates in the 1970s. For as Robert Triffin pointed out, the US would have to maintain a balanced external account if it were to preserve the gold peg, but if it did so it would starve the expanding global trading system of liquidity, which could only be produced by a deficit in the US external accounts. As the US accounts moved increasingly into deficit, the US no longer had enough gold to redeem the dollar claims of the rest of the world at the predetermined parity rate. After an agonizing period in which the dollar value of the US gold stock continued to fall below the outstanding value of global dollar claims at the initial Bretton Woods parity, the US decided to abandon gold parity. This was in effect the end of the Bretton Woods fixed exchange rate system.

While many at the time believed that the introduction of floating exchange rates would restore stability in the system, as rational arbitrage would ensure that the dollar exchange rate would fluctuate around its real purchasing power, this was not reflected in reality. The rapid increase in private cross-border capital flows driven by interest rate arbitrage led to increasingly unbalanced international accounts, and increasingly volatile exchange rates, as capital flows drowned out the impact of relative prices of goods and services flows.

The basic logic behind the Bretton Woods system was that pooling and lending of countries' foreign exchange reserves would allow a more efficient allocation of resources and provide the funds needed to defend stable exchange rates. This idea of a fund to support central banks' defense of stable exchange rates was in large part based on a US proposal and on US experience of the operation of the financial system and its use of the Exchange Equalisation Account created after the US went off gold in 1933. In large part it was an application of the principles behind the Federal Reserve System to the international sphere. The Federal Reserve System, which was conceived as a Reserve Association that would lend reserves to banks when they were faced with a deposit run, looked upon national currencies as the equivalent of bank deposit liabilities. When there was an outflow of deposits to other banks that drew down the bank's reserve base it could tender its assets to the central bank in exchange for the needed additional reserves which were being built up in the reserve accounts of the banks that were receiving additional deposits. In this way reserves would be recycled to the banks losing reserves without any increase in the overall reserve base and allow banks to redeem their liabilities at sight.

By the same argument, a country experiencing a reserve drain because its external deficit required it to buy the excess supply of its currency at the parity exchange rate could apply to the IMF for foreign exchange reserves, which it secured by depositing its own currency that it was acquiring to keep the stable parity. These borrowed foreign exchange reserves could be repaid when the country's external account returned to equilibrium. However, there was in important difference. Once confidence in a bank had been re-established, the deposits would automatically flow back to the bank and it could repay the borrowed reserves. For a country, it was necessary to earn the foreign exchange reserves via an external surplus, which usually required a decline in output and employment.

Of course the underlying presumption was that on average each country's external account would be in balance, for if not the system would eventually collapse, since borrowings could not be repaid. It was the role of the bank regulator to ensure the individual bank's accounts returned to balance, while it was the role of the IMF to ensure that each country's external account returned to balance, indeed to surplus, in order to repay the borrowed funds. Thus a crucial prerequisite of the system of stable exchange rates was balanced external accounts across countries over time, and the implicit role of the IMF to ensure this result if it did not occur from natural forces.

As noted, there is an important difference between the national banking system and the international system to providing international financial stability which was identified by Keynes in his assessment of the gold standard system and was preserved in the operation of the IMF. The measures required to restore external equilibrium required adjustment in the form of a reversal of the country's deficit to achieve a surplus. But balance of payments accounting says that globally surpluses and deficits sum to zero, thus

a deficit country can only repay its borrowing to the Fund if there are offsetting surpluses elsewhere in the system, but the Fund does not insure that this will happen. Thus, if there is no adjustment in the rest of the world to allow increasing deficit, the adjustment can only take place through reductions in the level of income in the borrowing country and thus for the world economy. The paradoxical result is that the mechanism to ensure financial stability imposes instability on the global economy in the absence of coordination of policies between deficit and surplus countries.

B. DEVELOPING COUNTRIES AND THE INTERNATIONAL FINANCIAL SYSTEM

Ever since the creation of the Bretton Woods system, developing countries have argued that their interests were not adequately represented by the major multilateral financial institutions. This has led to repeated calls for reform of representation of developing countries within the IMF governance system and at the same time for the introduction of IMF policies that are more supportive of economic development in the world's less-industrialised countries. Initially these proposals were limited to calls for an adjustment in IMF quotas to better reflect the modern disposition of economic power that has been shifting in favour of the developing countries.

More recently, there have been calls to replace the IMF and World Bank by regional organisations that would be more representative of the interests of developing countries. The appeal to regional solutions recalls the criticisms of the IMF made by Robert Triffin, and his proposals that the IMF would be more efficient if it were operated on a regional basis because such an arrangement could better represent the interests of developing countries of specific regions and provide policies designed on better recognition of the particular problems they face.

In addition to the calls for the creation of regional financial institutions, many developing countries have called for the replacement of the US dollar at the center of the international financial system. This also echoes Triffin's early prediction that the Bretton Woods system as originally conceived was based on an internal contradiction caused by the use of a national currency, the dollar, as the basis of international settlement. Although originally designed to deal with the problem of deficient dollar liquidity in the 1970s reforms of the Bretton Woods system, many have suggested that the use of special drawing rights (SDRs) might better be used as a substitute to the United States dollar as the major invoice and settlement currency in the international trading system.

As a result, groups of developing countries at a similar level of development have implemented proposals to create arrangements for the regional or bilateral swap of reserves and even for the creation of regional currencies. Such arrangements have been proposed or are already in existence in the ASEAN Ching-Mai initiative, MERCOSUR, and the BRICS countries, and a number of financial institutions have been proposed or created, such as Banco Sur, the BRICs bank, and the Asian Infrastructure Investment Bank. However, most all of these regional arrangements include the participation of an IMF programme at some stage. They join a number of existing regional payments arrangements such as the Corporacion Andina de Fomento and the Latin American Reserve Fund (FLAR).

In a 2006 document (Ocampo, Kregel, and Griffith-Jones, 2006) prepared for the follow-up to the Monterrey Consensus, the UN-DESA suggested: "Looking into the future, an organisational structure [...] could be conceived entailing the establishment of a dense network of multilateral, regional and subregional financial institutions to provide official financing, basically on a complementary basis. [...T]his model could be extended to macroeconomic surveillance, again with regional institutions complementing multilateral ones, whereas regional arrangements might be especially suitable for macroeconomic policy coordination. Such a network of institutions would be more similar to federal arrangements, like those of the United States Federal Reserve Board, or the slightly less formal structure of the European Central Bank. Indeed, the post-war European experience of building financial cooperation, combined with growing macroeconomic surveillance, may offer some interesting lessons at the global level. Despite these potentialities, existing regional financial arrangements among developing countries are only in an embryonic stage. The valuable role that regional reserve funds can play is illustrated by the Andean Reserve Fund, created in 1978, which became the Latin American Reserve Fund (FLAR) when Costa Rica joined in 1989. It operates essentially as a foreign exchange reserve pool and its main function is the provision of short-term liquidity support to countries in crises. Since 1978, this Fund has provided such financing to member States, equivalent to 60 per cent of that of IMF, benefiting in particular two of its smallest members, Bolivia and Ecuador. Disbursements of loans have always been rapid and its financing has been clearly counter-cyclical. FLAR's 'preferred-creditor status' has been reflected in its healthy portfolio, even in the face of

two major crises in the region, when some member countries accumulated arrears in their public sector obligations. This zero default and preferential creditor status contributes to the very high credit ratings of the Reserve Fund, well above the rating of the countries that constitute it.

After the East Asian crisis, Japan had proposed the creation of an Asian monetary fund. Though the proposal was well received throughout the region, the idea was shelved owing to objections from outside the region. However, a more modest version was created in 2000, when the Association of Southeast Asian Nations (ASEAN)—China, Japan, and the Republic of Korea—created a system of bilateral currency swap arrangements known as the Chiang Mai Initiative. They also institutionalised meetings of finance ministers for policy dialogue and coordination. In May 2005, the Initiative was increased significantly from its previous $39 billion level, reaching US$ 71.5 billion by February 2006. It is based on 16 bilateral swap arrangements, and thus any country in need of short-term liquidity must discuss activation with all swap-providing countries individually. Disbursement of 20 per cent of the maximum drawing would be automatic; a country drawing more than 20 per cent is placed under an IMF programme. In this sense, the Initiative is of somewhat limited size and clearly complementary to IMF lending facilities. Its efficacy in fire-fighting crises has not yet been tested. In the meantime, efforts are being undertaken to overcome potential problems, such as the bilateral nature of swap arrangements, which could reduce the speed of response of the mechanism, so essential in times of speculative attacks. There is an understanding that the multilateralisation of the bilateral swap arrangements would require a more formalised and rigorous surveillance system, upon which it has been difficult to agree.

C. NATIONAL AND INTERNATIONAL MONETARY SYSTEMS

The analysis of national financial systems is usually carried out on the basis of a closed national economy. The adaptation of this analysis of the international monetary system requires two types of adjustment. One is to take into account the impact of international trade on domestic incomes and financial conditions. Here external deficits lead to an increase in foreign borrowing and a surplus to an increase in foreign lending, in both cases to offset the external imbalance. This is the basic framework of the Bretton Woods adjustment system outlined above. IMF lending is required to provide the foreign borrowing when foreign lenders are unwilling to do so and the IMF adjustment programme is the recipe to return the country to surplus in order to repay the IMF and the foreign lenders. This was a reasonable characterisation as long as there were minimal foreign capital flows independent of trade financing. Indeed, the Bretton Woods system was predicated on this assumption.

However, after the 1970s crisis in the Middle East, private capital flows became dominant and created a second change in the analysis of the closed system. In the presence of open international capital markets, it was possible for the capital account to either offset or reinforce the current account balance. The size of international capital flows far exceeded the resources available to the IMF and the result was the introduction of floating exchange rates. However, the same problems of adjustment remained, but capital flows created the possibility of a much larger external imbalance when lending continued to invest in a country despite a trade deficit. As a result, instability increased and the resolution of the imbalances occurred more frequently in the form of banking and exchange rate crises as foreign lenders pulled back.

In what follows it will be useful to conceive of the domestic and international systems as what might be called “dual financial systems,” or what is often presented as the difference between money and credit. For the national system, domestic money is the liability of the government (or gold) and credit the liability of the private financial system. At the international level, the “international” money is the US dollar (or gold), which is still the liability of the US government, and credit the liabilities of the other countries, whether of the government or the private sector. The former are the reserves and the latter the credits. In this way it is easy to see the ambiguous role of the US dollar under the Bretton Woods system as the reserves for the liabilities of US financial institutions and of the liabilities of the other nations in the international financial system. It is then obvious that the creation of reserves that the US central bank creates to pursue the stability of US domestic financial institutions will be the same as the international reserves required for the stability of the liabilities of the other nations in the world. The instability and conflict inherent in the system are then caused by the fact that the objectives of the US Federal Reserve in creating US government money are directed towards the conditions only in the US economy and, as will be seen, will in general be at odds with the needs and financial stability of developing countries.

This conflict of interest has become even more visible in the current international financial environment in

which the policies of zero interest rates (ZIRP) and quantitative easing (QE) that were introduced in the United States in order to counter weakness and instability in the US economy have made capital flows to developing countries more attractive, producing an impact on domestic liquidity conditions that may conflict with those of domestic monetary authorities, and appreciation in exchange rates that may not be supportive of the competitiveness of domestic industry. When the US central bank indicated in May of 2013 that these policies might no longer be needed, the reversal in capital flows, collapsing exchange rates, and growth slowdowns produced substantial disruption in developing countries as well as a collapse in commodity prices, which caused deterioration in both trade and capital accounts simultaneously.

It is thus sensible that developing countries should seek an alternative international financial architecture that is no longer based on this conflict of policy objectives created by the dual financial system, whether it is a fixed or a floating rate system. The question is what system should developing countries propose that will be more in their own interests? As will be noted below, the problems of diverse objectives across different countries were already present in the divergence between the post-war US economy and the conditions of the war-ravaged European combatants. While the US approach to post-war international financial reform relied basically on uniformity in performance of the members of the system as represented by roughly balanced external accounts over time, the UK government produced an alternative that would maximise the ability of countries in diverse stages of reconstruction to implement diverse domestic policies. That proposal was for an International Clearing Union, based not on gold or the US dollar, but on a notional settlement currency or unit of account; instead of a stabilisation fund to lend countries the funds needed to stabilise their exchange rates relative to the dollar, it provided for automatic lending denominated in a notional unit of account from surplus to deficit countries to allow them to introduce coordinated stabilisation policies.

The International Clearing Union proposal drafted by Keynes was constructed around what he called the "banking principle," in contrast to the US position, which, as noted above, was based on a dual money and credit system. Instead of credit being built on a reserve base, Keynes argued that banks are primarily engaged not to produce substitutes for government means of payment, but rather to provide payment services. In short, the principle is that banks make payments on their clients' behalf, rather than providing their clients with means of payment. Since these payment services are achieved by means of netting debit and credit positions through a clearing system, they must be made in some standard of value that is a notional unit of account. As will be seen in more detail below, such a system eliminates the problems of an external currency or a fixed exchange rate between money and credit, and thus the instability that is associated with those systems is absent in a clearing-based system.

While Keynes's Clearing Union was not adopted by the Allied powers, nor even discussed at the Bretton Woods conference, a very similar system was introduced at the behest of the United States and implemented by Triffin for the recipients of US Marshall Plan aid under the Economic Cooperation Administration. It is largely considered to have been a success, which suggests that it might have produced a more stable international financial architecture than the one that was actually introduced under the Bretton Woods agreements. Since then it has not been tried. But it is clear that it provides both the possibility of diverse national economic conditions and avoids the instability of a dollar-based system. It is thus here suggested that it is the most promising reform to meet the needs of developing countries.

In evaluating the possibility of a regional clearing arrangement that might better serve the interests of developing countries, it is necessary to assess first the drawbacks of the current dollar-based system for developing countries, then to investigate the importance of the banking principle that Keynes used as the basis for his clearing system. It is then necessary to evaluate the evidence and experience that is available from the actual experience of this principle on a regional basis: the European Payments Union.

As already mentioned, the Bretton Woods system did not survive the presence of increasing and increasingly volatile capital flows. These capital flows are a dominant source of the instability and linkage between US monetary policy and developing countries' monetary policy. Decisions will have to be made on how to deal with capital flows within the regional units and between the regional units and the rest of the world. This will be a crucial element of providing stability for clearing systems.

Finally, the proposal must deal with the relation between multilateral financial institutions, such as the IMF and the World Bank, and the regional financial institutions, as well as any potential problems that might arise in conjunction with the WTO's protocol on financial services.

I. BRETTON WOODS AND ITS PROBLEMS

Ever since Robert Triffin's 1950s prediction of the collapse of the Bretton Woods gold-dollar standard due to the internal contradictions of an international monetary system based on a national currency, the developed world has been searching for a better financial architecture. It was more by necessity than decision that the world was forced to embrace floating exchange rates in the mid-1970s. And while there were acolytes of the free operation of markets in setting prices, the exchange rate soon appeared not to be one of them and international interest rate arbitrage flows quickly overwhelmed the impact of trade imbalances. As a result, the criticisms of the role of the dollar were not alleviated, but aggravated, by the Smithsonian Agreements and the decisions in the Jamaica Accord to abandon exchange rate stability as the major objective of the IMF.

Despite President Clinton's call for a new financial architecture in the aftermath of the 1997–98 Asian financial crisis and the decision to proceed with the UN Financing for Development Conference, held in Monterrey some five years later, the "consensus" proposals were scarcely innovative and nearly all were built around an alternative to the dollar as international reserve currency. These ranged from greater use of the SDR to commodity reserve currencies. Since the SDR is composed of national currencies it really only multiplies the problem raised by the dollar. Commodity currencies simply take this problem to one remove since the commodities have to be valued in something, which in all likelihood would be the dollar (which would then return via a back door, so to speak). The basic problem is that while Triffin identified the inherent contradictions in the gold-dollar standard, this did not resolve the basic problems that Keynes has raised with any international standard. And most of the reform proposals were simply to substitute something in the place of gold that could be controlled. The decision to replace gold with the dollar did not reduce the problems of inequity and instability in the system, and Keynes's analysis of the international financial system suggests that substitution of gold or the dollar is not a viable a remedy.

As Keynes pointed out, the international system under the gold standard was neither equitable nor stabilising: "[T]he main cause of failure of the freely convertible international metallic standard" was "that it throws the main burden of adjustment on the country which is in the debtor position on the international balance of payments" (Keynes, Vol XXV: 27). "[I]t has been an inherent characteristic of the automatic international metallic currency [...] to force adjustments in the direction most disruptive to social order, and to throw the burden on the countries least able to support it, making the poor poorer" (ibid.: 29). Indeed, the historical performance of the gold standard confirms this assessment. When debtor countries are faced with adjustment via credit restriction and declining domestic prices the pressure on the domestic financial system and the pressure of recession in incomes leads quickly to the suspension of the commitment to gold, while creditor countries resist the expansion of credit and the impact of higher levels of activity and pressure on prices by limiting convertibility and introducing counter-inflationary policies. While Keynes's criticism of the operation of the gold standard as being asymmetric and motivated by the perceived need of the UK to implement policies to maximise employment and prevent systemic deficiency of global demand that would make it a debtor country, his more fundamental critique is that it is a major destabilising element in the international system.

In addition, Keynes notes that the supposed coordination of the policies of the countries on an international standard "is to secure uniformity of movements in different countries—everyone must conform to the average behaviour of everyone else. [... T]he disadvantage is that it hampers each central bank in tackling its own national problems" (Keynes, Vol VI: 256). It is the uniformity of monetary and interest rates across countries facing very different domestic conditions produced by the existence of a convertible international standard, rather than the asymmetric adjustment, that produces the constraint on national monetary policy. Keynes also drew attention to "a further defect" in the supposed automatic coordination of economic adjustment under an international standard: "the remittance and acceptance of overseas capital funds for refugee, speculative or investment purposes" (XXV: 30), and in contrast to earlier periods "capital funds flowed from countries of which the balance of trade was adverse into countries where it was favourable. This became, in the end, the major cause of instability." His conclusion was that since "we have no security against a repetition of this after the present war [...,] nothing is more certain than that the movement of capital funds must be regulated" (Keynes, Vol. XXV: 31).

This observation reprises Keynes's view of the importance of variable speeds of adjustment of financial and real variables as disruptive of any automatic adjustment process: "It is, therefore, a serious question whether it is right to adopt an international standard, which will allow an extreme mobility and sensitiveness of foreign lending, while the remaining elements of the economic complex remain exceedingly rigid. If it were as easy to put wages up

and down as it is to put bank rate up and down, well and good. But this is not the actual situation. A change in international financial conditions or in the wind and weather of speculative sentiment may alter the volume of foreign lending, if nothing is done to counteract it, by tens of millions in a few weeks. Yet there is no possibility of rapidly altering the balance of imports and exports to correspond" (VI: 336).

Indeed, a characteristic of the post-Smithsonian Bretton Woods system has been the tendency for international capital to flow from debtor to creditor countries. This was first seen in Europe as speculative funds flows to Germany forcing repeated exchange rate adjustments and in the global economy in the negative net flows of financial resources from developing to developed countries in the 1980s. Just as members of the euro area of the EU have not been spared financial instability with the single "interregional standard" replacing the Deutsche Mark, emerging markets countries are not likely find a remedy to their complaints if the dollar is replaced with the SDR or an international reserve currency.

A. THE BRETTON WOODS SYSTEM AND DEVELOPING COUNTRIES

As noted in Keynes's argument it is the existence of different economic conditions in different countries employing the common standard that makes the uniformity of aninternational money disruptive. (This is something that has recently been learned in the EU experiment with a common standard, the euro.) And the question of similarity of economic conditions was important in the contrasting approaches to the international architecture before the Bretton Woods conference. At the simplest level, this difference was between the US, which was little impacted by the war, and European combatants whose productive capacity had been decimated by the war. In the end it was decided to suspend the implementation of the Bretton Woods agreements and to create the International Bank for Reconstruction and Development (IBRD) to solve the problem of reconstruction in Europe. Only once the economies were again sufficiently similar would the stabilisation fund system come into operation.

Indeed, in the discussions over the post-war economic and financial structure, the debate was between those countries that were most interested in promoting local and global full employment and thus most likely to be in structural deficit – basically the United Kingdom – and a country that was experiencing positive expansion and what seemed to be a structural external surplus – the United States. The debate was thus over the policies appropriate for eliminating these imbalances in the absence of what was believed to be the automatic mechanism of the gold standard.

The fear of the deficit countries was that the need to maintain stable exchange rates would require them to sacrifice full employment policy, whereas the surplus countries were more concerned about the inflationary impact of the measures that would be required to maintain exchange rate stability. Thus, the UK position proposed by Keynes was for a "symmetric" adjustment mechanism in which both surplus and deficit countries would be obliged to cooperate, whereas the US position proposed by Harry White was for a "stabilisation" fund in which the deficit country would be provided bridge financing to preserve exchange rate stability while introducing policies to reduce external imbalances.

But, while the problems created by the differing productive capacities of the US and Europe were at the centre of discussion, the difference between industrialised countries and primary producing countries were largely ignored until the Havana Conference and then they disappeared until the creation of UNCTAD in 1964. It is interesting that a similar debate over the role of developing countries in the international financial system to be designed at Bretton Woods never occurred.

Developing countries were not well represented at Bretton Woods; indeed, many were not yet in existence, and the question of the impact of the international financial system on development was hardly discussed except at the last minute with the addition of the last word to the title of the IBRD. There was no discussion of the implications for developing countries of the decision to promote stable exchange rates and to use the IMF's short-term stabilisation funds to employ policies to reduce or eliminate deficits. The implicit assumption behind the system was that members would, on average, have balanced external positions, because this is what would be required for maintaining exchange rate stability. This also implicitly applied to developing countries that would become members of the IMF.

In contrast, consideration of development policies was left primarily to UN agencies in the early post-war period. Their analysis of the problems that faced developing countries was based on the presumption of scarcity in domestic savings and financial resources. Thus, the problem of development was perceived as providing flows of financial resources from developed to developing countries. The first UN development decade (Stokke, 2009) that set a growth objective of 5 per cent for developing countries therefore

concluded that this would require a transfer of 1 per cent of developed country GDP to developing countries. The US programme of support for Latin America in the 1960s, the Alliance for Progress, was also predicated on inducing capital flows from the US to Latin America.

Few economists noted that this approach to development contradicted the principles of the Bretton Woods institutions because it would require sustained balance of payments surpluses in developed countries that corresponded to the capital outflows to developing countries – and conversely for developing countries to run balance of payments deficits that corresponded to the acquisition of industrial imports from developed countries. However, if international financial stability required stable exchange rates, this meant that the size of the deficits that could be run by developing countries would be limited by conditions of international financial stability and not by the needs of developing countries. Indeed, the very policies that would be required to preserve exchange stability would be designed to reduce the development possibilities of developing countries.

But the presumption of external equilibrium was not the only component of cognitive dissonance between development policies that were being proposed and conditions for international financial stability. When internal adjustment policies supported by IMF conditionality were unable to produce a reversal of external disequilibrium, countries were required to introduce acurrency realignment. Although Keynes argued that the new international system would require substantial exchange rate flexibility, his concerns – apart from granting countries the ability to adjust exchange rates within 10 per cent of parity without reference to the IMF and to introduce restrictions on trade under the scarce currency clause – were rejected (Skidelsky, 2000).

However, the efficacy of devaluation in producing external balance was already known to require very precise elasticity conditions (summarised in the Marshall-Lerner conditions). Although it was not obvious that these conditions applied to developed countries – indeed, it was generally believed that the United Kingdom on the one hand and the reconstructing economies on the other did not satisfy the conditions – whether they would be satisfied in developing countries was never considered. It seems reasonable *a priori* that they would not have been met, and much of Prebisch's arguments concerning the negative impact of the declining terms of trade were couched in terms of the impossibility of developing countries meeting those elasticity conditions.

The post-war international financial system was thus designed on the presumption of external equilibrium across countries, in which deficit countries would be primarily responsible for external adjustment through internal demand policies and, when that was not sufficient, to use exchange rate depreciation to reinforce the impact of contractionary fiscal policies. Conversely, international development policy was formulated on the presumption that sustained surpluses of the developed countries would be available to finance deficits of the developing countries in support of sustained expansion and the inapplicability of exchange rate adjustment as a measure of influencing external balances.

That these two visions of the post-war financial system were inconsistent does not seem to have occurred to the IMF, IBRD, or United Nations, each of which is respectively responsible for exchange rate stability and economic development. In this context, Prebisch's concerns can be seen as a recognition of this inconsistency, whereas the emergence of the Washington Consensus can be seen as a resolution of this cognitive dissonance in official policy by rejecting the need for any special conditions and policies for developing countries.

This internal inconsistency represented a major obstacle for developing countries and ignored a major problem: international debt. Because foreign exchange would be required to pay for the excess of imports of necessary consumption goods and capital goods over exports required for the development plans, these plans required positive net resource flows encouraged by early UN development policy. Over time, however, these flows generate debt service outflows that cause the current account deficit to increase unless the trade deficit is reduced to accommodate a fixed level of capital inflows and lead to a reduced impact on development. Alternatively, foreign capital inflows would have to increase to accommodate the rising current account deficit caused by the increased debt service payments on capital factor services accounts for any given level of the goods account deficit, leading to an ever-increasing level of external debt. Neither solution would be compatible with the stability of the international system conceived at Bretton Woods.

As Domar (1950) has shown, a development strategy based on net imports financed by foreign capital inflows can only exist with a stable ratio of debt to GDP if the interest rates paid for foreign capital are equal to or less than the rate of increase of lending by foreigners. If interest rates are higher than the rate of increase of inflows, the policy will eventually and automatically become self-reversing as the current account becomes dominated by interest and profit remittances that exceed capital inflows.

In the context of the cognitive dissonance between stability of the international financial system and development, it is interesting to note that the Domar conditions for a sustained long-term development strategy based on sustained external financing are equivalent to the conditions required for a successful Ponzi financing scheme. As long as the rate of increase in inflows from new investors in a pyramid or Ponzi scheme is equal to or greater than the rate of interest paid to existing investors in the scheme, there is no difficulty in maintaining the scheme. However, such schemes are eventually condemned to failure because of the increasing absolute size of the net debt stock. Domar's condition only refers to the ratio of debt to GDP, not its absolute size.

External financing cannot provide developing countries with a permanent development strategy unless the rate of increase of export earnings is equal to the rate of interest on the outstanding debt. However, if the foreign borrowing is not used for expenditures that create net foreign exchange earnings (it makes little difference if this is domestic infrastructure investments or purchases of basic or luxury consumption goods or military equipment), the country's development planning will be subject to maintaining the steady rate of increase in capital inflows and will become a hostage to international financial markets. But even if foreign borrowing is used to expand export potential, any external event that causes the rate of increase in inflows to fall off will create domestic instability and require domestic adjustments to reduce dependence on external resources, which usually leads to a financial crisis through failure to meet financial commitments. At the same time, to make foreign lenders confident in the country's ability to meet foreign commitments, policies that enhance the short-term ability to pay, such as building up foreign exchange reserves or reducing external dependence by reducing domestic growth to produce a stronger export performance and fiscal balance, must be implemented. However, these policies are also self-defeating from the point of view of positive development, because they either reduce the capital inflows that can be maintained on a permanent basis or reduce the growth of per capita incomes. External financing as a source of a long-term development strategy is thus a double-edged sword that must be managed judiciously if it is to contribute to development rather than becoming a source of persistent financial instability and crisis. The international financial system's prejudice in favour of limited external imbalances, however, is as much of an impediment.

Another alternative, given by Ohlin (1995), is to recognise that deregulated open competitive internal markets and sustained international capital inflows are neither necessary nor sufficient conditions for a successful development strategy. He noted that there is sometimes an indignant presumption that there should always be a net transfer to developing countries in order to help them to import more than they exported. Behind this presumption there is the old idea that countries in the course of their development should be capital importers until they mature and become capital exporters. This, however, does not mean that they should receive positive net transfers, borrowing more than they pay in interest and dividends. If export performance and the returns on the use of foreign resources are adequate, foreign debts and investments can be serviced without the aid of new loans (Ohlin, 1995: 3).

The bottom line is that the international financial system has to be capable of accepting sustained and substantial international imbalances to provide the funding of such scenarios, as well as allowing developing countries to practice policies that produce the required export earnings to generate the funds required to meet debt service and debt repayment. And here the discussion recalls the cognitive dissonance described previously, because the international financial system was designed to prevent the existence of such sustained imbalances and continues to promote and encourage policies to eliminate them.

The Bretton Woods framework for international trade and financial stability was thus predicated on application to developed countries at a similar stage of development and with similar productive structures. It implicitly precluded the implementation of any development strategy that relied on developing the manufacturing sector by imports from developed countries producing substantial international imbalances. This is because it was predicated on a rough balance in external positions over time to preserve exchange rate stability.

The presumption of exchange rate stability and the preclusion of dual exchange rates prevented developing countries from overcoming cost disadvantages in their nascent export sectors; in addition, the use of devaluation as a tool for eliminating external imbalances also worked against the ability of developing countries to develop the foreign exchange through exports that were necessary for financing the development of manufacturing.

The international financial system developed at Bretton Woods may have been appropriate for developed countries; it was a positive impediment to developing countries' attempts to embark on a strategy of industrial catching up.

II. THE BANKING PRINCIPLE AND FINANCIAL INSTITUTIONS

To understand the difference between the US Stabilisation Fund and the UK Clearing House principle it is necessary to look at the institutional characteristics of the banking and financial system. The Stabilisation Fund is based on what may be termed an outside money system or a theory of banking based on the quantity theory as it was interpreted under the gold standard. Thus, the quantity of gold (or coin and currency) issued by the government is considered to be exogenously created without counterpart liabilities. The quantity of money can be increased in only three ways. The first is digging it out of the ground. The second is via external surplus under a fixed exchange rate system (or possibly a sticky price system) that generates claims on gold held in the rest of the world. The third is via the operation of fractional reserve banks. Here banks receive deposits of exogenously created "money" and issue their own liabilities as substitutes in a multiple determined by the reserve ratio. Thus, bank credit creation provides a substitute means of payment that increases the amount of outstanding purchasing power over and above that created by the government or the gold from the mines. This is the kind of system described in Hayek's *(1937) Monetary Nationalism* and the recognition that investment cannot be constrained by saving as long as the banks engage in multiple credit creation. It leads to the obvious recommendation that if stability is defined as investment being limited by voluntary saving then the money multiplier must be eliminated. This can only be done via 100 per cent reserve backing or other measures that limit money creation to the supply of saving. It is also the system that was recommended by Henry Simons and Irving Fisher. It is what Keynes referred to as a "real-wage" economy.

The alternative approach to the banking system that Keynes proposed was "the banking principle," which he defines as "[t]he necessary equality of debits and credits, of assets and liabilities. If no credits can be removed outside the banking system but only transferred within it, the Bank itself can never be in difficulties" (XXV: 44). This approach is based on a very different interpretation of money.

To understand this approach it is best to go back to Keynes's own definitions of money in the *Treatise on Money,* where he defines money as "that by delivery of which debt contracts and price contracts are discharged, and in the shape of which a store of general purchasing power is held," noting that money "derives its character from its relationship to the money of account, since the debts and prices must first have been expressed in terms of the latter." He goes on to note that from the money of account it is possible to distinguish: "Offers of contracts, contracts and acknowledgements of debt, which are in terms of it, and money proper, answering to it, delivery of which will discharge the contract or the debt [...] for many purposes the acknowledgements of debt are themselves a serviceable substitute for money proper in the settlement of transactions. When acknowledgements of debt are used in this way, we many call them bank money [...] an acknowledgement of a private debt, expressed in the money of account, which is used by passing from one hand to another, alternatively with the money proper, to settle a transaction. We thus have side by side State money or money proper and bank money or acknowledgements of debt" (Keynes, I: 2,5) .

Keynes is here distilling the results of a long tradition in banking: "A dealer in debts or credits is a Banker" (Hawtrey, 1919: 4). Hawtrey is simply echoing McCleod's description of banking found in his *Theory of Credit* (1894). A similar account of the operation of banks can be found even earlier in Colwell's (1859) *The Ways and Means of Payment* that defines banking as "a system by which men apply their credits to the extinguishment of their debts. [...T]his is in direct contrast with the cash or money system, in which every article is either paid for in the precious metals at the time of delivery, or at some time afterwards. These two systems work side by side." (Colwell 1859: 188–9).

In this alternative payments system, "a class of men is formed, who make it their business to deal in these securities, or evidences of debt. If a banker or broker purchases the two notes given by the merchant and his customer, it is obvious that both receive the means from him to pay the notes of which he has become holder and owner. The Process of payment between them will be very simple, if the banker merely gives each of the two parties credit on his books for the proceeds of the notes purchased of them their respective checks on these credits pay off the whole indebtedness [...]" (ibid.). Thus, "banks become, in this way, substantially book-keepers for their customers" (ibid.: 9), and "[t]he books of the banks furnish, thus, a mode of adjustment by which the customers are enabled to apply their credits to the payment of their debts" (ibid.: 10), "[...n]o currency can be more suited to pay a man with than that which he has issued himself" (ibid.: 8).

Mitchell Innes (1914) provides a similar explanation of the operation of banks: "A credit cancels a debt; this is the primitive law of commerce. By sale a credit is acquired, by purchase a debt is created. Purchases, therefore, are paid for by sales. The object

of commerce is the acquisition of credits. A banker is one who centralises the debts of mankind and cancels them against one another. Banks are the clearing house of commerce. [...t]he value of credit does not depend on the existence of gold behind it, but on the solvency of the debtor" (Innes, 1914: 168).

Minsky also provides a similar view of the system at a more advanced level: "Banking is not money lending; to lend, a money lender must have money. The fundamental banking activity is accepting, that is, guaranteeing that some party is creditworthy. A bank, by accepting a debt instrument, agrees to make specified payments if the debtor will not or cannot. Such an accepted or endorsed note can then be sold in the open market. A bank loan is equivalent to a bank's buying a note that it has accepted" (Minsky, 1986: 258). But, for this system to function it requires that the bank debtors have access to bank deposits to liquidate the loan.

The implication of this approach was codified by the British financial journalist Hartley Withers who noted that "[m]ost of the money that is stored by the community in the banks consists of book-keeping credits lent to it by its bankers. It is usually supposed that bankers take money from one set of customers and then lend it to other customers; but in most cases the money taken by one bank has been lent by itself or another bank" (Withers, 1906: 46), and that "the greater part of the banks' deposits consist, not of cash paid in, but of credits borrowed. For every loan makes a deposit" (ibid.: 51).

Thus, while unlimited purchasing power can be created from a fractional reserve banking system, and its destabilising properties controlled by limiting the creation by controlling reserves, this is not the explanation of Keynes's banking principle. In the approach the role of commercial banks is to "make payments" on behalf of their clients by organising an alternative payments system, rather than providing an alternative "means of payment" to their clients which allows them to make payments. The evolution of the banking system may thus be viewed as an evolution of how banks provide the bookkeeping function of netting client assets and liabilities, or what is more easily seen as a "clearing house" function for debts.

As Colwell notes, "[t]he credit system does not, then really furnish a substitute for money, so much as a model of dispensing with it" (Colwell, op. cit.: 193). Indeed, in this point of view the credit system is a financial innovation that 'creatively destructs' the use of commodity or government money by economising and replacing it as a means of payment in the commercial transactions of the economy: "In all stages of commerce, we find there has been a constant effort to dispense entirely with the use of precious metals" (ibid.: 157). "[...I]ndividuals might have trouble, owing to particular circumstance, in meeting payments; but a whole class or body of men could not, unless from other causes, because the fund for payment could never be short, and interest upon credits could never go to a high rate."

The idea is easiest to see in terms of a clearing house system. As long as all debtors are members of the clearing and settled within it, there can only be individual divergences between debts and credits, but not for the system as a whole. Any divergences can be handled by means of internal clearing house credits, as was indeed the case in the regional "money centre" banks that participated in clearing houses in the United States before the creation of the Federal Reserve. And this is precisely what Keynes defined as the banking principle—the offsetting of debits and credits without reference to an external means of payment at values determined in a unit of account.

It is difficult for the modern observer to appreciate this system, for in the modern financial system bankers accept liabilities from the private sector in exchange for the issue of their own liabilities that not only serve as means of making payment, but are "means" of payment because they are guaranteed redeemable at sight, and thus substitutes for State money. As Colwell notes, this is a guarantee that cannot be kept because "under our present system," bank liabilities are "required to be convertible at will into gold or silver. In point of fact they are not so convertible, and they cannot possibly be, as they amount at all times to a sum from ten to twenty times greater than any possible amount of gold and silver which would be available for such purposes. [...N]either the necessities of business, nor the demands of convenience, require to be convertible on demand[...] This requirement, as it operates, is one of the most mischievous blunders in modern times" (ibid.: 197–9). It is this instability the 100 per cent reserve requirement is meant to eliminate, but the clearing system provides an alternative, which Keynes translated from the national system to the international system.

Minsky also notes that the reason that banks are able to provide clearing via a system of sight redemption of its liabilities that so bothered Colwell: "In our system payments banks make for customers become deposits, usually at some other bank. If the payments for a customer were made because of a loan agreement, the customer now owes the bank money; he now has to operate in the economy or in financial markets so that he is able to fulfil his obligations to the bank at the due dates. Demand deposits have

exchange value because a multitude of debtors to banks have outstanding debts that call for the payment of demand deposits to banks. These debtors will work and sell goods or financial instruments to get demand deposits. The exchange value of deposits is determined by the demands of debtors for deposits needed to fulfil their commitments. Bank loans, while ostensibly money-today for money-later contracts, are really an exchange of debits from a bank's books today for credits to a bank's books later" (Minsky, 1986: 258). In simple terms, bank liabilities are held because businesses have debts denominated in those same liabilities and thus they extinguish those liabilities.

III. THE BANKING SYSTEM AT THE INTERNATIONAL LEVEL: KEYNES'S CLEARING UNION

As Keynes noted in his proposals for post-war international monetary reform, the fact that "the problem of maintaining equilibrium in the balance of payments between countries has never been solved since methods of barter gave way to the use of money and bills of exchange [...] has been a major cause of impoverishment and social discontent and even of wars and revolutions" (XXV: 21). His proposals for the post–Second War financial system sought a solution to the problem by avoiding the difficulties caused by the Treaty of Versailles, as represented in his first popular book, *The Economic Consequences of the Peace.* Indeed, it is difficult to understand any of the discussion of post-war international finance without reference to the financial problems of the Treaty of Versailles and the Dawes and Young committees dealing with German reparations and the debts of the Allies to the US.

Two fundamental principles emerged from problems caused by German reparations payments. The first was that reparations could only be achieved through net exports of goods and services, not by fiscal surpluses and financial transfers, and second that this could only be achieved if the recipient country was willing to open its domestic markets and accept an external deficit. The formulation of proposals for the post-war system was dominated by the need to make sure that the absence of these two conditions, which had led to volatile international capital flows and exchange rates, should not be repeated.

As Keynes's thinking evolved, a third fundamental principle gained ascendancy, "the banking principle" that we have discussed above, which as noted he defines as "[t]he necessary equality of debits and credits, of assets and liabilities. If no credits can be removed outside the banking system but only transferred within it, the Bank itself can never be in difficulties" (XXV: 44). As his thinking progressed, "the analogy with a national banking system is complete. No depositor in a local bank suffers because the balances, which he leaves idle, are employed to finance the business of someone else. Just as the development of national banking systems serves to offset a deflationary pressure which would have prevented otherwise the development of modern industry, so by carrying this analogy into the international field we may hope to offset the contractionist pressure which might otherwise overwhelm in social disorder and disappointment the good hopes of our modern world" (XXV: 75).

But as noted above, this principle did not refer to credit creation via the fractional reserve credit multiplier creation of bank deposit liabilities. It is not a pyramid of money approach; it was motivated by an application of his theory of liquidity preference and effective demand.

One of the initial solutions to the reparations problem that is relevant to the concerns of emerging markets because it took the role of developing countries into account was made by Hjalmar Schacht for an international "Clearing House" or International Settlements Bank (see Lüke, 1985: 248) to Owen Young during the committee of experts that met in Paris in 1929. The idea behind the plan was to resolve the difficulty faced by German industry in producing for export due to the loss of raw materials for its former colonies, and the difficulty in penetrating the export markets of its creditors. The clearing house was to make loans to developing countries in support of the provision of raw materials to Germany and to create markets in these countries for German exports. Schacht notes that his objective was "to take decisive action to strengthen German export trade in order to achieve a surplus. [...T]he economic history of the past decades had furnished convincing proof that loans should be used first and foremost to help the under-developed countries to make full use of their raw materials and gradually to become industrialised. Before the war the European capital markets had supplied the funds in connection with loans for the economic advancement of the under-developed South American and Balkan States and many other overseas territories. England, France, Germany, etc., had not been in need of foreign loans: on the contrary they had been creditors and suppliers of capital to under-developed countries. Germany was now an impoverished country and no longer able to make loans to others. If the Allies really wished to help her to meet her reparations liabilities they should grant loans to the under-developed countries, and thereby put the latter in a position where they would be able

to purchase their industrial equipment in Germany. No useful purpose would be served by allowing Germany to compete in existing world markets against other European industrial states as she had hitherto done." This objective was never realised, but the proposal formed the basis for the Bank for International Settlements (BIS) with the reduced objective of managing reparations payments.

The reform plans that were discussed in the early 1940s were built on another of Schacht's schemes, the "New Plan" based on bilateral "Clearing Accounts." As economics minister he applied the "very simple principle that Germany must refrain from buying more than she could pay for, in order to prevent an accumulation of foreign debt which would make a proper trade balance still more difficult to establish in the future." Given that the creditor countries' "system of import quotas had closed markets to German goods" he sought "to find countries which would be willing to sell their goods not against payment in their own currency, but against [...] German goods. [...T]he best solution was the establishment of 'clearing accounts.' Foreign countries selling goods to us would have the amount of our purchases credited to their account in German currency, and with this they could then buy anything they wanted in Germany" (Schacht, 1949: 80–1). Since Germany was in bilateral deficit with most countries this led to "blocked credit balances" of Reichsmarks, or what were called "Sperrmarks," that could only be used for specific types of payments—either to foreign exporters or bond holders, leading to a demand for German exports to release them. As Beyen (1951: 104–7) notes, creditor "governments had to square the account with whatever Germany was prepared to deliver; and they were inclined to do so because the German purchases solved their unemployment problem. There may be some exaggeration in the story that the Balkan countries had to buy mouthorgans none of its inhabitants care to play on, or aspirin in quantities that could have poisoned the whole populations [...,] clearing agreements enabled the German government to 'modulate' its imports and exports and to adapt its international trade to its needs for rearmament."

Thus it was not Schacht's 1929 clearing house plan, but his system of bilateral clearing agreements that provided the blueprint for both the Keynes and White plans for a stable international financial architecture. Keynes's expressed these initial ideas for the post-war system in these terms: "The virtue of free trade depends on [it...] being carried on by means of what is, in effect, barter. After the last war laissez-faire in foreign exchange led to chaos" (XXV: 8). He noted in this regard that it was Dr Schacht that provided "the germs of a good technical idea. This idea was to [...] discard the use of currency having international validity and substitute for it what amounted to barter, not indeed between individuals, but between different economic units. In this way he was able to return to the essential character and the original purpose of trade whilst discarding the apparatus which had been supposed to facilitate, but was in fact strangling, it" (XXV: 23).

But Keynes assured his critics, this "does not mean that there would be direct barter of goods against goods, but that the one trading transaction must necessarily find its counterpart in another trading transaction sooner or later" (ibid.: 18).

Keynes's proposal was based on the simple idea that financial stability was predicated on a balance between imports and exports, with any divergence from balance providing automatic financing of the debit countries by the creditor countries via a global clearing house or settlement system for trade and payments on current account. This eliminated national currency payments for imports and exports; countries received credits or debits in a notional unit of account fixed to national currency. Since the unit of account could not be traded, bought, or sold it would not be an international reserve currency. The implication was that there would be no need for a market for "foreign" currency or reserve balances, and thus no impact of volatile exchange rates on relative prices of international goods or tradeable and non-tradeable goods. In addition, the automatic creation of credit meant that the UK would not be constrained by its non-existent gold reserves nor its non-existent dollar balances in financing its reconstruction needs for imports.

Since the credits with the clearing house could only be used to offset debits by buying imports, and if not used for this purpose they would eventually be extinguished, the burden of adjustment was shared equally—credit generated by surpluses had to be used to buy imports from the countries with debit balances. Alternative they could be used to purchase foreign assets, foreign direct or portfolio investment, but the size of these purchases would be strictly limited by the size of the surplus country's credit balance with the clearing house. Once an agreed limit on the size of multilateral debits and credits for each country was reached—called its "quota"—penalties in the form of interest charges, exchange rate adjustment, forfeiture, or exclusion from clearing would be applied and the outstanding balances would automatically be reduced. Although Keynes's initial proposals did not take developing countries into account, the subsequent drafts suggest that the interest charges on the credit

and debit balances generated could be provided as additional credits to support the clearing accounts of developing "backward" countries (XXV: 120).

Another advantage that Keynes claimed for his plan was that it was multilateral in nature, in difference from Schacht's bilateral clearing agreements. It also avoided the problem of blocked balances and multiple exchange rates for different types of balance and different countries that had been prevalent within the exchanges under the bilateral agreements. Both of these attributes were considered to be primary objectives of any post-war arrangement and were also present in the US proposal and were expressly included in the Final Act Bretton Woods Agreements.

Given the historical experience of the negotiations and performance of the structure launched at Bretton Woods it would seem obvious that the aspects that emerging market economies find objectionable cannot be fixed by means of the policy proposals that they have put forward. It is the structure that has to be changed, and the structure of the Keynes proposal would seem to meet the criticisms more directly.

Under these more radical proposals there can be no currency wars, no wall of money, no interest rate arbitrage. Foreign investment by any country is limited by its global current account position. Indeed, there would be no need for discussion over the efficacy of capital flows, or whether they should be on inflows for outflows, or monitored by the creditor country central bank or the debtor country central bank. As Keynes had envisaged in his original proposal: "International capital movements would be restricted so that they would only be allowed in the event of the country from which capital was moving having a favourable balance with the country to which they were being remitted" (XXV: 16–17). Capital flows would extinguish foreign credits in the same way as imports and thus would only be "allowed when they were feasible without upsetting the existing equilibrium" (ibid.: 17) on external account.

Thus replacing the dollar with a non-national currency or the SDR will not eliminate the problems facing emerging markets. Neither will increased multilateral cooperation, even if that could be achieved. The creation of financial institutions governed by regional or other restricted groupings do create the most important possibility, but not in the form in which they are currently being discussed. The current proposals are primarily designed to escape the inadequate governance of the IMF and the World Bank and the dominance of the US in both the theory and practices of these institutions. In addition, as noted above, they usually take the IMF as the template and at some level of financial commitment impose IMF programme conditionality.

There is no reason why these institutions cannot be created on the template of the Keynes clearing unions, building on the bilateral swap agreements that many countries have already established. Thus the creation of a common currency for the members of the Banco Sur may not be the most sensible proposal, but the creation of a regional clearing union with a notional unit of account would provide a remedy to the problems faced by these countries. Indeed, Keynes had already considered this as a possibility: "One view of the post-war world which I find sympathetic and attractive and fruitful of good consequences is that we should encourage small political and cultural units, combined into larger, and more or less closely knit, economic units. Therefore, I would encourage customs unions and customs preferences covering groups of political and geographical units and also currency unions, railway unions and the like. Thus, it would be preferable if it were possible, that the members should, in some cases at least, be groups of countries rather than separate units" (XXV: 55). Thus, the currently proposed financial institutions could be cast in the form of clearing unions.

Indeed, there is already an historical experience of the operation of a regional clearing union in the European Payments Union which provided an integral part of the restoration of intra-European trade and payments to complement the Marshall Plan. This might provide a better template for the emerging markets initiatives than the IMF.

Aside from Latin American countries, few developing countries were present at Bretton Woods. India was still represented by Great Britain and the Chinese presence was apparently a question of America political expediency. Indeed, in the discussions of the clearing union there was virtually no consideration of developing countries. This was primarily because the concentration was on post-war reconstruction finance. It was only in the discussion of the collateral issues of commercial policy and commodity support schemes that development questions emerged. They were quickly separated from the financial discussions because they were considered a threat to rapid approval of the international financial reform.

Indeed, as noted above, only Schacht's original proposal for a clearing union directly concerned developing countries, but this was a source of financing German inputs of primary materials and a market for German exports rather than as a positive development agenda. The other proposal that took developing-country concerns into account, if only generally, was

John H. Williams' (1949: 173) assessment of the post-war proposals that their "fundamental requirement is the maintenance of an even [external] balance, with only temporary fluctuations from it" (ibid.: 158) and that this presumes the same principle as the gold standard which was "based on the principle of interaction between homogenous countries of approximately equal size" (ibid.: 173). Recognising that different countries might require different currency schemes, his "key currency" proposal involves only the major "key" currencies. He raised the question of whether "the world needs a single, uniform system or a combination of different systems by consideration of the diversity of countries, and in particular the differences in their proportions of home and foreign trade." This line of reasoning leads directly to the needs of countries with different export compositions and the problems faced by countries with primarily commodity dependence that was to be raised by Prebisch, Singer, Myrdal, and others. For these countries may require sustained periods of external deficit (foreign finance of industrialisation) or external surplus (export-led development) which is directly contrary to the basic principle of equilibrium external balance as the key to international financial stability. The same is true of multiple exchange rates, which many economists have suggested may play a crucial role in policy to build a more balanced productive structure in developing countries (e.g., Kaldor, 1964; Diamand, 1978), but which are expressly excluded under Bretton Woods because of the experience of German rearmament.

Keynes's clearing union approach is just as deficient in this respect as the stabilisation fund approach and some special measures would have to be included to allow for developing countries to have relatively larger debit (or credit) balances and to eliminate the sanctions on such balances since they would be the result of a successful development policy. Otherwise countries that have used either import substitution or export-led growth strategies that are too successful could find themselves facing additional charges and pressure to reign in or adjust their successful policies in order to keep their external accounts within acceptable ranges. These special measures might include exemption on the size of balances and remission of the interest charges for developed country creditors and developing country debtors. Alternatively, the Bank could have been made a more development-centred institution and made an integral part of the IMF. Or, more simply, an alternative clearing union institution for developing countries could have been proposed. Clearly a balanced external account may be the most appropriate objective for the international financial stability of developed countries, but it certainly need not be so for developing countries. Indeed, multilateral institutions and the UN have consistently argued for the transfer of resources from developed to developing countries in magnitudes of 0.7 per cent of developed country GDP, which would presumably generate interest charges on the resulting deficits and surpluses for the donor and recipient countries (cf. Kregel, 2016).

IV. THE EXPERIENCE OF THE EUROPEAN PAYMENTS UNION[1]

A. THE RETURN TO MULTILATERAL SETTLEMENT IN EUROPE UNDER THE MARSHALL PLAN

European reconstruction after the Second War was dominated by what came to be called "dollar scarcity," that is the availability of means of payment for the purchase of US goods necessary to rebuild the ravaged European productive structure. Although the IMF was instituted in 1944, it was precluded from financing capital expenditures such as those required for reconstruction and, further, none of the European countries were in a condition to meet the Article IV conditions requiring exchange convertibility for current account transactions necessary to access IMF stabilisation programmes. Thus, those critics of the new international financial architecture who had argued that it was designed for economic conditions that did not, and might not ever, exist were largely correct. The IMF was thus incapable of resolving the problem of the reconstruction of Europe via substantial imports from the US that were limited by dollar reserves, of which these countries had none. Even reliance on the development of trade amongst the recovering countries was inhibited by exchange rate instability for which the IMF could provide no remedy. Thus reconstruction was initiated on intra-European trade on the basis of bilateral exchange regimes between countries that were little different from those that had prevailed before the war and which the IMF was supposed to supplant. According to Guido Carli, then a Bank of Italy official responsible for exchange rate policy, despite the existence of the IMF principle of fostering multilateral trade: "Immediately after the war 200 bilateral payments agreements had been established among European countries. A number of them reproduced the model experienced in Europe during the 'thirties.'" A survey of these bilateral payments agreements is given in the eighteenth annual report of the BIS (1948: 81): "They were usually concluded between governments, according to fairly uniform pattern: the central banks, as technical agents, supplied their own currency at a fixed rate of exchange against that of their partner up

to a certain limit, which was often referred to as the 'swing,' since it was intended to afford room for minor fluctuations in commercial deliveries between the two countries; beyond the limit thus fixed settlements had generally to be made in gold or convertible currency."

"Countries with deficits tended to restrict imports from countries with surpluses to protect their scarce supplies of gold and convertible foreign exchange. In the course of 1947, effective credit or debit balances under existing payments agreements were tending to exceed the bilateral ceilings. Simultaneously there was an actual decline in the volume of intra-European trade and this was regarded as probably due to the progressive paralysis of the payments agreements." By October 1947 the "margins of credit under the agreements were almost exhausted. The need for greater margins of flexibility led to the November 1947 *Agreement on Multilateral Monetary Compensation* promoted by the Committee of European Economic Cooperation set up to implement the Marshall Plan."

According to Carli a "group of junior central bank officials – I was one of those – came to the conclusion that intra-European trade could be expanded by the institution of some system of multilateral compensation and multilateralisation of credits among European countries. What we were aiming at was a mechanism by which European countries having bilateral surpluses with other European countries could mobilise surpluses to offset deficits in order to keep payments in gold and convertible currencies at a minimum level. Following a meeting which took place in London in September 1947 coinciding with the annual meeting of the IMF, France, Italy, the Netherlands, Belgium, and Luxembourg signed a 5-nation agreement on multilateral compensation. The meeting was held at the bottom of the bunker situated in the neighbourhood of the British Parliament and it was where the British Cabinet met during the war. Our initiative was regarded with great suspicion by central bankers and particularly by the staff of the Bank for International Settlements (BIS). The dominant creditor position of Belgium among the European countries, and the limited number of participants in the scheme restricted the scope for compensation. Belgium was, inside the group of five countries, in the strongest position having available resources of coal, steel and copper. In negotiating trade agreements between Italy and Belgium, representatives of both countries struggled hard: on the Italian side to obtain export quotas as large as possible of essential raw materials from Belgium, and on the Belgian side to make such quotas conditional upon acceptance by Italy of imports of lettuce that quite honestly exceeded the absorption capacity of the Italian market. A memorable fight between Italian and Belgian negotiators became known at the time as the 'Battle of the Lettuce.'"

In order to make mechanisms of bilateral compensation inside Europe more effective it became increasingly evident that reserves in convertible currencies ought to be expanded. The only possibility was to dedicate to that aim part of the funds allocated by the US under the European Recovery Programme (ERP). This idea met some resistance by the American administration because the ERP had been approved by the American Congress to cover specific dollar deficits of European countries related to programmes of recovery of their economies. Another reason of opposition was that the Economic Cooperation Administration (ECA), an agency of the US Government set up to administer the ERP, was anxious to stimulate competition of European industries.

In October 1948, the 16 OEEC countries signed an agreement under which part of the ECA assistance to European countries was based upon the amount of each country's planned bilateral surplus with each of the other members. Recipients of conditional aid were required to provide drawing rights to each bilateral partner with whom they expected to have a surplus during a specified period. Thus each ERP country would receive drawing rights on the member countries with which they were expected to have a bilateral deficit, entitling them to incur a given amount of deficit without being required to pay gold. By this device nearly every country entitled to ECA aid both extended drawing rights to other members and received drawing rights from others. This was the beginning of what was to become the European Monetary Union (EMU) based on a system of multilateral clearing and creation of international credits to support the expansion of trade in the European recovery.

The participation of Britain in such a system was anomalous, in particular because of the existence of outstanding "sterling balances" represented by the credits that British Commonwealth countries had extended to the UK in support of the war effort. Since these credits were in sterling their value to the Commonwealth countries was dependent on the convertibility of sterling with the rest of the world. Thus these countries could claim priority on any British surplus with any of its trading partners. Since the UK had declined the US offer to resolve this problem within the negotiations over the creation of the IMF it remained as a bone of contention within Europe and an impediment to the return of sterling to convertibility.

It was against this background, Richard Kahn, one of Keynes's closest collaborators, proposed a "Discount Scheme" (Kahn, 1949) that "provides for a multilateral

clearing between the participating countries of payments resulting from current transactions. Over any interval of time some of the participants will accumulate credit balances and some debit balances in the clearing, these representing the accumulated balance of payments on income account of each country with all the other participants taken together. The algebraic sum of these credit and debit balances will always be zero. I come now to the essence of the Scheme. From time to time (e.g., at six-monthly or yearly intervals) these balances would be liquidated in dollars (or gold), the owners of the credit balances receiving dollars from the owners of the debit balances. But instead of such liquidation taking place at exchange parity (in which case the Scheme would be tantamount to the resumption of full convertibility by all the participants) it would take place on the basis of reckoning the European currencies at a discount in terms of the dollar. This discount, the same of course for all the European currencies involved, I shall call the 'European Discount.' It would be altered from period to period according to need, but it would be fixed at the beginning of each settlement period (or, perhaps better, a couple of months before) for the whole of that period, so that the authorities of each country could operate their economies with full knowledge of the value of intra-European exports, and of the cost of intra-European imports, passing between their own country and the other participants. The European Discount would not of course in any way apply to the rates of exchange at which transactions were effected between traders in the various countries. It would apply only to the settlement of net balances arising from intra-European trade. And such settlement would be definitive – the liquidation in dollars, on the basis of the Discount, would be complete. I do not attempt to estimate what this European Discount should be, either at present or over the next few years, but my guess is that at the present time (and with present rates of exchange – those of early September, l949) a discount of rather less than 50 per cent would work out about right. The main advantages of a scheme of this kind can be summarised as follows:

a. It would enable trade inside Western Europe, and between Western Europe and the sterling area, to be provided with a multilateral instead of a bilateral basis. The advantage of full 'transferability' would be secured, without the disadvantages of full 'convertibility.'

b. In so far as participation in the Scheme was general, the obstacle to freer European trade represented by the gold points in certain payments agreements would be circumvented. Nevertheless, intra-European credit balances would still yield dollars (and if it were possible for, e.g., Belgium's favourable balance with the other participants to increase, under the operation of the Scheme, in proportion to the European Discount, Belgium's total dollar [or gold] receipts from the other participants would be maintained).

c. Resumption of normal economic relations would become a continuous process, instead of involving an abrupt break from a regime based on free gifts and interest-bearing loans by some European countries to others. The way to restoration of full convertibility would be open. As conditions became more normal, and in particular as exchange rates became readjusted to current needs, the European Discount could, and should, be progressively reduced. Its complete elimination would spell the restoration of full convertibility.

d. Additional countries could at any time join the Scheme (irrespective of whether or not they were recipients of Marshall Aid or covered by the European Recovery Programme).

e. The pattern of European trade would be free to develop under economic influences instead of being subjected to the strait-jacket of bilateralism (moderated somewhat by the system of transferable accounts), and of the preconceived estimates of civil servants, who, apart from other human failings, can never have been clear to what assumptions their estimates of trading balances were intended to relate.

f. In influencing the course of imports, the authorities of each country would exercise a preference for imports from Europe (and the sterling area) over imports costing dollars, such as it was the presumed object of the Marshall Plan to encourage and the two actual Intra-European Payments Agreements have encouraged to only a very limited extent.

g. But, though costing less than their equivalent in dollars, additional imports from the other participating countries would by no means cost nothing. The European Discount would from time to time be fixed at such a rate as to give the stimulus to European trade that was wanted but not more than was wanted. So long as Europe's economic condition tends, by and large, towards the inflationary, there is a distinct limit beyond which it is undesirable to carry the stimulation of intra-European trade, which must to some extent carry with

it a reduction of Europe's exports to dollar countries and a diversion of resources from important domestic uses.

h. The authorities of each country would be stimulated to assist, in so far as it was in their power to do so, exports to dollar destinations even at the expense of exports to European destinations. One of the anomalies of the present position is that it is morally embarrassing, and intellectually difficult, for a Minister or Civil Servant to advise on the relative desirability of these different destinations. How is the dollar export drive to be reconciled with the case for increasing trade within Europe? The European Discount would give the answer. And, here again, there would now be less danger that the 'closer economic integration of Western Europe' would simply result in a loss of dollar earnings.

i. At the same time the worship of dollar exports would not be carried *a outrance*. Additional exports to European destinations would also provide dollars, though not so many as the same amount of dollar exports. The fixing of the European Discount must to some extent be a matter of trial and error. It would have been fixed too low if the Scheme was showing signs of resulting at the settlement in excessive dollar payments by some participants to others, and if it gave an inadequate stimulus to the participants to buy from one another in preference to buying from outsiders. The Discount would have been fixed too high if the Scheme was found to give an excessive stimulus to European trade, at the expense of European exports to, and of European imports from, non-participating countries."

Thus the scheme was primarily intended to provide for a flexible internal depreciation of the European currencies in order to increase competitiveness of intra-European exports relative to US imports.

B. THE EUROPEAN PAYMENTS UNION AS PART OF THE ERP

Since US funding was required for settlement within any multilateral clearing, the US became more involved in the design of such schemes. During the second half of 1949, Paul Hoffman, in charge of the implementation of the ERP, proposed a scheme for a single market in Western Europe. Although it took decades before a Single European Act was agreed upon, European ministers responded by opening negotiations for the creation of the European Payments Union (EPU), which could be regarded as the forerunner of the "European System of Central Banks." Given the delays in operations of the IMF, the EPU was the first international monetary system to function effectively after the Second War and the first step on the road to economic integration of Western Europe.

The EPU was built on a multilateral settlements system for Europe that would eliminate quantitative restrictions on intra-European trade and provide a framework for dealing with balance of payments crises. Accounting trade surpluses and deficits were settled by crediting or debiting each member's clearing account. EPU credits covered any country's deficits with other EPU members, because each member agreed to accept EPU clearing credits in settlement of a credit against any other member. The bilateral positions were thus replaced by an EPU clearing balance. When a country's credit or debit surpassed a certain threshold, the excess had to be settled partly in gold. Schedules fixing the proportion of the monthly settlements to be made in gold by debtors and to be received in gold by creditors was based on a sliding scale with an increasing proportion by debtors as their cumulative deficits rose and receipt of a decreased proportion by creditors as their cumulative surpluses rose.

The liquidity of the payments system was secured by the members themselves through the automatic extension of credit within the stipulated limits and by the working capital of the EPU supplied by an ECA contribution of $350 million to be used whenever gold payments to creditor countries exceeded gold received from debtor countries.

The OEEC supplied the structure for the EPU. Its keystone was the Managing Board, independent experts elected by OEEC councils. Although some held senior positions in the governments of the largest members of the system, they did not function on the EPU Board as government representatives and they could only offer recommendations to officials of member governments. The EPU offered the first multilateral credits conditioned on macroeconomic adjustments—based on Board recommendations on appropriate fiscal and monetary policies.

Richard Kahn noted the differences and similarities with his original scheme "for multilateral payments," in which "at regular intervals the balances of each participant with the other participants taken together (which must add up algebraically to zero) would be settled by transfers of dollars (or gold), after they had been reduced in value by the amount of the 'European Discount,' which could be altered from time to time. This settlement would be definitive – the liquidation in dollars, on the basis of the Discount, would completely

discharge the outstanding credit and debit balances. Under the EPU, the members will extend lines of credit to the Union and have lines of credit extended to them by the Union. The extent to which these credits are to be utilised is determined by the accrued credit or debit balance of each member with the other members taken together, reckoned cumulatively from the date at which the EPU begins to function. The first tranche of credit or debit balances will carry with it no payment in gold. Of the subsequent tranches of credit balances, it appears that 50 per cent will be settled by the Union in gold as they accrue to a member. A member which has a growing debit balance with the Union will have to settle in gold 20, 40, 60 and 80 per cent of each successive tranche. It appears that an accrued debit balance which outstrips all the tranches will, if it grows any bigger, involve 100 per cent gold payments to the Union, but that no decision has been reached about the position of credit balances beyond the point at which all the tranches have been exhausted."

"My main quarrel with the EPU arises from the concept of 'creditor' and of 'debtor' countries. A 'creditor' country is a country which has a favourable balance of payments with the other members, even though its over-all balance is adverse. A 'debtor' country has an unfavourable balance with other members, but might conceivably have an over-all favourable balance. The philosophy of the EPU is based on the view that there is something wrong – in the sense of departure from equilibrium – in a country being either in a 'creditor' or in a 'debtor' position with the rest of Western Europe. The latitude which the Union will provide in either direction is represented by an aggregate lump sum, the amount of which is fixed irrespective of the period of time over which the Union has operated. If this ceiling had been conceded as an annual rate, the amounts of the possible credits and debits being renewed year by year, much of my objection would have disappeared, since a 'departure from equilibrium' in the EPU sense could then be financed under conditions which could remain steady through time. But the ceiling is a cumulative aggregate and not an annual rate. Once the ceiling has been reached the Union can offer no further help however much time is allowed to elapse. For this reason alone its days are probably numbered, but that is a poor consolation for the unsuitability of the arrangements, particularly as the dimensions of the maximum credits and debits are generous, thus rendering it probable that the Union will run for two or three years before revision becomes essential" (Kahn, 1950: 307).

In this regard Raymond Mikesell (1948: 503) observed that "[i]n any regional or group multilateral payments mechanism there are three general problems to be solved: (1) the multilateral offsetting of net surpluses and net deficits arising out of bilateral trade between individual members of the group; (2) the settlement of net surpluses and net deficits of individual members with the group as a whole; and (3) the settlement of the net deficits or surpluses of the group as a whole with non-members. Although the clearing operation per se is confined solely to the first of these three problems, all three are closely interrelated and must be dealt with, if intra-group clearing is to be successful." Hirschman (1951: 49) provided a similar assessment: "As was true of all similar previous plans for multilateral clearing, the EPU project consisted of two distinct parts: (i) an offsetting mechanism and (ii) a settlement mechanism." However, he notes the divergence of views on the operation of the system between the UK and the rest of the recovering economies: "[T]he EPU project ran into serious trouble as the result of British opposition. During the session of the OEEC Council in January, Sir Stafford Cripps declared that the United Kingdom would be unable to accept substitution of the proposed clearing mechanism for the bilateral agreements involving sterling. He refused to accept an EPU that would supersede the existing bilateral agreements; rather, he favoured one that would function only after exhaustion of bilateral credit lines and would thus be superimposed upon the bilateral agreements as a 'lender of last resort.' At the same time, Sir Stafford declared that the United Kingdom could not agree to restrict its freedom of action with respect to quantitative restrictions on trade" (ibid.: 50–1).

These problems soon became evident in the EPU with respect to the limits placed on the size and method of settlement balances. The success of any clearing scheme depends on a relative balance in each member's trade with the other members' country, since an excessive imbalance in any one country compromises the value of the outstanding credits of the others. It is in such conditions that the ability of such schemes to provide adjustment credit becomes evident. Since Germany had suffered the most extensive war damage it was in the weakest position and, not surprisingly, in October 1950 a major payments crisis developed in the Federal Republic of Germany. As part of its reconstruction efforts it had fully liberalised 75 per cent of imports coming from EPU countries. Carli notes that "[u]nder my chairmanship the EPU Board decided to send to Germany two experts of high reputation to report on the degree of solvency of that country. It was our view and in particular my view that the EPU should provide a stand-by credit and should prevent by all means a crisis. The experts were required to report on the desirability of extending a stand-by credit to Germany

instead of allowing this country to withdraw the policy of import liberalisation it had already implemented.

The programme the two experts brought back from their visits in Germany included: – rejection of policies of 'deficit financing' (an expression whereby they meant the Keynesian expression of 'deficit spending'); increase of indirect taxation to restrict consumption; – substantial credit restrictions in order to establish a better balance between domestic production and demand; – an increase in interest rates sufficient to promote the expansion of saving; – exchange controls to prevent speculative capital movements. The Board approved the plan and extended to Germany a stand-by credit of 120 million dollars and granted to Germany a rallonge of its quota of 180 million dollars to be utilised 2/3 in the form of credits and 1/3 in the form of dollar payments.

The programme proved to be a most impressive success and very shortly the external position of Germany reversed. The action taken by the Bank der Deutscher Lander was one of the most determined and consisted in the repeal of commercial bank credits of one billion DM in few months. At the end of the adjustment process Germany moved into the position of an extreme creditor and on several occasions was requested to provide extensions of credits to finance its surpluses."

In difference from Germany, "Italy started at the very beginning as a creditor country and in October 1951 advised the Minister for Foreign Trade that Italy had already exhausted its quota and that member countries could be entitled to restrict imports from Italy. The decision of the Minister was to fully liberalise imports from EPU countries. It was a bold decision and contributed greatly to the renaissance of the Italian economy. It was made feasible because of the credit policies followed by the Bank of Italy in 1947 in order to mop up the huge purchasing power accumulated before."

"The positive side of the EPU experience may be summarised as follows: 1) the EPU was based on an agreement renewable on a fixed schedule and adaptable to changing conditions; 2) an independent Board of experts serving both the multilateral institutions and their respective governments; 3) regular monthly meeting of the members of the Board that included quarterly reviews of the situation of each participating economy; 4) agendas proposed by an international secretariat responsible for identifying the priority problems of the system; 5) authority for the members of the Board to recommend to governments policy adjustments essential to the continuity and integrity of the system; 6) before formulating recommendations in critical situations, meetings of the members of the Board with senior officials of the government at issue; 7) regular meetings of delegates of all participant governments, authorised to decide whether to adopt the recommendations of the members of the Board; 8) meetings of cabinet ministers to decide a limited number of major unresolved issues; 9) monthly surveillance by the members of the Board over the implementation of adjustment measures on which multilateral financing was conditioned.

At the end of 1958, the EPU was precipitously liquidated. Between 1958 and 1968 the international monetary system designed at the Bretton Woods conference in 1944 went into full operation. It could be described as a gold exchange standard in the process of becoming a dollar standard; the international cooperation aimed at making the transition as gradual as possible. The establishment of external convertibility for the European currencies at the end of 1958 was expanded to other currencies, including the Japanese yen, and was followed by the elimination of exchange restrictions on current payments and to some extent on capital transfers; adjustments of parities were limited to 'fundamental' disequilibrium in the balance of payments, in accordance with the objectives of the system created by the delegates to the conference."

C. A CENTRAL AMERICAN PAYMENTS UNION AND PROPOSALS FOR ASIA

The EPU is not the only example of a regional payments union that was actually introduced. The experience of European integration, initiated in the ERP and the creation of the EPU, provided a framework for regional integration that had long been under discussion for Latin America and led to attempts to emulate the European Economic Community through the Latin American Free Trade Area. Part of this emulation was an attempt to apply a settlement system or clearing union. The Centro de Estudios Monetarios Latinoamericanos (CEMLA), a research institute of Latin American central banks, commissioned Robert Triffin (as the intellectual father of the EPU) to provide a report on "A Latin American Clearing House and Payments Union" (Triffin, 1962). Pierre Uri, who had collaborated with Myrdal and Kaldor in the UN Economic Commission for Europe, was also part of a mission to CEMLA on the same subject (Uri, 1963). A report for CEMLA was also prepared by Keesing and Brand (1963), as well reports by Jorge Gonzalez del Valle, "Structure and Operation of the Central American Clearing House," and "The Financing of Intra-LAFTA Trade: Some Problems and Possible Approaches to Their Solution," by Professors Raymond Mikesell and Barry N. Siegel. These proposals were reviewed by the

USAID Latina American office by Young (1965). The framework for a clearing arrangement was established at the end of 1965 by the central banks of the member countries (Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Uruguay) of the Latin American Free Trade Association (LAFTA).

Triffin (1964:15-16) also proposed "various possible alternative schemes for a Caribbean Payments Union" ... "such a Caribbean Payments Union should be built upon two separate groups: 1. A Central American group, based on the commitments already incorporated in the Camara de Compensacion Centroamericana and the Acuerdo para el Establecimiento de la Uni6n Monetaria Centroamericana, and composed of Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica; 2. An Outer Caribbean group, composed, at the very least of Mexico, Venezuela, Colombia and Jamaica. The above listing of countries should not be regarded as exclusive. The absence of a Central Bank bas constituted, up to now, the main obstacle to full participation by Panama in the Central American efforts at monetary integration, but ways and means should be sought to associate Panama with these arrangements. As for the Outer Caribbean group, it should certainly remain open to later accession by the Dominican Republic, Haiti, and hope fully Cuba when present political obstacles to such a step can be lifted. Judging from available trade estimates, however, it seems that Ecuador might well wish to participate, from the start".

Triffin (1967:11-2) also served as an adviser to an initiative to set up a Clearing Union under the auspices of ECAFE. He recommended "a Clearing House among the central banks of the participating countries. This Clearing House would deal exclusively with its member central banks rather than with commercial banks or the public. Private traders would continue to deal with their own commercial banks, and the commercial banks would continue to undertake with their central bank only those operations which cannot be cleared directly among them through the market ie because of exchange control regulations, or because of imbalances between market demand and market supply requiring stabilization interventions by the central bank itself. Importers would thus buy from their own bank, and exporters sell to it the cheques, payment orders, etc. arising from intra-regional trade or ether transactions authorized by the exchange authorities. In view of the savings derived from the clearing system, however, exchange margins, banking charges and commissions on such intra-regional exchange transactions should be limited to lower levels than those prevailing on the sale or purchase of foreign currencies. The member currencies sold to a central bank by its own traders or commercial banks would be deposited by it to the clearing house and credited to its clearing account. Conversely each central bank could draw on its clearing account to obtain any member currency needed by it for sale to its own traders and banks. The Clearing would also debit each country's account for any amount of its currency deposited with it by another member, and credit it for any amount of its currency purchased from it by other members".

The operations of central banks with the Clearing House would not, of course·, balance from day to day. Daily transactions with the Clearing House would thus require the maintenance by each central bank of an adequate working balance and or credit line in its account."

In addition, Bhatt reports proposals for clearing arrangements and monetary unions in Africa and the Middle East, as well as for Asia (See Economic and Political Weekly, 1970). The basic thrust of these proposals was as an adjunct to free trade areas and as a substitute or first step toward a common currency, thought to be necessary as a next stop in trade integration. (Kamara 1987:424)

Table 1

MULTILATERAL CLEARING AND CREDIT ARRANGEMENTS AMONG DEVELOPING COUNTRIES
A Clearing Arrangement

(a)	Latin America and the Caribbean
1.	Central American Clearing House (5), 1961 Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua
2.	Latin American Integration Association (LAIA) [a] Payments and Reciprocal Credits System (12), 1965 Argentina, Bolivia, Brazil, Colombia, Chile, Dominican Republic, Ecuador, Mexico, Paraguay, Peru, Uruguay and Venezuela
3.	CARICOM Multilateral Clearing Facility (6), 1977 Barbados, Belize, East Caribbean Currency Authority, Guyana, Jamaica and Trinidad and Tobago.
(b)	Africa
1	West Africa Clearing House (16), 1975 Benin, Burkina, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo.
2.	Grand Lakes Economic Community's Monetary Arrangement (3), 1978 Burundi, Rwanda, Zaire
3.	Central African Clearing House (5), 1979 Central African Republic, Congo, Gabon, United Republic of Cameroon and Zaire, Equatorial Guinea and Chad
4.	Eastern and Southern Africa Clearing House (18) [b] 1981 Comoros, Djibouti, Ethiopia, Kenya, Lesotho, Malawi, Mauritius, Somalia, Swaziland, Tanzania, Uganda, Zambia, Burundi, Rwanda and Zimbabwe.
(c)	Asia
1.	Regional Co-operation for Development (RCD) - Union for Multilateral Payments Arrangements (3), 1967 Iran, Pakistan and Turkey
2.	Asian Clearing Union (7), 1974 Bangladesh, Burma, India, Iran, Nepal, Pakistan and Sri Lanka

provides a chart above summarising various clearing arrangements in developing countries following the example of the EPU:

D. PAYMENTS AND SETTLEMENTS SYSTEMS FOR DEVELOPMENT: UNCTAD

The application of regional payments schemes in support of developing countries was first raised at the 1964 UNCTAD Conference, which proposed the creation of an expert group whose report was not wholly favourable to the idea. At UNCTAD II (UNCTAD, 1968), there were "further requests [of] the Secretary-General of UNCTAD: (a) To address a questionnaire to Governments on the problems in the establishment of different forms of multilateral payments arrangements between developing and socialist countries and also suggestions thereon and to prepare, for the group of experts mentioned below, a background study on the topics taking into account replies received from the countries concerned and having in view the report on Payments Arrangements among the Developing Countries for Trade Expansion" (u 1 1 TD/B/80/Rev. I, United Nations publication, Sales No.: 67.II.D.6).

In response to the report of the expert group it was proposed that "a framework can be provided by a Payments Union in which membership would be open to all developing countries and sub regional and regional unions and which would be linked with agreed trade liberalisation and expansion measures by member countries. Such a move would stimulate trade within the entire group of developing countries. To start with, this Union should have at least three countries as members from each region—Asia, Africa, and Latin America.

Existing or proposed sub regional or regional unions can become members of the Union. Such developed countries as agree to the following conditions could participate in the Union as associate members:

a. They should give trade preferences to industrial exports from developing countries in their markets.

b. They should agree to provide annually one per cent of their GNP as net external assistance to developing countries.

Clearing arrangements with regard to all payments transactions subject to exchange control regulations of member countries on a multilateral basis would reduce

the transaction costs in convertible currencies of their trade and thus result in net saving of real resources. The unit of account could be the US dollar of a given gold value. Credit facilities should be automatic and should relate only to incremental trade of member countries within the Union. For this purpose, countries with structural surpluses and deficits should be assigned appropriate 'initial position' based on last three years' experience and these 'positions' should be periodically revised. Thus, no distortion in trade patterns would result from the setting up of this Union. Terms and conditions governing credit facilities should be such as to stimulate intra-group trade without discriminating against trade of member countries with developed countries. Countries having a deficit would get automatically from the Union credit up to 10 per cent of their intra-group imports in the past three years; however, excepting the first credit tranche, in the other tranche 50 per cent of the deficits would have to be settled in hard currencies. The interest rate would rise with the duration of outstanding debt and persistent credit and debit balances for more than five years would be amortised by transfer of reserve assets among the member countries. These provisions would provide incentives for correcting payments problems within the group; they would also provide an incentive to increase exports to developed countries. Credit facilities would be available to member countries only if they adopt agreed measures of trade liberalisation and expansion. Surplus countries would grant credit to the Union up to 10 per cent of their exports in the past three years; excepting their first tranche credit, they would be paid 50 per cent in convertible currencies by the Union. The interest on outstanding credit balances would decline with increase in duration of such balances. Surplus countries would thus have an incentive to correct their payments surpluses. All accounts with the Union would be denominated in US dollar of a given gold value. Further, all members would be required to channel through the Union all payments to a defaulting member until such default is fully covered and met. (16) Thus there would not be any exchange risk for the members and at the same time there would be exceptionally strong guarantee against default. There would arise occasions where the payment by the Union to the surplus countries would exceed its receipts from the deficit countries. For this purpose, the Union would require adequate working balances. Such working balances should be provided by each member agreeing to deposit 5 per cent of its gross foreign exchange reserves (excluding gold) with the Union. Such deposits would for all practical purposes form part of the reserves of the member countries and would be available for meeting payments deficits in proportion to their use of their other reserves. The member countries would face no serious risk or inconvenience because of the exchange guarantee and strong guarantee against default. These deposits would be more riskless than the member countries reserves in the form of convertible currencies. To meet situations where the reserves of the Union would be inadequate to meet its liabilities, the Union should be accorded membership status and drawing rights by the IMF. The Union, after some experience is gained and mutual confidence among members is established, could raise the deposit obligations of members from 5 per cent of their gross convertible currency reserves to 10 per cent and use these additional resources for short-term investment in member countries instead of lending them to developed countries. The initiative for setting up this Union should be taken by the Central banks of countries desirous of joining it. Initial discussion can start in a small group of ten or eleven Central bankers. This would ensure that the discussion would remain on a technical level. And in any case, the Union can operate only in co-operation and consultation with the member Central banks" (Bhatt, 1969).

V. REPRESENTATION OF TRADE FLOWS BETWEEN VARIOUS REGIONAL GROUPINGS, 1995–2014

As seen from the discussions of the Trade and Development Board, the use of clearing systems is not a new one. As in all such discussions, however, the intentions of proposals from the Board have had at their centre the interest of developing countries and in particular the use of such measures to remove impediments to trade amongst developing countries. As seen above, the 1968 proposals were for a group encompassing an inter-regional group of countries whereas the current proposals are directed towards regional groups or developing countries at similar levels of development.

It is thus important to identify the objectives that clearing is to provide. For example, Keynes's original proposal was to create freedom in countries' decisions on development strategies. It thus emphasised the symmetrical nature of the adjustment process based on multilateral discussion of policies and measures to ensure broad equilibrium in payments accounts. This was not only to prevent excessive credit creation and the perceived risk of inflation, but more importantly to assure credit countries that their credits would eventually be repaid. Thus the system of quota limits and the assessment of penalties when those limits were exceeded.

But, as Kahn pointed out in his original criticism of the EPU, these conditions have no clear meaning in the

context of a regional agreement. There is no reason why there should be rough balance on trade within the region and no reason to assess a penalty on excess debit or credit positions since a country may and indeed most frequently will be a regional debtor or creditor, but have a balance of the opposite sign on the global level. It thus makes little sense to apply quota limits or penalties on counties that exceed limits within the regional context, nor do the conditions on the proportion in which excess settlements should be paid in gold or convertible currencies.

Thus, in the present context, the return to multilateral trade, to currency convertibility, and economic recovery are not relevant objectives to be achieved from clearing. The elimination of the role of dollar balances and dollar financing of regional trade is the basic objective, and laying the groundwork for an eventual extension of the scheme to the entire developing world remain paramount. In this respect, what appears to have been a response to Kahn's observations by Hirschman appears most relevant. Hirschman (1951: 54–5) offers what appears to be a rebuttal of this position: "The EPU arrangement has frequently been attacked on the ground that it appears to place a particular premium on intra-European as distinct from over-all balance of payments equilibrium. It would seem indeed that, in the EPU, debtors and creditors are 'penalized' (by having to pay more and more gold or by having to grant more and more credit, respectively) the farther they move away from intra-European equilibrium regardless of what happens to their international accounts as a whole. This criticism calls for the following comments: It is a strange use of language to say that a debtor is 'penalized' when he is only made to pay his debts. It would be far more correct to say that an intra-European debtor obtains the special privilege of not having to settle in gold for a fraction of any intra-European debt he incurs; this privilege is granted primarily to promote the special effort that is being made to reduce trade barriers within Europe with the intent of creating a strong competitive European economy. It is true that it would hardly make sense for a country which is a net earner of dollars outside of Europe to receive a credit from EPU rather than to be required to settle its intra-European deficit fully in gold. But the EPU was conceived at a time when all its prospective members expected to continue to run dollar deficits for at least two more years." While none of these considerations appear relevant today, he goes on to note that, "[w]hile in general the EPU account of member countries starts at zero, those countries that are clearly expected to be net debtors or net creditors within Europe have been given 'initial positions' in the EPU that take account of this expectation. Countries which are expected to be debtors (Austria, Greece, Norway, Netherlands) start out in the EPU with a certain agreed creditor position, and therefore do not incur any obligation as long as their deficit remains within the scope of this initial credit. Presumed creditor countries (Belgium, United Kingdom, Sweden), on the other hand, start out with a debit which they have to work off before starting to secure any claim on the EPU. However, they receive a full dollar allocation from ECA for the initial debit position with which they are burdened in EPU. In this rather artificial way, certain EPU countries are permitted to earn dollars directly through their European surpluses while others have officially sanctioned and freely financed intra-European deficits; this mechanism, a survival from the drawing rights of the Intra-European Payments Schemes, is no doubt cumbersome, but it at least must be recognised as an attempt at dealing with 'structural' surpluses and deficits in intra-European trade which are due to present dislocations or which can be expected to persist after the dollar problem has been solved." Hirschman is here referring to what was described above an "indirect" financing provided by the ERP to "seed" the EPU. Thus, in the present context, developing countries could provide the same role by granting to regional clearing groups additional credits from their global trading positions to expand the coverage of the clearing balances.

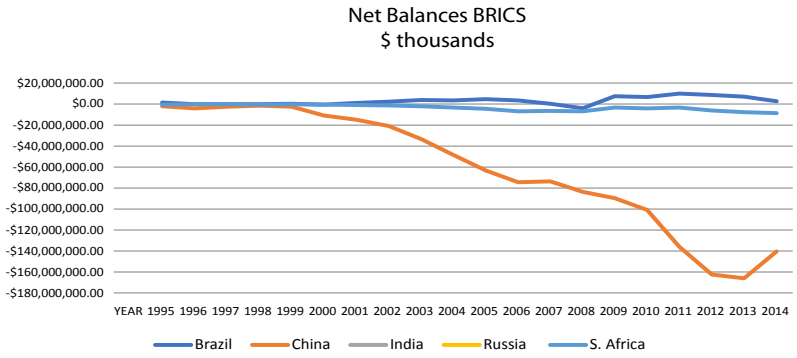
Since the creation of credit in substitute for external financial resources and the diminution of the use of the US dollar as the means of financing trade depend on the ability of groups of countries to provide internal credits, the actual trade positions of the members of any regional clearing system will be crucial to its viability. Thus, this section will present the current trade balances of the major regional developing country groupings. Since the idea of a clearing union is to eliminate the use of compensating capital flows to cover imbalances and to replace then with the extension of trade credits against country deficits, the appropriate feasibility statistic is the balance of commercial trade within groupings. Thus, for each group we provide indications of the net balance of each member of the group to the group as a whole, as well as a measure of the intra-group trade (imports plus exports) relative to its total global trade and of the net balance of each member on its global trade. This allows comparison of group deficit countries with their global position and the importance of the group trade in its global trading position.

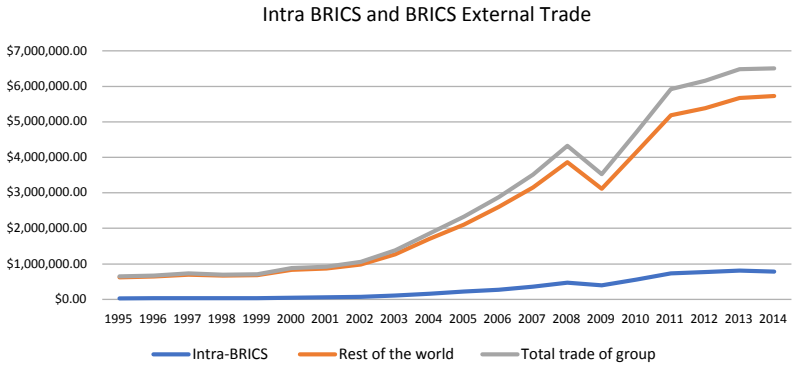
A. BRICS

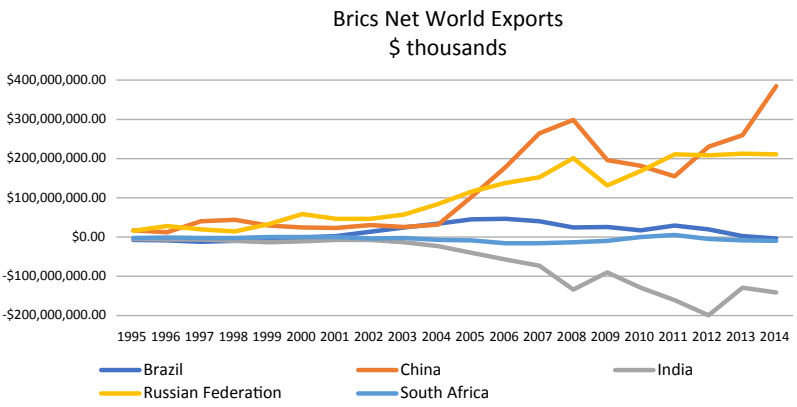
Thus for the BRICS grouping the accompanying graph shows the net trade balances of each member relative to the BRICS group as a whole. That is, the arithmetic sum of the surpluses and deficits of each country against every other country in the BRICS group.

Finally, it is clear that China represents the classic case of a regional deficit country with a large global surplus. The same is true to a lesser extent for Russia. Thus, while there is little group credit balance (Brazil) to offset the deficit balances, there is really no logic in penalising China for its deficit position in the group when it has such a large external surplus. It should be China that provides credits to countries such as India or South Africa and indeed does this through its foreign investments in these countries.

A drawback of introducing a clearing system for the BRICS is represented by the relative low share of intra-BRICS trade compared to members' trade with the rest of the world, although this is largely due to the position of China.





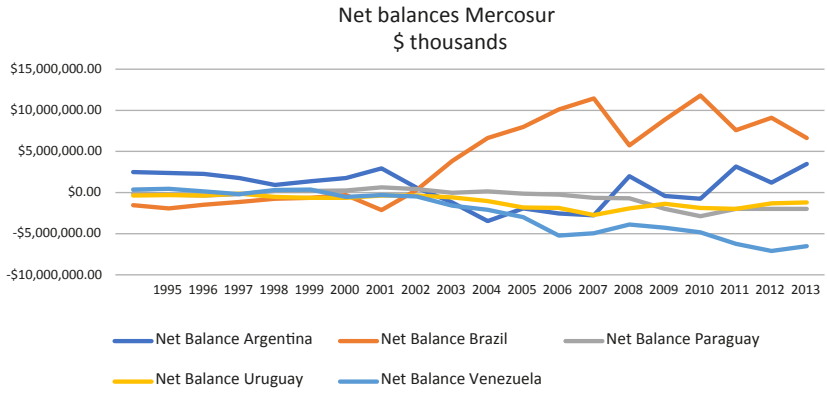


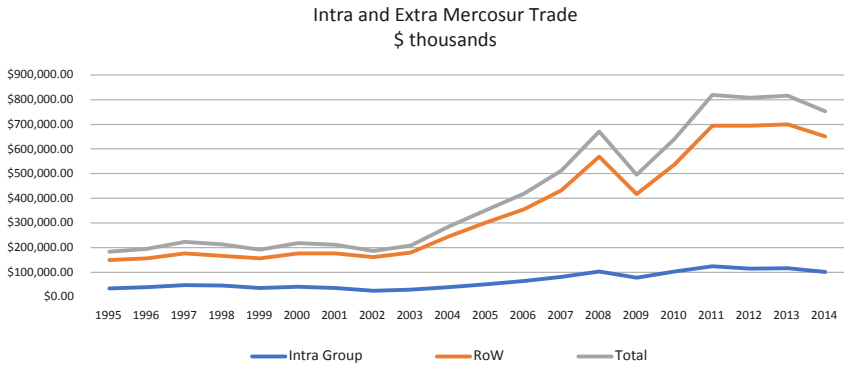
B. MERCOSUR

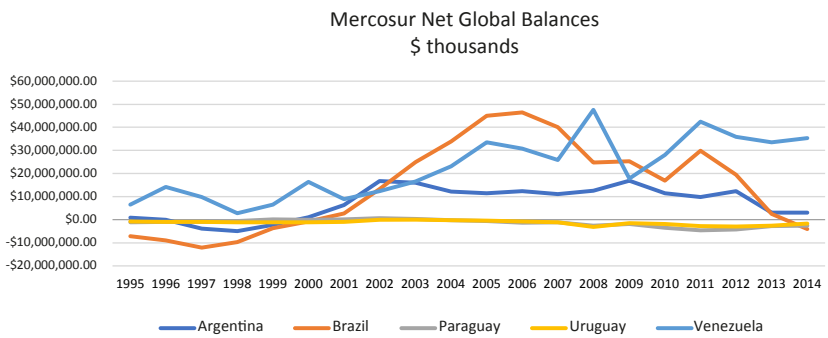
Another trade area that might benefit from clearing is Mercosur, but this regional trading area suffers from the opposite problem from the BRICS with a large surplus country, Brazil. Thus there is no problem of providing credits to deficit countries, but the size of the deficits of the other countries is relatively small.

At the same time, much like the BRICS, Mercosur suffers from the low share of intra-group trade in their global trading balances.

And this position is further aggravated by the fact that on the global level the countries in the group are in surplus on their trade balances.







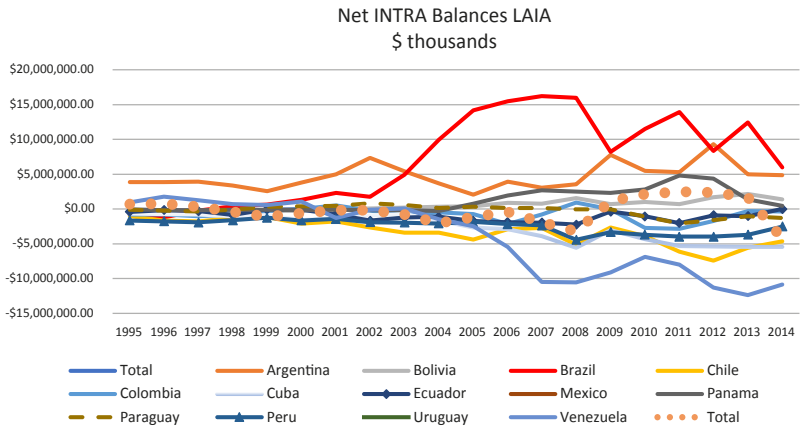
C. LATIN AMERICAN INTEGRATION ASSOCIATION (LAIA)

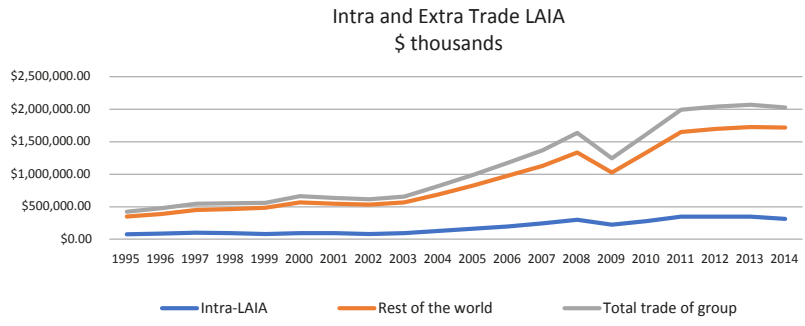
To extend the range of countries beyond Mercosur, consider the larger Latin American grouping of the Latin American Integration Association (LAIA), the successor to the Latin American Free Trade Association.

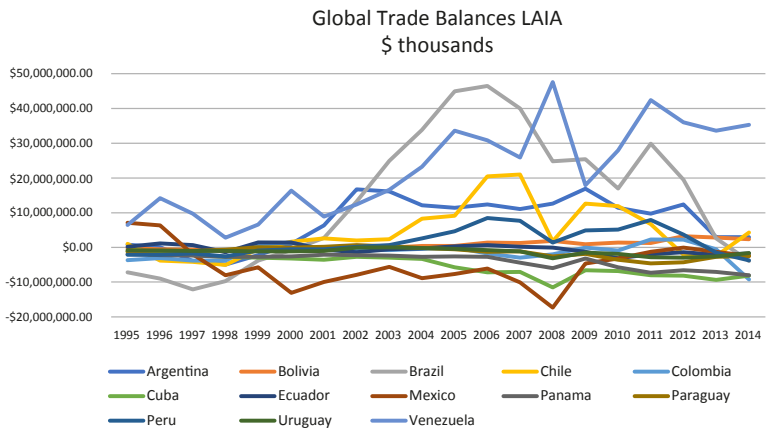
In this grouping the major surplus countries are Brazil followed by Mexico and Argentina. But again, the overall balance in the region is close to balance (the heavy yellow line) with the exception of Venezuela and Chile, which suggests that this region could derive more benefit from a clearing system than in Mercosur, and a substantial reduction in the impact of dollar financing of its external imbalances.

Nonetheless, this group also suffers from the low share of intra-regional trade in its total trade, although it has recently been increasing.

And much as in the case of Mercosur, indeed really as a result of the impact in the group of the major Mercosur countries, the region has a substantial overall surplus on its global trade.





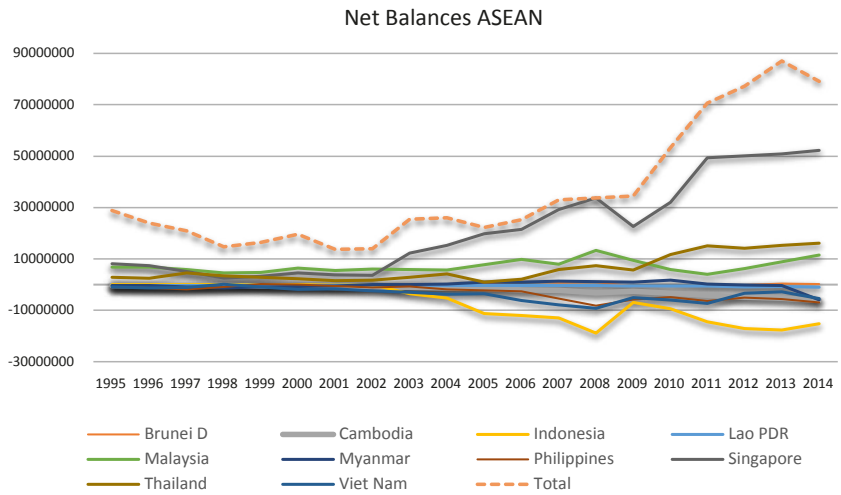


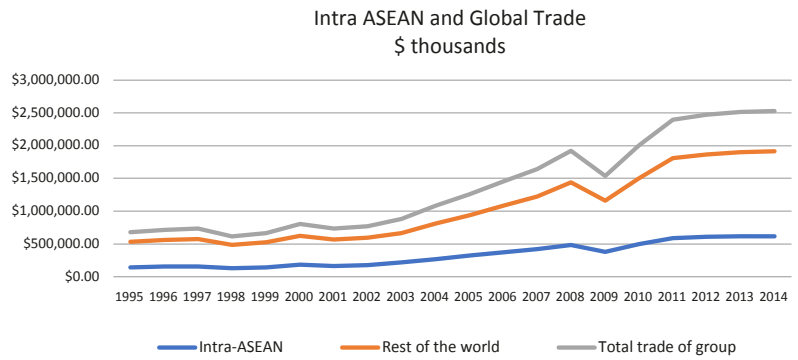
D. ASEAN

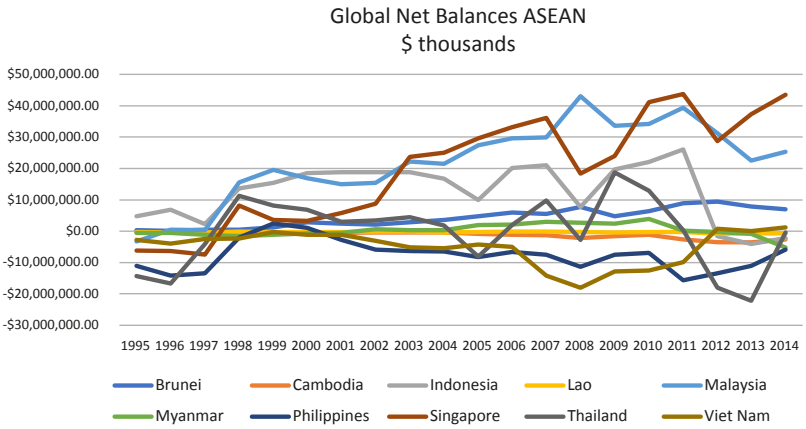
ASEAN is probably the most important regional grouping, but also suffers from the fact of having predominantly intra-group trade surpluses, thus providing the very few deficit country with the possibility of funding their trade.

Relative to other groupings, ASEAN has the advantage of having a much larger share of intra-group trade relative to its total trade, representing the greater regional integration, which is being restored after the 1997 crisis.

But the group is also a global surplus country with the exception of Philippines and Thailand and, for periods, Viet Nam. Of note in the ASEAN case is the extremely large surplus position of Singapore, and the region would be a better candidate for clearing with the exception of Singapore as shown in the following graph. This transforms the grouping from an overall surplus position on intra-group trade to a deficit position.





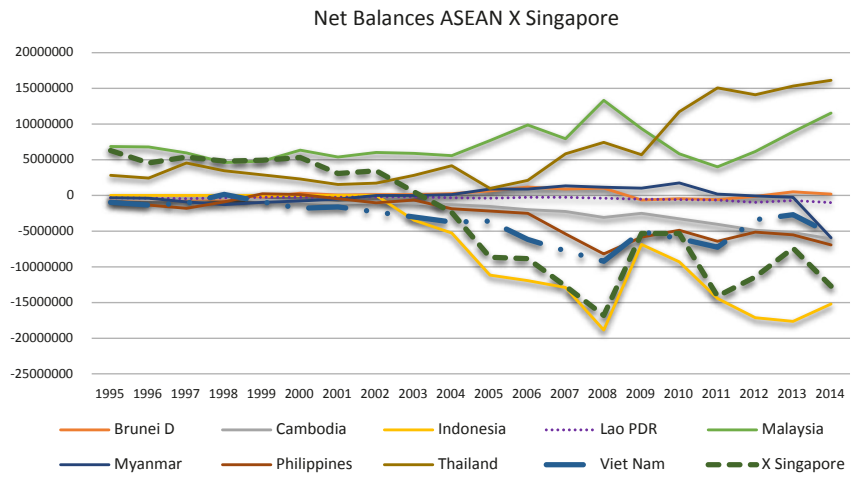


E. ASEAN + CHINA, JAPAN, KOREA

Since Japan proposed an Asian equivalent for the IMF, it is appropriate to look at what that configuration might have brought, as well as to recognise the regional cooperation on monetary and financial matters between ASEAN and the three more-developed economies in the region – China, Japan, and Korea. With the inclusion of these countries the region becomes a net deficit group on the basis of intra-regional trade, with China and Japan more than offsetting the impact of Singapore.

But, with respect to global balances, the large Chinese surplus dominates. A better idea of this dominance is given by the position of ASEAN + 2 without China. Japan now becomes the major deficit country along with Korea, and no one would argue that these countries need funding for their regional deficits, and indeed there are hardly any regional surpluses to offset them.

If anything it would be the global surpluses of the original ASEAN countries that would provide this source.


Net Balances ASEAN X Singapore
20000000
15000000
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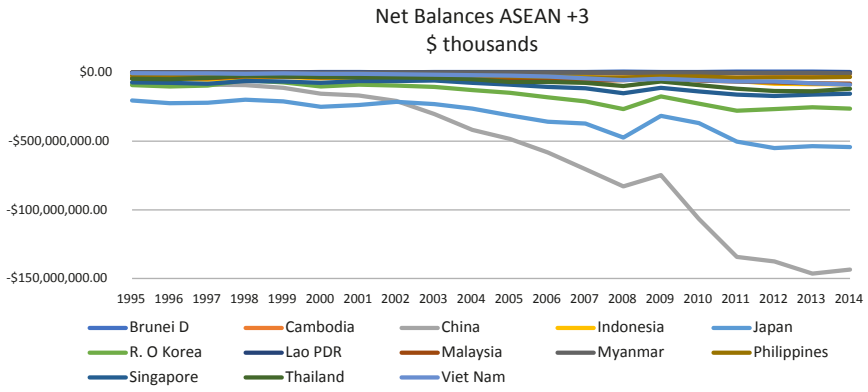
Net Balances ASEAN +3
$ thousands
$0.00
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Brunei D
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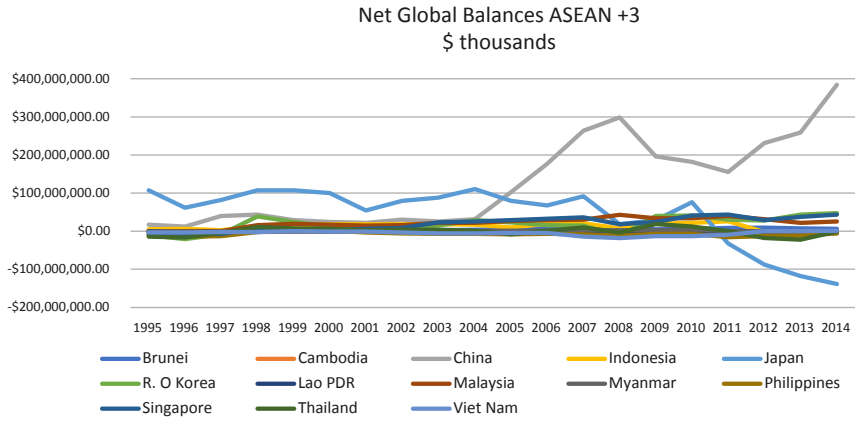
Net Global Balances ASEAN +3
$ thousands
$400,000,000.00
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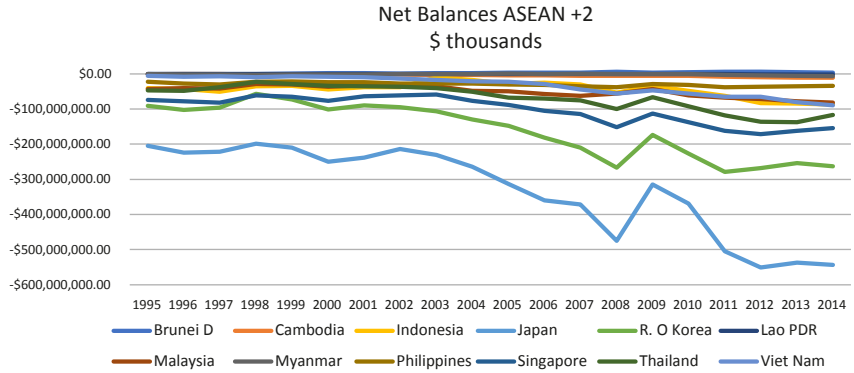

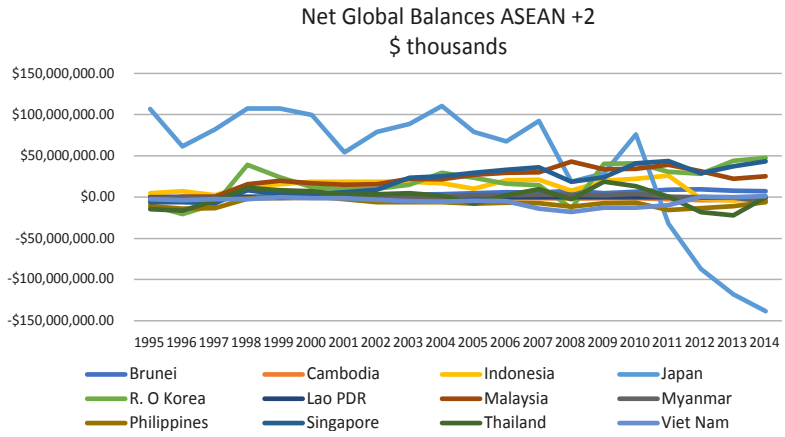

VI. DEALING WITH CAPITAL FLOW

In the conditions of European recovery, the EPU did not have to deal with the problems of capital flows. Indeed, one of the basic presuppositions of the Bretton Woods system was that international capital flows would be intermediated by the multilateral financial institutions. As is now well known, private cross-border flows, which expanded dramatically in the aftermath of the October War in the Middle East, were a major factor in the demise of the stable exchange rate regime crafted at Bretton Woods. And capital flows and reversals, or sudden stops as they have come to be known, have created a scenario of frequent banking and exchange rate crises in developing countries in the 1990s and 2000s.

As Keynes pointed out in his original proposals for a Clearing Union, capital flows do not create a particular problem for such an arrangement since all capital transactions would have to pass though the clearing house and thus the size of flows would be limited by the relative clearing balances. Thus capital flows within the region would be limited in the same way by any limits set on debits and credit balances. Thus a creditor country could freely transfer funds to any country within the limits of its credit balance.

However, the same limits would not apply to transfers from non-members and would not be limited by the relative balances of the members of the regional union. Capital flows would then have an impact primarily on the current account balances of the member countries with the rest of the world. They could not jeopardise the operation of the clearing and settlement functions of these systems, while continuing to cause instability and volatility in trade and payments with the rest of the world. However, the exchange rates of currencies within the region would remain unaffected and this would make trade within the regional group more desirable since it would be undertaken at more stable exchange rates across currencies of the members of the clearing group.

Indeed, while the tendency to concentrate trade and payments within the region was initially thought to be one of the drawbacks of regional arrangements (since it contradicted the presumption in favour of free, multilateral trade and convertibility that the post-war world was seeking to restore), in the current

environment these implication have a positive impact on developing countries and the proliferation of regional trading agreements makes regional unions well within the existing paradigms on trade integration.

VII. RELATIONS BETWEEN REGIONAL UNIONS AND THE REST OF THE WORLD AND THE MULTILATERAL ORGANISATIONS

Any regional clearing union would have to determine how it interacted with the other regional groupings as well as with the multilateral financial institutions. This is a problem that was already present with the EPU. Hirschman (op. cit.: 52) notes with respect to the EPU that "it had become clear that the issue of EPU's relationship to the International Monetary Fund, which had caused much concern at an earlier stage, would be disposed of without too much trouble. By general agreement, the EPU would be governed largely by automatic rules and would function under the supervision of the OEEC, a body that can make decisions only by unanimous vote. This arrangement did not seem likely to result in a powerful supranational monetary board whose authority would supersede that of the Fund. An interesting attempt has been made to avoid the paralysis that has often been exhibited by international bodies tied to the rule of unanimity. On a number of important issues that must be deferred for decision to the OEEC Council, the final EPU agreement provides for the procedure of the 'Special Restricted Committee.' This Committee is to consist of 'five persons chosen by lot from a list of persons nominated by each of the members for reasons of competence and standing.' When the issue to be decided is a dispute involving one or several specific countries, none of the Committee members may be a national of one of the parties to the dispute. The Committee is to make a report to the OEEC Council on the issue at stake and the Council will then make a recommendation or take a decision 'in the light of this report.' The intention of this procedure is to invest the Committee with a moral authority which will make for unanimous acceptance of its reports within the OEEC Council."

The attitude of the IMF vis-à-vis the EPU was one of perplexity if not of hostility. Some directors believed that the aim of multilateral clearing in Europe was in accord with the Fund's objectives but other directors had misgivings. Would the Europe payments scheme help to lay the basis for an eventual convertibility of European currencies? Would a clearing arrangement not tend to postpone the solution to Europe's problems rather than to solve them? Since the Fund had taken a decision limiting Europe's members to the Fund dollar reserves during the life of the ERP, some directors inquired about those projects featuring any assistance extended by the Fund in dollars. Would not a contribution from the Fund to clearing arrangements be counter to the Fund's ERP decision? What guarantee could there be that the Fund's commitments under the clearing arrangements proposed would not be excessive, using up in a few months resources which should be made available over several years? The attrition between the IMF and the EPU became more intense in the course of time. The EPU board showed uncertainties about German surpluses and British deficits from 1956 through 1958. Both countries needed substantial exchange rate adjustments; the IMF was jealous of its jurisdiction over exchange rates though it had no authority to initiate changes and the EPU was reluctant to challenge the IMF's jurisdiction.

In the case of Britain, the EPU lost leverage after the IMF and US provided two billion dollars, conditioned primarily on the withdrawal of the UK troops from Egypt. The UK took action that improved its overall balance of payments and increased its reserves, but these results were obtained by complete suspension of economic growth and the restriction of imports of all manufactures from the dollar area. In the case of Germany, the board's leverage was limited by Germany's willingness to extend increasing amounts of credit to the Union and by its lifting of trade and foreign exchange restrictions. These are among the events that contributed to the termination of the EPU. Meanwhile forces opposing the EPU gathered momentum: the Bank of England had opposed the EPU since its inception because in the EPU it saw the status of the sterling differing little from that of any other member country. Rightly or wrongly the Bank of England considered that times were ripe for making sterling convertible for non-residents and for terminating participation in the EPU. The German authorities wanted the DM to become convertible as the conclusion of their economic "miracle" and the free market policies to which they attributed the miracle.

At the same time, as already mentioned, most proposals for regional stabilisation funds work on the basis of an initial level determined at the regional level, and at higher levels of commitment require the borrower to participate in an IMF–sanctioned stabilisation programme, which is precisely what the automatic extension of credit under the clearing approach is supposed to avoid. Thus, these existing regional programmes substitute an IMF programme for the clearing union approach of applying a penalty to countries exceeding their surplus or deficit lending and borrowing limits. Again, there seems to be no

reason to apply these limits on the basis of a country's intra-regional balance. The problem is a question of creditworthiness of the deficit-country recipient of surplus-country credits, but this problem could be more easily resolved by means of the application of a credit balance at the level of the regional clearing house to be fed with minimal charges of transactions, rather than on the basis of overall lending limits.

As for relations with the IMF, members of regional clearing unions would have no change in their position except that they would have a cushion available before having to go to the IMF for lending support. The IMF Articles, as well as the WTO, should be able to accommodate regional associations such as those described here.

VIII. OTHER LOGISTICAL MATTERS

Although Keynes's proposed Clearing Union was never seriously considered or its implementation discussed at Bretton Woods, there is a full history of discussion and implementation of Clearing Unions at the regional level ranging from the post-War European Payments Union to the Central American Clearing Union to proposals for similar operations in Asia, Africa and the Middle East. Indeed, there is a greater wealth of experience on the regional level than on the international. Unfortunately, much of this history has been forgot or ignored, in particular as it applies to the process of economic development.

Consideration of this historical experience shows that clearing unions were designed and proposed for a wide range of different objectives. Keynes's original proposal was designed to generate the maximum non-conditional financing for British reconstruction. Although there were limits on the amount of global credit creation in the proposal, the American's balked at the prospect of being the sole creditor in the system and placed tighter limits on quotas in White's Stabilization Fund proposal which became the blueprint for the IMF. As a result, Keynes quickly moved to support first a global currency within the US proposal, and when that failed to greater autonomous exchange rate flexibility.

The EPU on the other hand was designed to provide a more rapid means to return to convertibility and exchange rate stability among the European economies to encourage recovery in intra-European trade and to lighten the constraint of "dollar scarcity" since none of these countries qualified for IMF support. Again limitations on the creation of multilateral credits emerged from participants, in particular Belgium as a major creditor country, and the UK because of the outstanding problem of Commonwealth sterling credits. The EPU's eventual success required the use of Marshall Plan US dollar grants as seed funding to meet payments in excess of the imposed credit limits. It was nonetheless considered a technical and operational success and would have survived in the absence of British opposition. It served as a template for proposals for clearing systems in other regions.

With the IMF dominating payments systems among the major developed countries and the former EPU members, clearing union proposals were adapted to the needs of developing countries and UNCTAD played a major role in supporting these efforts along with external consultants many of whom had direct experience in the creation of the EPU. Robert Triffin, considered the father of the EPU as well as Pierre Uri who had served as a consultant with Myrdal and Kaldor at the Economic Commission for Europe were instrumental in providing expertise. Here the objectives were also an attempt to lighten the external constraint on developing countries and to encourage what is now called "South-South" trade. Since their major impact was to limit the use of the US dollar, international support for these proposals often depended on the position of the US government vis a vis the role of the dollar. When the dollar parity was under pressure in the late stages of Bretton Woods these systems were seen as a way to reduce pressure on the dollar, but once the system collapsed and moved toward freer international capital flows intermediated in dollars support waned and countries were encouraged to introduced market determined floating exchange rates. Clearing unions then came to be seen as weak constraints on government policies and uncompetitive support for developing country exports. Clearly there was no place for these schemes in the Washington Consensus.

Aside from the question of the size of the internal creation of credit in regional schemes and the problems caused by the pattern of imbalances – in the 1960s the share of developing countries regional trade tended to be much higher than after the introduction of modern globalisation of trade and payment in the 1980s – an important aspect of multilateral clearing is the use of a notional unit of account to represent credit and debit balances. Keynes proposed a number of different names for the unit of account in his proposal. In the EPU, since the IMF had been created on the basis of a dollar link to gold the reference became the US dollar and gold and the dollar were the accepted settlement currencies when country balances exceeded the stipulated quota limits. The same was true of most of the other proposals.

However, in the current context the proposed clearing union is not only to supplement the dollar as a

settlement currency but to supplant it. This means using the dollar as the reference unit of account would be total inappropriate. In addition, one of the problems to be resolved is the negative impact of volatility in the dollar exchange rate, making the dollar even more inappropriate for this purpose.

Alternatives to the use of the dollar as the reference unit of account could be the Special Drawing Right (SDR) which many countries have proposed as a substitute for the dollar, but with little success, due to both technical and practical difficulties. However, it could much more easily serve as reference unit and settlement currency in a regional scheme.

On the other hand, a basket of the currencies of the countries that participate in the scheme could be used. This could be at a fixed rate, or it could be free to fluctuate as the SDR responds to its adjustable composition and value. There is much to be said for keeping a fixed rate, but allowing for fluctuation would dampen the impact of dollar volatility on the one hand, and to provide a proxy for the "Discount" scheme that was proposed by Richard Kahn in the 1950s as an alternative to EPU.

As noted in the discussion of the statistics of trade balances of the various regional groupings, there is a problem created by the much wider dispersion of trade in the current environment due to globalization and cross-border production linkages and capital flows. This suggests that the original proposals made in the UNCTAD discussions of the 1960s seeking a much broader composition of the members of the Clearing would be important. At the same time, the statistics suggests that the quota limits on individual country credits are much less important than they were in the Bretton Woods and EPU discussions. Indeed, if the objective is to replace the negative impact of the volatility of the US dollar and its dominant role in intermediating global capital flows these limits should be as high as possible.

STATISTICAL APPENDIX

All Statistics come from UNCTAD Stat Data Center International Trade in Goods and Services:

Merchandise: Intra-trade and extra-trade of country groups by product, annual, 1995-2014 Merchandise: Trade matrix by products, exports and imports in thousands of dollars, annual, 1995-2014

NOTES

1. The historical description of the evolution of the post-war European settlements and payments systems and passages cited below are drawn principally from Carli (1958), Tew (1968), and Kaplan and Schleiminger (1989).

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Layout and Printing at United Nations, Geneva – 1801793 **(E)** – October 2018 – 635 – **UNCTAD/GDS/MDP/2017/4 (Vol. II)**