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POLICY DEPARTMENT  
ECONOMIC AND SCIENTIFIC POLICY **A**

Financial, Economic and Social Crisis

# Crisis Management, Burden Sharing and Solidarity Mechanisms in the EU

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**DIRECTORATE GENERAL FOR INTERNAL POLICIES**  
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**SPECIAL COMMITTEE ON THE FINANCIAL, ECONOMIC AND  
SOCIAL CRISIS**

**Crisis Management, Burden Sharing and  
Solidarity Mechanisms in the EU:**

*A follow-up study to Financial Supervision and Crisis  
Management in the EU*

**Study**

**Abstract**

The financial crisis that began in 2007 as a liquidity crisis for banks has transformed itself into a sovereign debt crisis that threatens the viability of the eurozone and the foundations of the European Union. In this study, we analyse some of the recent regulatory initiatives in response to the crisis and their implications for the EU financial system and economy. Although EU policymakers are adopting important institutional reforms to create a more robust macro-prudential supervisory framework, serious gaps and weakness remain in EU regulation, crisis management, and burden sharing. We conclude that in liberalised international financial markets it will always be very difficult for regulators to control systemic risks and that alternative regulatory approaches should be considered.

This document was requested by the European Parliament's Special Committee on the Financial, Economic and Social Crisis (CRIS)

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## EXECUTIVE SUMMARY

The growing incidence and impact of financial crises warrants an exceptional policy response that adapts traditional approaches of financial supervision and crisis management to the changing structure of the international financial system. Many financial reform measures have been proposed in response to the global financial crisis to address weak regulation and supervision, bank resolution regimes, and repaying taxpayers mainly in developed countries. However, a more holistic approach to regulation, supervision and crisis management is needed that attempts to control excessive risk-taking whilst mitigating and paying for the tremendous social costs imposed by the crisis. This requires not only a redesigned macro-prudential regulatory framework, but also the creation of durable and sustainable mechanisms to enhance burden-sharing between the public and financial sectors and global solidarity measures that require the financial sector to provide direct assistance to those most vulnerable and severely affected by the crisis.

The analysis and proposals in this report – *Crisis Management, Burden Sharing and Solidarity Mechanisms in the EU* – provide a follow-up to our earlier study - *Financial Supervision and Crisis Management in the EU (2008)*. In our earlier study, we examined the origins of the 2007 credit crisis and how financial innovation through securitisation and credit derivatives had created inter-connected and opaque wholesale capital markets in which banks and other financial firms had taken on high leverage to invest in securitised investments and synthetic credit instruments and when liquidity suddenly evaporated the system was put at great risk. We argued that the similarity in bank risk management models that was facilitated by Basel II had led most banks to price credit and market risks in very similar ways which did not take into account the correlations between asset prices and investor behaviour. This exposed banks to liquidity risks in the wholesale funding markets which were not addressed adequately by prudential regulation and supervision. Moreover, EU institutions – and in particular the Level 3 Lamfalussy Committees – were inadequate institutionally to monitor systemic risks and provide effective supervisory oversight of inter-connected capital markets and cross-border banks in the EU. In addition, crisis management procedures in the EU were vague and did not perform well in the crisis as member states retreated into their own jurisdictions and ring-fenced the assets of cross-border banks experiencing difficulties. We called for more institutional consolidation of the Lamfalussy committees and enhanced coordination and information exchange on macro-prudential risks with the European Central Bank.

This study extends our analysis further by examining some of the main risks that continue to threaten financial stability and whether recent regulatory initiatives are adequate in addressing the various manifestations of systemic risk in globalised financial markets and whether crisis management mechanisms and burden-sharing amongst EU states in paying for the costs of the crisis are adequate. **We conclude that serious weaknesses still remain in the proposed regulatory reforms. Specifically, proposed reforms to Basel II still rely too much on bank economic capital models with limited distributions of data that are not correlated to macroeconomic risk factors. Countercyclical capital requirements should be rules-based and linked to a common definition of the economic cycle across countries 1.1-1.2.**

The study consists of three chapters: Regulatory and Supervisory Challenges; EU Crisis Management, Burden Sharing, and International Initiatives; and Global Solidarity Mechanisms and Financial Taxes. In section **1.1**, we examine the challenges and concerns of the proposed amendments to Basel II and whether higher levels of regulatory capital and tighter definitions of tier one capital and leverage caps will be adequate to protect banks during times of market distress.

As we argued in our first study, the credit crisis of 2007 was created by a liquidity crisis in the wholesale funding market for banks, and not because of bank under-capitalisation: market-based regulatory models fed off of market-based bank risk management models to drive up risk, especially during times of market uncertainty and dislocation. Bank risk management reinforced the bankers' preference for more risk by underestimating the potential costs of the risks to shareholders and ignoring the systemic risks. Bank risk models relied too heavily on recent data samples with a narrow distribution of outcomes, especially in subprime mortgages. In this study, we examine the weaknesses of bank risk management further and argue that the flaws in market-based risk management models can be addressed **1.2**, in part, by a more structural approach to risk assessment that not only relies on assessing internal measures and probabilities of default, but also by linking these measures to external structural factors in the economy, such as correlations in investor behaviour and volatility during extraordinary times. **Basel II and the EU Capital Requirements Directive (CRD) should require further changes to ensure that the market-based risk models are adjusted to incorporate more structural approaches to risk assessment 1.2.2 & 1.3.**

Moreover, counter-cyclical capital requirements will not be effective unless their calculation is based on a more formulaic rule-based framework that relies on a uniform definition of the business cycle across Europe. The study also argues that some of the Basel II proposals on the definition of tier one regulatory capital and leverage will be far more costly for European banks to implement and therefore may limit economic growth disproportionately in most EU countries in comparison with other countries, such as the United States. **We recommend that the EU allow, under pillar 2 of Basel II, a more flexible transition period for implementing stricter tier one capital rules and that the definition of tier one capital include certain convertible instruments that can absorb losses during times of market distress.**

The study addresses the risks posed by 'naked short selling' and the proposed bans against certain derivatives **1.4**. Naked shorting generally refers to short-selling a financial instrument without first owning or borrowing the security or confirming that the security can be borrowed. In the CDS market the term is used to refer to the situation where the buyer of protection does not own the underlying credit risk. Greece's recent sovereign debt problems have brought the naked short-selling debate into the limelight. The study argues that the focus should not be on financial 'products' but rather on how you use the products. Financial products do not have original sin: we can do dangerous things with seemingly safe things, and safe things with seemingly dangerous ones. Moreover, the process of declaring some products safe and some unsafe would incentivise innovators to use the safe products to engage in the previously unsafe behaviour, and that could be even worse if the safe products are under a less stringent regime because they have been declared safe. Nevertheless, we can sympathise with the argument that synthetic collateralised debt obligations used with credit default swaps have very little economic value and, as is demonstrated in the case of the *Securities Exchange Commission v. Goldman Sachs*, some investment banks have engaged in sharp practices which policymakers would like to prohibit but which are already illegal under securities law, such as spreading false or misleading information and certain types of shorting.

We argue that policymakers should apply enhanced supervisory oversight and if necessary amend the market abuse and manipulation laws to make clearer what type of sharp practices in the CDS market should be restricted or prohibited, rather than banning certain instruments like 'naked CDS', but we recognize that bans would be far easier politically than a policy of active supervisory oversight against market abuse and manipulation, especially during times of market distress **1.4.2**. Oddly enough, banning certain financial products may result in policymakers absolving themselves from the real responsibility of being focused on unsustainable behaviour in whatever form or product it takes.

In chapter 2, we welcome the European Commission's proposals for creating a European System of Financial Supervisors (ESFS) that links micro-prudential supervision and regulation to a new European Systemic Risk Board (ESRB) that is responsible for macro-prudential oversight and assessment **2.0**. We examine the need for Europe to reform its bank resolution regime **2.2** and crisis management framework for sovereign debtors **2.4**. **The recent crisis demonstrates that Europe's existing bank resolution regime is inadequate for large cross-border banks and that a sovereign debt restructuring mechanism and a solidarity fund are needed for EU states experiencing liquidity and solvency problems that allows them to raise short-term financing while restructuring their debt. There is also a need for the consideration of how discretionary policy might be conducted on a European scale in the event of severe crises.**

**Regulatory proposals have not addressed the growing proliferation of financial transactions in the over-the-counter derivatives and foreign exchange markets and how this contributes to complexity and opacity and thereby limits price discovery and the efficient distribution of risk.** Chapter 3 considers how to pay for the social costs created by the financial crisis by requiring the financial sector to pay their fair share of the crisis and help provide global public goods.

Proposals for new financial taxes typically encompass three separable objectives. The first objective, limiting excessive risk-taking, is derived from the desire to price risk efficiently. In this case how the funds are used subsequently is not part of the agenda. The proposition that such funds might be used to build an insurance fund is a quite separate argument related not to mitigating the riskiness of financial transactions but to pricing accurately the implicit insurance provided to institutions too big to fail. The provision of assistance to those most affected by ill chosen risk-taking is a third component of an efficient pricing strategy. Hence the objective of efficient pricing may be pursued by adopting all three goals at once, or by pursuing them separately.

We consider the advantages and disadvantages of several types of financial taxes including a tax on bank balance sheets, a tax on currency transactions, and a tax on exchange traded and centrally-cleared derivatives transactions. To be effective, these taxes must satisfy the following criteria: 1) administrative transparency in using existing clearing and settlement infrastructure and data networks, 2) the tax level should achieve a balance of economic benefits in terms of risk mitigation that does not significantly distort the market nor undermine liquidity; 3) while levied at a low enough rate to generate substantial revenue, 4) and comply with applicable EU and international law. We argue that the currency transaction tax (CTT), though subject to some concerns under EU law, is best suited to satisfy these criteria (at a rate of one basis point or half a basis point) **3.2**. Under existing settlement structures, the Continuous Link Settlement Bank (CLS Bank) could withhold a small CTT on foreign exchange transactions **3.2-3.3**. Although a more broadly defined financial transaction tax (FTT) could potentially generate more revenue than the CTT, it would be subject to greater avoidance and circumvention under present regulatory requirements because clearing systems are not yet as developed for these instruments as they are for the foreign exchange markets. In the long-run, however, banks and dealers are increasingly required by regulators to clear and settle their transactions through these institutions and they derive substantial benefits from doing so in the form of reduced counterparty risk, lower regulatory capital charges, and lower overall transaction costs. These synergies would far outweigh the value of any small transaction tax that might be applied.

**Policymakers therefore should give more attention to the role that taxes on the financial sector can play in curbing excessive risk-taking and in providing sustainable funding to absorb some of the direct and indirect costs of financial crises and in providing global public goods 3.1-3.2.**

Avoidance of these taxes can be made much more difficult if the countries with the reserve currencies and leading financial centres adopted an international treaty in which they agreed to implement a tax in their own jurisdictions with support from their central banks who would monitor collection through an agreed financial intermediary, such as the CLS Bank for foreign exchange, or a central counterparty with responsibility for clearing derivatives trading **3.2-3.3**. Moreover, the enforceability of any contract that forms the basis of a taxable transaction would not be recognised by any courts of participating jurisdictions unless the tax was confirmed as paid **3.7**.

The recent history of liberalised financial market suggests that financial crises are recurring more frequently and that traditional regulatory controls have failed to control systemic risk and that financial innovation will result in further circumvention of regulatory controls which will then plant the seeds for the next crisis. Traditional regulatory measures have failed to keep pace with the risks posed by financial innovation, and the costs of crises are rising exponentially and will impose huge economic and social costs on both developed and developing countries for generations to come. It is imperative therefore that we explore innovative sources of finance to help governments and societies absorb these huge costs while also providing additional revenue to pay for public goods in all countries.

**We recommend that EU policymakers consider several financial taxes: 1) a small tax (about 10 basis points, 0.1%) on EU sovereign bond issuance that would pay for a EU solidarity fund to assist countries experiencing liquidity crises and to pay for the related social costs of sovereign debt crises, 2) a currency transaction tax adopted at a low rate of one basis point or half a basis point (0.01% or 0.005%) that would be designed mainly to pay for the social costs of crises and provide sustainable finance to pay for global public goods, and 3) a broader financial transaction tax on all centrally cleared derivatives transactions. In addition, we suggest that if those taxes are adopted policymakers should have 'extra-fiscal' authority to adjust the tax rates in a flexible way that allows them to respond to financial innovations and market developments 3.1-3.5.**

## INTRODUCTION

Financial market supervision and crisis management have traditionally been considered technical areas of market oversight that have escaped the fanfare of high politics and economic policy. The global financial crisis that began in 2007 and intensified in 2008 before transforming itself into a sovereign debt crisis in 2010 has put financial regulation and crisis management into the spotlight. These crises have attracted much attention because of the tremendous social costs imposed on the economic system as a result of weak corporate governance in financial firms and major deficiencies in regulation and supervision. The crisis demonstrates the need to adopt a more holistic approach to financial regulation and supervision that involves linking micro-prudential supervision of individual banks with broader oversight of the financial system. Liberalised financial markets also require more effective coordination between states in supervising markets both within Europe and internationally. Although financial innovation can bring significant benefits to the economy, it can also lead to excessive and uncontrolled risk-taking that can impose substantial social costs on the broader economy and society. Policymakers should therefore consider building institutional mechanisms that establish solidarity between the financial sector and all parts of society that are affected by financial risk-taking. These institutional mechanisms should consist not only of effective regulatory and supervisory frameworks and crisis management operations but also reformed fiscal arrangements that require the financial sector to reimburse governments and societies for some of the social costs of financial risk-taking. These fiscal arrangements can take the form of financial taxes that can generate revenue to pay for the direct and indirect costs of state and central bank support and to pay for public goods as well. This form of burden sharing that requires the financial sector to pay for more of the costs of its risk-taking can provide a basis for building solidarity mechanisms between those who have benefitted greatly from financial globalisation and those who have suffered the costs of excessive financial risk-taking. In this way, financial taxes can potentially act as a catalyst to mobilise financial resources that can be used to pay for global public goods that will support the development of a more vibrant and prosperous financial sector and global economy.

We demonstrated in our first study<sup>1</sup>, *Financial Supervision and Crisis Management in the EU*, that financial markets in Europe and most developed countries had moved away from a bank-based model of finance to a wholesale capital market model of finance which had brought diversification and increased liquidity to financial markets but also had introduced systemic risks to the financial system which regulators had failed to identify and control. We also showed that other more specific developments in globalised financial markets beginning in the early 1990s had changed the nature of financial risk-taking and systemic risk. First, was the development of the structured finance market and in particular the role of securitisation in decomposing and distributing credit risk to wholesale institutional investors who were seeking higher yield in a low inflation environment. Second, the dramatic growth of the credit derivatives market which made possible enhanced corporate balance sheet management, but allowed traders to take excessive risks on the underlying assets in these contracts. And, third, the role of technology and statistical theory in the use of value-at-risk (VAR) models in risk management, which allowed financial firms to calculate how much they expected to lose if the markets turned sharply against them. These structural changes in financial markets provided the ingredients that allowed risk to be underpriced and shifted around the financial system, thereby making it difficult for regulators to monitor the risk and assess its potential impact on the financial system.

The spread of risk throughout the wholesale capital markets was facilitated by the originate-rate-and-relocate model of securitised debt finance that had encouraged increased leverage across the financial system which in turn increased systemic risk.

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<sup>1</sup> *Financial Supervision and Crisis Management in the EU* IP/A/ECON/IC/2007-069) (Jan. 2008).

In addition, the excessive use of credit default swaps and other credit-linked instruments had increased the complexity and inter-connectedness of financial markets and had substantially contributed to excessive speculation in the underlying assets of those instruments, putting the system at serious risk. Although primarily at fault, bankers and other market participants were not entirely to blame, as regulators had contributed to the liquidity risks in the system, first by requiring mark-to-market valuation for all financial assets without regard to the duration of their funding and, second, by requiring regulated institutions to manage their risk in a relatively standardised way that exacerbated herding during times of uncertainty. The homogeneity of regulatory requirements contributed to the homogeneity of market practices through the use of similar risk models. This had the effect of increasing systemic risk, and exacerbated the volatility in markets especially during times of market distress.

Other factors contributed to the crisis, including the incentives of rating agencies to provide AAA ratings to complex debt instruments and their failure to use adequate risk-measurement methodologies to assess the underlying risks embedded in these instruments.

In the study, we then turned to what type of institutional structure and supervisory arrangements Europe should adopt to improve the regulation of systemic risk. We concluded that the Lamfalussy supervisory framework was in need of updating because of the growing number of cross-border European financial institutions and the enhanced interconnectedness and complexity of wholesale capital markets. This required increased consolidation of the Level 3 committees and formal status to be granted to the colleges of supervisors to oversee the cross-border operations of European banks. In a subsequent study we recommended the creation of a single European clearing house to clear standardised credit derivatives and other derivative products in order to control systemic risk more effectively.<sup>2</sup> We also suggested further research on how Europe can build a more effective resolution regime to unwind failed financial institutions with extensive cross-border operations.

Since our first study, many of our recommendations have been incorporated into EU financial legislation. Our proposals for a review of Basel II and increased regulatory safeguards against liquidity risk were followed by amendments to the Capital Requirements Directive resulting in increased capital requirements for market risk and for EEA host country authorities to approve bank risk models.<sup>3</sup> Our proposal that those firms which originate, arrange and trade structured finance instruments to keep some 'skin in the game' with twenty percent exposure of the securitised debt was reduced to five percent in amendments to the CRD.<sup>4</sup> Following our study, the Van den Berg Report and EP resolutions were adopted in September 2008 proposing increased consolidation of the Level 3 supervisory committees and colleges of supervisors along with enhanced capital and liquidity framework for EU financial institutions.<sup>5</sup> This follow-up study, *Crisis Management, Burden Sharing and Solidarity Mechanisms in the EU*, provides more analysis of some of these issues and considers further areas of regulatory reform, both how EU policymakers might enhance their supervisory and crisis management practices and how to use solidarity mechanisms in the form of financial transaction taxes to enhance regulation and to pay for European and global public goods.

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<sup>2</sup> 'Clearing and Settlement in the EU IP/A/ECON/IC/2009-001 (Brussels: European Parliament).

<sup>3</sup> Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions (recast), art. 131 (requiring host country authorities to approve the bank's validation of its risk models).

<sup>4</sup> Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions (recast), art. 122a (requiring the originator or sponsor to disclose that it retains (on an ongoing basis) a 5 percent net economic interest).

<sup>5</sup> European Parliament, Report with recommendations to the Commission on Lamfalussy follow-up: future structure of supervision (2008/2148(INI), Committee on Economic and Monetary Affairs, Rapporteurs: Ieke van den Burg and Daniel Daianu, A6-0359/2008.

Chapter 1 examines recent regulatory reforms proposed by the Basel Committee on bank capital, liquidity and leverage and discusses the economic impact of these proposals on the European banking system. Many banks operating in EU states that allow most regulatory capital to consist of 'hybrid instruments' will experience a large increase in the cost of regulatory capital because the amended Basel II and the Capital Requirements Directive will likely require that regulatory capital – both internationally and across Europe – have a more harmonised definition and consist mainly of tangible common equity. We then analyse bank risk management and how the similarity between bank risk models and their failure to take into account macro-prudential risks contributed significantly to the crisis and the risks these models continue to pose to the financial system. We propose a structural approach to risk management in which risk models are not only built on internal recent data samples with a narrow distribution of outcomes, but also link these measures to external structural factors in the economy, such as correlations in investor behaviour and the riskiness of assets over the business cycle.

Chapter 2 welcomes the recent European regulatory initiatives and in particular the establishment of a new European Systemic Risk Board to conduct macro-prudential oversight and monitor systemic risk. The way the ESRB discharges its responsibilities will have an important effect on its credibility and effectiveness in performing its macro-prudential oversight functions. The European Supervisory Authorities will play an important role in overseeing member state supervisory practices and in establishing an effective network of colleges of supervisors. However, the EU regime governing the resolution of large cross-border banks based on home country control has become obsolete and merits reform. There should be a more harmonised set of principles in EU law to govern the resolution of distressed financial institutions that would also cover non-bank financial firms that are systemically important. We also discuss the recent Greek sovereign debt crisis and the urgent need to establish an EU solidarity fund to assist sovereign debtors during liquidity and solvency crises and to pay for other social costs arising from financial crises.

Chapter 3 examines the role of financial taxes as a solidarity mechanism to enhance prudential regulation by taxing excessive risk-taking and providing sustainable revenue to governments so that they can pay for the direct and indirect costs of financial crises and provide additional support for overseas development aid and global public goods. Specifically, we consider a tax on foreign exchange transactions, a tax on exchange-traded and centrally-cleared derivatives and related financial products, and a tax on bank balance sheets. Financial transaction taxes had already become widely used as a tax raising mechanism before the global crisis. Since the 19<sup>th</sup> century, the United Kingdom has imposed a transaction tax on equity trading of 0.50% of the value of the shares traded. Other countries, including Brazil and Belgium, have adopted similar transaction taxes that apply to equity shares as well as to debt instruments. The generally positive experience that these countries have had with these taxes suggests that such taxes can provide a dependable source of revenue in securities spot markets while not significantly limiting capital investment and market development. We argue that similar transaction taxes can be applied to certain sectors of the financial markets that have profited immensely from financial globalisation and have grown disproportionately in comparison to other sectors of the global economy. The focus on transaction taxes reflects our concern that the proliferation of financial transactions themselves has become a concern of regulators and that a significant portion of trading has been characterised as 'socially useless behaviour' (Turner, 2010). We agree with many regulators that new financial taxes can serve useful regulatory purposes, such as the IMF's recommendations to the G20 for a bank balance sheet tax and a tax on bank profits and remuneration (IMF 2010). We believe however that to achieve our goals to limit excessive financial transactions and to provide sustainable sources of revenue to build burden sharing and solidarity mechanisms in Europe and globally, that policymakers should consider a tax on financial transactions that targets the excessive growth of financial activity.

Our data show that such taxes levied at a low level will not significantly distort financial markets and could potentially provide a sustainable source of finance for many governments and for international cooperation initiatives between states and international organisations. Certain types of FTTs may be more practicable and versatile than others in achieving regulatory objectives and paying for public goods. We suggest that a global currency transaction tax (CTT) might perform a dual function of limiting excessive risk-taking in the foreign exchange markets, while raising revenue to pay for European and global public goods. We also suggest that a broad-based FTT on exchange-traded and centrally cleared derivatives trading could limit excessive transactions, while also potentially generating high levels of revenue. However, such a tax should not be implemented until most standardised derivative contracts have been migrated to clearing houses and they are subject to prudential regulation. Finally, in addition to a CTT and FTT, we consider the utility of a global tax on bank balance sheets and conclude that such a tax if applied to banks in certain developed and developing countries would penalise banks whose balance sheets were generally well-managed and regulated before the crisis and therefore should not now be subject to such a charge. Rather, taxes on the wholesale capital markets and foreign exchange markets applicable to the leading reserve currencies would be a more appropriate way to limit excessive financial risk-taking while generating consistent sources of revenue for public goods. We also suggest that EU governments should apply a tax of one basis point on all sovereign bond issuance (national and sub-national governments) and that the revenue go to a European Solidarity Fund to help sovereign debtors with liquidity support and to restructure their debt during times of crisis. Based on our analysis, these taxes would not limit liquidity nor significantly reduce trading under most scenarios.

## 1. REGULATORY AND SUPERVISORY CHALLENGES

### 1.1 Basel II and beyond?

In December 2009, the Basel Committee proposed substantial revisions to the Basel II capital regime.<sup>6</sup> The new standards have been called 'Basel III' and are less reliant than the earlier Basel II standards on the banks' internal risk models.<sup>7</sup> Basel II's main objective was to make regulatory capital more market sensitive and to approximate the economic capital that banks were already holding. Before the crisis, Basel II had been extensively criticised for under-pricing financial risk and thereby failing to take into account the social costs that bank risk-taking creates for the broader economy.<sup>8</sup> Basel III attempts to address these weaknesses by requiring that the instruments of regulatory capital absorb more losses and that Tier 1 capital contains a higher proportion of common equity, in contrast to the average minimum of two percent of risk-weighted assets under Basel II. Basel III will also require banks to hold less 'hybrid instruments' (part debt, part equity) because these instruments did not absorb losses adequately in the crisis. Instead, the Basel Committee is expected to permit banks to hold 'contingent bonds' as subordinated debt that transform automatically if the issuing bank has financial difficulties or if the broader financial system experiences stress.<sup>9</sup> Basel III will also incorporate leverage ratios which are determined by the size of the bank's balance sheet, but are not risk-based. Unlike regulatory capital which is a charge on risk-taking, leverage ratios are cushions to be drawn upon by banks during times of market stress. Also under consideration is some form of counter-cyclical capital charge requiring banks to hold more capital during the good years and less during the lean years. This is intended to offset the current tendency for capital rules to encourage higher leverage during good times and insufficient leverage during bad times.

#### 1.1.1 Counter-cyclical regulatory capital and liquidity requirements

A major weakness of Basel II and the Capital Requirements Directive (CRD) was that it was pro-cyclical. Regulatory capital calculations were mainly based on the riskiness of bank assets: in an upturn, bank assets would appear healthy and attract a lower capital charge, while in a downturn, assets would appear riskier and attract a higher charge. Regulators generally agree that this would exacerbate bank asset price movements and contribute to volatility in the market. Instead, regulatory rules should impose counter-cyclical capital requirements, such as higher capital charges during a market upturn and lower charges during a market downturn. The experience of using counter-cyclical capital rules - or dynamic provisioning - has been positive: Spain had dynamic provisioning rules that led to their banks having more capital available to absorb losses during the crisis than most other European banks.

Basel III may also go a few steps further than counter-cyclical capital by limiting capital distributions such as dividends, buy-backs and bonuses. It has also been suggested that broader macro-prudential measures such as leverage caps should be used to limit excess credit growth.

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<sup>6</sup> See Basel Committee on Banking Supervision 'Consultative proposals to strengthen the resilience of the banking sector' (BIS: Basel) (17 Dec. 2009); and 'International framework for liquidity risk measurement, standards and monitoring - consultative document' (BIS: Basel) (Dec. 2009).

<sup>7</sup> Although the proposed amendments to Basel II as set forth in the Committee's June 2009 proposals and the December 2009 consultation proposals would substantially amend Basel II if adopted, they are technically considered to be amendments and not a new Basel Accord. Draft proposals for 'Basel 3' are now under negotiation. The tentative plan is for 2010 to be a year of discussion and refinement with final proposals due by the end of the year. Phase-in and grand-fathering is planned for late 2012. Whilst this may seem far away, it is likely that some of the changes will be adopted sooner. This can be achieved either by national regulators invoking changes bank-by-bank under Pillar 2 of Basel II; or, by banks voluntarily accelerating the timetable.

<sup>8</sup> See Alexander et. al (2006, 40-41), and Ward (2002).

<sup>9</sup> Flannery (2009) argues that regulators should require 'contingent capital certificates' that convert from debt to equity automatically when the issuing banks equity falls too low. But some argue that such convertible instruments will be very expensive for banks to raise capital.

This could mean that many different types of hybrid instrument issues will be called over the next few years and replaced with common equity. This last point sounds positive but begs the question of how it would be implemented. It is also hard to imagine political endorsement in countries that have bank-led finance systems and have allowed regulatory capital to consist mainly of hybrid instruments which, if converted to ordinary equity under Basel III, would dramatically increase the cost of capital, thereby limiting credit growth as the main driver of improving employment and GDP growth (See Chart 2).

As far as bank liquidity and funding are concerned, it is likely that a new funding ratio will be proposed along with a measure of short-term liquidity buffers. The goal here is to strengthen the short-term resilience of the banking sector as well as reducing funding imbalances. During the last decade in Europe, loans exceeded deposits by about €3 trillion.<sup>10</sup> In the UK, the gap was approximately £700 billion by the end of 2007 with 50% of the shortfall coming from overseas.<sup>11</sup> Any new ratio would go beyond the loan-to-deposit ratio by weighing stability of funding versus liquidity of assets.

### 1.1.2 Leverage

Perhaps the most significant change relates to leverage. Macro-prudential supervision will necessarily involve regulators in managing and overseeing systemic risk across the financial system. One way to do this is to monitor the aggregate levels of leverage and impose additional controls on banks depending on whether *aggregate* levels are breached. The idea of a gross leverage limit (tangible equity to tangible assets) has been recently proposed in Europe, while having been in place for commercial banks in the US for many years (Chart 1). Basel I allowed capital to be calculated on the risk-weighted notional of assets where, for example, OECD sovereign risk had a weighting of zero thus attracting no capital. Hence, by having large holdings of sovereign bonds, a bank could boast a very strong regulatory capital ratio but very high leverage. Basel II refined the risk weightings by linking them to credit ratings and allowing economic capital models which produced risk adjusted capital numbers: the lower the risk, the lower the capital. But while the calculation of bank capital became more complex, the US retained the crude leverage limit that had been in place for so long. US deposit-taking banks have had many problems over the last few years but excessive leverage was not one of them. This problem was however acute for the US securities firms where much higher leverage was permitted by the Securities and Exchange Commission, whilst also being tolerated for European banks who adhered to Basel II but in order to optimise capital usage, were allowed to take on higher levels of leverage.

As national regulators move towards a common response, one of the many challenges they face is the dramatically different bank leverage ratios in the US and Europe. As Chart 1 illustrates, amongst the largest banks, leverage in Europe is more than double that in the US. Should the US leverage limit of 4% (25 to 1 asset to equity ratio) be adopted the impact on bank capital in Europe will be far greater than in the US. Chart 2 shows the IMF estimates of capital needed to meet differing limits of Tier 1 capital to risk-weighted assets and, on the right of the chart, to meet 4% limit of Tangible Common Equity to Tangible Assets. To achieve this leverage target the IMF estimates that European banks would need to raise an additional €300 billion of new capital. This would have an enormous effect on the existing ability of European banks, especially those in bank-led financial markets, to generate long-term economic growth.

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<sup>10</sup> See European Central Bank (2010).

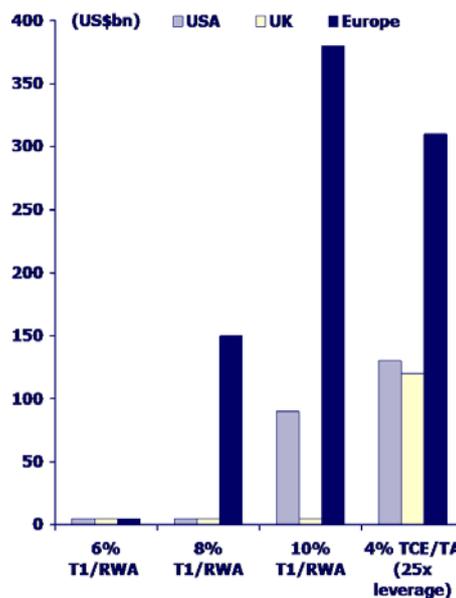
<sup>11</sup> See also, Bank of England, *Financial Stability Report 2009* (HMSO: London).

**Chart 1: US and European Bank Leverage Ratios**

(millions)	Quarter	Ccy	Total assets	Tier 1 ratio (%)	TE/TA (%)
<b>US banks</b>					
Bank of New York	4Q09	USD	212,224	12.0	3.8
Morgan Stanley	4Q09	USD	773,420	15.4	5.1
JPMorgan	4Q09	USD	2,031,989	11.1	5.7
US Bancorp	4Q09	USD	281,176	9.6	5.9
Citigroup	3Q09	USD	1,856,164	11.7	6.0
Bank of America	3Q09	USD	2,223,299	10.4	7.6
Wells Fargo	3Q09	USD	1,243,646	9.3	7.7
Goldman Sachs	4Q09	USD	849,000	15.0	7.8
PNC	3Q09	USD	269,863	11.5	8.1
SunTrust	4Q09	USD	174,165	12.9	9.6
<b>Average</b>			<b>991,495</b>	<b>11.9</b>	<b>6.7</b>
<b>European banks</b>					
Deutsche bank	3Q09	EUR	1,659,557	11.7	1.4
UBS	3Q09	CHF	1,476,053	15.0	1.7
Credit Agricole	1H09	EUR	1,605,364	9.7 <sup>1</sup>	1.8
Barclays	1H09	GBP	1,545,338	10.5	1.9
Royal Bank of Scotland	3Q09	GBP	1,644,445	8.0	2.1
BNP Paribas	1H09	EUR	2,289,322	10.1 <sup>1</sup>	2.1
ING Bank	3Q09	EUR	1,187,915	9.7	2.2
Credit Suisse	3Q09	CHF	1,064,208	16.4	2.3
Lloyds Banking Group	1H09	GBP	1,063,129	8.6	2.9
Santander	3Q09	EUR	1,082,370	9.0	3.9
Société Générale	1H09	EUR	1,050,859	10.4 <sup>1</sup>	4.0
HSBC	1H09	USD	2,421,843	10.1	4.2
<b>Average</b>				<b>11.0</b>	<b>2.5</b>

<sup>1</sup> at 3Q09. Source: Company reports, SNL, CreditSight

**Chart 2: IMF Estimate of Bank Capital Needs**



Source: IMF staff estimates

## 1.2 Risk management

In our first study, we argued that the similarity in risk management models used by banks encouraged by the Basel II process had led most banks to price credit and market risks in very similar ways without regard to the systemic risks which their risk-taking and instruments posed to the financial system. Advances in technology and sophisticated data management, combined with the use of value-at-risk (VAR) models allowed financial managers to devise risk models that led them to believe that they were diversifying and spreading risk to investors capable of absorbing risk, while increasing bank profits through higher leverage. Based on these models, banks developed the originate-rate-and-relocate model that allowed them to use sophisticated data management techniques to calibrate their risk exposures so that they could transform credit risk (originated as mortgage loans) into investable debt securities that could be sold to institutional investors looking for higher yield in a low inflationary environment. Regulators permitted banks to hold some of these debt securities in their trading books with lower capital requirements than would have been required with regular loans. Regulators and central bankers<sup>12</sup> were convinced that the so-called 'great moderation' had resulted in low inflation, and the low interest rates created conditions that drove assets prices even higher. Risk management models reinforced the bankers' preference for more risk by underestimating the potential costs of the risks to shareholders and ignoring the systemic risks. They relied heavily on recent data samples with a narrow distribution of outcomes, especially in subprime mortgages.

<sup>12</sup> Alan Greenspan stated in March 2009 in testimony to a US Congressional Committee that "in August 2007, the risk management structure cracked. All the sophisticated mathematics and computer wizardry essentially rested on one central premise: that the enlightened self-interest of owners and managers of financial institutions would lead them to maintain a sufficient buffer against insolvency by actively monitoring their firms' capital and risk positions."

### **1.2.1 The flaws in risk management**

Over the past fifteen years, a common refrain during periods of financial dislocation, great and small, is that we need more risk management. After fifteen years of considerable investment in risk management we need to ask why this investment has had so little pay-off. There are three fundamental reasons why common approaches to risk management proved inadequate and, more to the point, will always do so. Failure to address these issues in some way will lead us back to crisis.

The first is that financial crises invariably take place after a boom, where there has been a collective and often genuine belief that, for some exogenous reason such as the arrival of a new technology, investment risks have fallen – or returns for a given risk have risen. This becomes self-feeding as the resulting boom gives the statistical appearance that the risk-return trade-off has improved, with generalized returns rising, and instances of default or other downside risks receding amid surplus liquidity. More statistical measures of risk and return will not help this problem. Indeed, the tendency to use more and more up-to-date data in assessing risks and returns or incorporating market measures of risk will tend to reinforce this self-feeding cycle (Persaud 2004). Financial crashes occur because markets underestimate prior risks. Using market estimates even more will make matters worse not better. At the same time, forcing banks, generally funded by short-term liabilities, to use more longer-term data on risk and returns and less market-sensitive data, will appear from the perspective of individual institutions to be perverse. This suggests that the solution to this risk management problem is best carried out at the macro level.

The second reason, which is similar to but different from the first, is that the risk management approach to the financial sector assumes statistical independence. When a firm's risk management model signals that its risk exposure is too high and the firm decides to respond to this by selling risky assets, it assumes that it holds different assets from other institutions and is getting a different signal from its risk model than others and so when it sells these assets there will be buyers and not only other sellers. One of the reasons why the approach assumes this is because to assume otherwise will mean that risk will be hard or impossible to compute. Moreover, risk would no longer be determined by factors internal to the risk models like prices and past volatilities and correlations of the assets in the portfolio – but to things outside these risk models such as the behaviour of other investors.

The response of individual institutions to this conundrum is that they should use a risk model with fatter tails. No doubt vendors of risk models, like vendors of all consumer products, like a bit of obsolescence and demand for the new product. But this will not work because the economy is never actually characterised by the average distribution, but by one of more separate distributions. The normal distribution works fine in the quiet times, but in periods of crisis with concentrated investments and increased liquidity demand, there is an altogether new and completely skewed distribution as everyone rushes for the exit at the same time. We are either in one or the other distribution – normal or skewed. Trying to average the two will make no meaningful difference: risks will appear to be overestimated for six out of every seven years, say, and substantially underestimated in the seventh.

The third issue relates to risk management at the board level. Like Iraq dossier writers, chief executives and independent board directors have been quick to argue that they did not know what was really going on when they gave the order to leverage up. This is partly because the combination of "Risk and Audit" committees of the board has led to an "auditisation of risk" where risks are identified and given a colour - red, amber or green. The reds are fretted about and the greens ignored. This traffic light approach flies in the face of the observation that "it is not the things you think are dangerous that kill you" (Mark Twain). There is no shortage of financial victims citing some explosion as a "once in a thousand year event" or "wholly unforeseen and unpredicted".

### 1.2.2 Micro and macro solutions

The principal solution to these issues is for firms, but more importantly, regulators to take a more “structural” view and a less “statistical” view of risk. A statistical view of risk would be to say there is one thing called risk, and it is measured by the excess return relative to the risk-free return, the volatility of these excess returns, or a public credit rating. We should not need reminding in the wake of the current crash that such measures of risk are highly cyclical and prone to underestimation of future risk in quiet times and overestimation of future risks in the aftermath of a crash. The so-called “risk-sensitivity” approach to regulation, which in practice meant a greater sensitivity to market prices of risk, amplified the boom-bust cycle when the purpose of regulation, at its least ambitious, should be to moderate these cycles.

A structural view of risk is one where we identify different kinds of risk: liquidity risk, credit risk, market risk, operational risk and we look at the capacity to absorb each risk. In a structural view of risk, a regulator may limit the ability of institutions without a capacity to absorb liquidity risk – such as short-term funded institutions – from holding those kinds of risks, and support the ability of firms with a capacity for absorbing this risk – like long-term funded institutions or those with long-term liabilities – to do so. Limits could be achieved through a capital regime in which capital is set aside for the degree of each risk mismatch: principally liquidity risk mismatch, credit risk mismatch, and market risk mismatch. This would be a 21st century update to Glass Steagall: fragmentation, not by activity, but by ability to absorb risk.

A “structural” approach to risk would also embody the fact that the credit mistakes are not made in the recession but in the boom and, consequently, the amount of capital required to set against credit risk should be contra-cyclical. This is not to kill the cycle, but to offset the self-feeding aspect of the cycle where in the up-cycle risks appear low and so the amount of capital set aside falls or the fundamental amount of risks rises. We have discussed this before. A key issue is how the cycle is measured. Work at the FSB and Basel Committee suggests that the growth of GDP above trend is one of the best measures of excessive credit growth and should coincide with the application of some regulatory brake. But in reality each cycle is different and a range of indicators should be used. That said, we should not use so many indicators that the signal is blunted and the decision to raise capital requirements or not becomes discretionary, with the likely prospect that policy would then be too easily influenced by the perceived exceptionalism of each boom.

### 1.3 Stress tests and concentration risks

Another structural approach to risk is to consider concentration risks. A higher degree of concentration will mean that past measures of risk such as volatility and co-variance are likely to underestimate risks going forward. Investment concentration is perhaps best measured by central authorities, either regulators, trade reporting entities, both, or such alike. Regulators should require all financial market participants to submit to a common stress test at least twice a year.

An example would be for financial firms to assume a 40% drop in house prices and report the implications for assets, liabilities, liquidity, etc. While a common stress test tends to underestimate spill-over effects, it provides more information on systemic risks than the results of millions of independent stress tests being carried out by individual institutions and may help the regulator to observe the rise of new interdependencies.

In terms of improving risk management at the Board level, one way to get out of the box-ticking trap is to separate Risk Committees of the Board from Audit Committees and give the Risk Committee some capital and ask it to hedge firm-wide risks. This will force the Risk Committee to analyse relevant factors other than the results of its risk models and make judgments on what risks are being run by the firm as a whole.

### 1.3.1 Too big to fail

In recent months it has become fashionable to argue, in the words of Governor Mervyn King, Governor of the Bank of England, that if a bank is too big to fail it is too big. It is certainly the case that the bigger the institution, generally the bigger the systemic risks and so the greater the regulatory scrutiny and restraint ought to be. Large institutions also play a powerful lobbying role that can have systemically dangerous consequences. Our predisposition is to prefer a more competitive market with smaller institutions. However, we are not convinced that requiring institutions to be smaller will solve the fundamental problem of boom-bust and it is probably as much an issue of competition policy as it is of financial stability policy.

Many financial crises have had their roots in small institutions. For example, the 1973-4 “Secondary Banking Crisis” in the UK that had an even greater impact on the stock market than the current crisis has had so far. In the current crisis, the large and staid institutions proved far more resilient than the fast growing, medium-sized ones. And it may well be easier to resolve a problem caused by excessive lending of one large institution than the excessive lending of a large number of small, yet correlated, institutions. Simply put, private institutions should be required to internalize the systemic cost of them becoming large, but shrinking and breaking up banks is no panacea to financial crises. It may, however, be a welcome consequence of our recommendation to fragment the financial system by risk-capacity, achieved through higher capital requirements on bank size and risk mismatches. This would put a higher regulatory cost on bank size and inter-connectedness, thus leading some institutions to shrink as they refocus on what they have the greatest capacity to do.

## 1.4 Central counterparties and credit derivatives

In recent decades financial intermediation has moved from institutions into markets and financial crises are now manifest in markets rather than institutions. Market gridlock is the predominant manifestation of systemic risk and it is widely believed that a contributing factor is underperforming and poorly regulated clearing and settlement systems. Although the existing infrastructure for clearing and settling derivatives did not fail during the recent crisis, regulators and others clearly believe that management of risk could be improved. One of the reasons for regulatory interest in centralised clearing is a hoped for improvement in pricing and price transparency.

When confidence collapsed in Collateralised Debt Obligations (CDOs) and Credit Default Swaps (CDSs) this was in part because no-one knew what their value might be. It was this lack of any basis of valuation that led to the questioning of the value of bank balance sheets. No-one knew what the value of assets held on the balance sheet was and hence no-one knew whether the banks were solvent. The problem was complexity *not* transparency: securitised instruments typically come with many pages of elaborate documentation, describing the character of the asset in detail – but even those who attempt to read it all seldom understand it.

It is also argued that due to the bilateral nature of Over-the-Counter (“OTC”) derivatives, the risk of a counterparty defaulting before the contract expires is relatively high, particularly for credit derivatives that generally have long maturities, making it more likely that a purchaser will be left unprotected. In addition, collateralisation provisions in CDS contracts are not standardised and do not take account of how credit enhancement on one transaction affects risk exposures on related transactions. A further concern is that due to the nature of CDS contracts involving the referencing of other credit instruments and the posting of more collateral as default probability increases, a downturn is likely to cause a downwards spiral of pay outs and defaults, the type of which triggered the collapse of AIG in 2008. Finally, the customised structures of OTC instruments means that they are not typically susceptible to netting, resulting in high risk assessments (and collateral requirements) on gross positions.

It is these difficulties that have led to the now generally accepted policy conclusion that as many assets as possible should be forced into clearing systems and central counterparties (“CCPs”), facilitating price discovery and liquidity, standardising collateralisation provisions and encouraging the development of simpler “plain vanilla” assets that are susceptible to netting. To date, the message from the regulators has been confusing: the UK Financial Services Authority has stated that although it supports the greater use of clearing it could not endorse forcing all “standardised” OTC contracts into CCP clearing. By contrast, the US Congress is likely to approve a financial services reform bill in 2010 that will require all standardised OTC contracts to be centrally cleared by clearing houses or central counterparties. Similarly, the European Commission has indicated that it may propose legislation requiring standardised OTC derivatives contracts to be subject to mandatory clearing.

Aside from a more co-ordinated regulatory approach, the market needs some guidance on what is “standardised”. There has been some regulatory discussion about how to incentivise the market to move away from OTC. One idea is to increase the regulatory capital costs for OTC transactions or other types of risky short-term derivative transactions. It is possible that certain hedge contracts relating to underlying credit-linked instruments or foreign exchange transacted in the OTC market will obtain less or possibly no regulatory capital relief. Therefore, we suggest that banks and other regulated institutions receive a reduced regulatory capital charge on their derivatives exposure for clearing OTC derivative trades through an approved central counter party or clearing house, while receiving a similar capital reduction for settling their foreign exchange transactions through the Continuous Link Settlement Bank **(3.2)** or other approved entity.<sup>13</sup>

#### 1.4.1 Naked short selling

Naked shorting refers to short-selling a financial instrument without first owning or borrowing the security or confirming that the security can be borrowed. In the CDS market the term is used to refer to the situation where the buyer of protection does not own the underlying credit risk. Greece’s recent sovereign debt problems have brought the long-standing short-selling debate into the credit default swap arena. As Greek sovereign credit spreads dramatically fluctuated with news of on-off bail-out plans, a number of senior European politicians have stated that the wider spreads were caused by CDS, and that this was increasing the cost for Greece to borrow and hence trading of CDS should be restricted. A similar debate has occurred regarding the sovereign debt financing needs of other European countries. The harmful activity is thought to be “naked short selling” – shorting credit risk in the CDS market with no long-positions to hedge. It has been suggested that laying off credit risk using CDS should only be authorised if the hedging entity “owns the underlying” asset. On 19 May 2010, the German government banned unilaterally the “naked” short-selling of eurozone government bonds, their credit default swaps (CDS) and the shares of the country’s 10 biggest financial institutions.

There are many areas of misunderstanding in relation to the CDS market. One of these is how credit risk management actually works. The whole point of using CDS to manage bank risk is that credit risk comes in many shapes and sizes and most of it cannot be sold or directly hedged. The introduction of CDS for hedging was transformative because it created a standardised unit of credit risk that could be sold (shorted) to offset a bank’s numerous non-standard credits. By definition the CDS is rarely hedging “the underlying”.

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<sup>13</sup> However, it should be noted that regulation by “price”, the capital charge, and by “quantity”, the legal requirement to trade on exchanges, are not perfectly equivalent. As was pointed out by Martin Weitzman in famous article entitled “Prices versus Quantities” published in 1974, the relative efficiency of price regulation and quantity regulation is dependent on whether the relative balance of benefits and costs. Where costs are relatively low and benefits high, price regulation is to be preferred. Where, as in this case, the costs of OTC complexity are high and the benefits relatively low, quantitative regulation is superior. See also, Haldane (2010).

It now transpires that CDS risk transfer was less than 5% of Greek debt and that the spread widening started in the bond market, not the CDS market. The attraction of the CDS is that it is a proxy hedge offering payouts close to any loss that might follow a corporate bankruptcy. A requirement to only exactly hedge underlying credit instruments (i.e. a ban on naked short selling) would put a stop to most bank hedging activity, which might have the perverse effect of limiting banks' ability to hedge risk, especially in volatile capital markets.

This debate highlights the widespread misconception concerning the relationship between price in the CDS market, the probability of default, and the impact of CDS activity on bond prices. Commentators are correct in stating that CDS contracts provide a form of insurance against default, but too often state that if the price goes up the market must believe that default probability has also increased. In doing this, they fail to appreciate the activities of bank credit portfolio managers and bond portfolio managers.

Banks monitor and manage credit limits as part of their standard risk management activities. A German bank might impose a country limit on its exposure to the UK economy. That exposure would be made up of a wide range of exposures to UK banks and corporates. From time to time, the sum of the parts might exceed the country limit so the bank would need to take mitigating steps. One of these could be reducing its exposure to the UK government. Buying protection on a sovereign borrower in the CDS market is considered acceptable risk mitigation. Over the last two years the need to adhere to limits has become so important that users have paid prices that appear to make no economic sense.

Another important use of the CDS is in the management of asset price volatility by fund managers subject to mark-to-market accounting. The last two years have seen increased volatility and correlation in most asset classes: witness the global market reaction to problems in Dubai in late 2009. To reduce excessive swings in portfolio valuations, the manager of a corporate bond portfolio might choose to short an appropriate sovereign or index of sovereigns. Any bond losses due to spread widening would be partially offset by gains from the CDS.

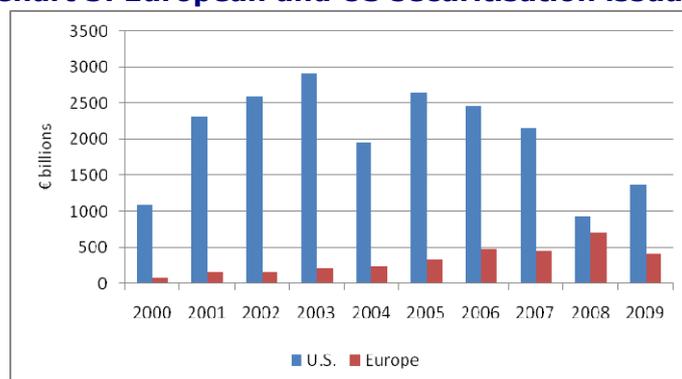
Both these activities involve shorting credit risk in the CDS market but in neither case are the users taking or expressing a view on default probability. They are forced to pay the market rate and since the universe of CDS investors has been reduced by the financial crisis, from time to time supply and demand imbalances will raise the price. This is unlikely to have any impact on bond prices as investors in these markets are generally looking for a home for their cash. Further, the net risk transfer numbers (not the gross numbers that are almost always quoted) in the CDS market are normally a fraction of a borrower's bond issuance. The important point here is that benign activities by bank credit portfolio managers can affect CDS spreads and send misleading signals to the market.

#### **1.4.2 Will the securitisation market revive?**

Securitisation has been used by banks and corporate since the 1970s when securities backed by pools of US residential mortgages were created and sold to investors. Since then the assets that have been securitised have grown to include most forms of debt with particular focus on residential and commercial mortgages, consumer credit and corporate loans. Up to the end of the 1990s the rationale for securitisation was balance sheet and risk management for the originator. The last decade saw the rationale switch to the composition of investor demand and this contributed to the huge growth and ultimate collapse of the securitisation market. By 2007, in order to provide compelling returns to yield hungry investors, the arrangers resorted to ever increasing levels of complexity and leverage. The market ground to a halt in a matter of months resulting in two significant problems. First, hundreds of billions of dollars of existing securitisations had to be valued, written down and maybe sold in an environment where there were virtually no buyers.

Second, the assets that would normally be securitised now have to be held on bank balance sheets that are facing calls for less leverage and more capital. A restart of the securitisation market is considered key to fixing both of these problems.

**Chart 3: European and US securitisation issuance**



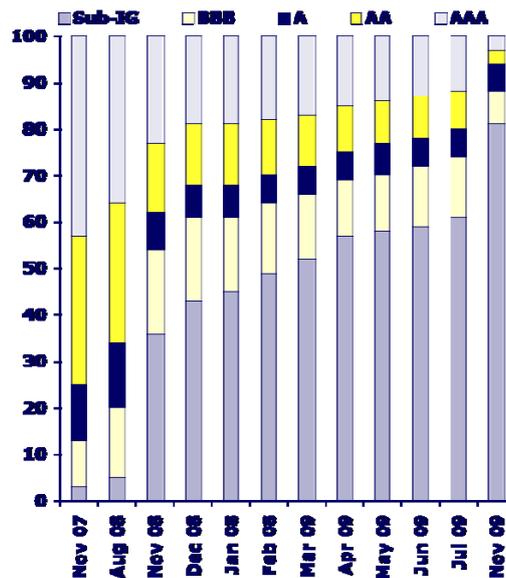
Source: SIFMA

A glance at Chart 3 would suggest that the securitisation market has suffered but is now recovering. However, this data is very misleading: most of the issuance in 2008 and 2009 was bought, underwritten or funded by central banks. For example, in Europe there was €417 billion of issuance in 2009 but only €8 billion (2.1% of total) was sold to end investors. The bulk of issuance was kept by the issuer and posted to the central bank under a repurchase contract. In 2008 only 1.2% of the €825 billion of issuance was sold to end investors. In the US most new securitisations were either bought by Fannie Mae and Freddie Mac or by the Term Asset Liquidity Facility (TALF).

The extent of the problem is well illustrated by the ratings migration in the synthetic CDO market. Chart 4 illustrates that sub-investment grade tranches grew from being a few percentages of total tranches in late 2007 to over 80% of outstanding by late 2009. Not only does this suggest significant mark-to-market losses for holders of the paper but in many cases it suggests extensive forced selling. Most investors would not have the authority to hold 'BB' or lower rated investments. To make matters worse the main group of investors in CDOs – the banks – are facing higher capital charges for securitized products and calls for less leverage. To date, sellers of CDOs are still plentiful and there is little sign of a slow-down in selling. A reversal that results in significant net buying is unlikely in the medium term.

Given the apparent damage caused by securitisation and the resulting loud political and popular call for it to be severely restricted or even banned, commentators are asking whether we actually need securitisation. Unfortunately, the rationale for such calls is a belief that securitisation only exists to enrich the banks at the expense of investors. There is little appreciation for the benefits brought by securitisation that enables banks and other firms to manage their balance sheets more efficiently and to generate more liquidity to expand investment and output.

**Chart 4: Distribution of Ratings for CDO (%)**



Source: S&P, Morgan Stanley Research

### 1.4.3 Regulatory Changes

Due to the role of structured credit products in causing the credit crisis, regulators have responded with a range of possible regulatory changes. Their main objective is to address at least two problem areas: first, since banks had no residual economic interest in the products that they were selling (referred to as “skin in the game”) there was no incentive to ensure their long-term robustness; second, since bank capital charges for holding CDOs were relatively small, banks accumulated vast holdings of CDO tranches which proved to be very illiquid and susceptible to material downward price adjustment.

The introduction of a risk retention rule would ensure that the “securitizer” retains an economic interest in a material portion of any asset used to back an issuance of securities. The actual definitions vary between Europe and the US. In Europe the issue is addressed in the new Capital Requirements Directive and applies to originators, sponsors and original lenders. An economic interest of not less than 5% will need to be retained for new deals issued from 2011 onwards and for all deals from 2015 onwards. In contrast, the main proposals in the US Congress would define ‘securitizer’ differently and would either adopt a 5% or 10% for the risk retention rule.

At this stage it is not clear how the retention rule will affect the various parties involved in a CDO. In a traditional “balance sheet” CDO where the arranger is a bank managing its own loan book not much will change since such an arranger would normally retain some of the risk. The motivation for a balance sheet CDO is management of leverage, funding and capital – the profitability of the transaction itself is not the primary concern. But in an “arbitrage” CDO where an arranger sources the collateral in the secondary market and is only motivated by profit, the requirement to retain some of the risk could significantly reduce the arranger’s appetite for such transactions.

Regarding risk weights, the changes currently being considered will see most securitisations attracting higher capital charges and so-called resecuritisations incurring additional risk weights to account for higher risk, mainly due to concentration. This change was prompted by the numerous problems seen in the securitisation market and particularly in the market for CDOs of Asset Backed Securities. The proposals currently under consideration raise two issues: first, the definitions are vague and hence the true impact is not known; second, regardless of definitional uncertainty, the impact on old and new securitisations will be material and not necessarily beneficial.

One of the definitional uncertainties relates to resecuritisations: some have interpreted it to apply to subordinated corporate debt instruments. This could include leveraged loans and, if so, would result in dramatically increased capital charges for securitisations of such assets. This would affect both existing and new deals at a time when, as discussed in **1.1.2**, we are approaching a significant refinancing bubble for leveraged loans.

One of the material changes relates to trading books – the section of a bank’s balance sheet that holds relatively liquid assets and is subject to mark-to-market accounting. Securitized products held in the trading book used to attract lower capital charges due to the fact that any reduction in value would be identified on a daily basis via the profit and loss statement. This distinction is set to disappear and hence many holders of securitized products in a trading book may be inclined to reclassify them as banking book items in order to avoid price volatility. This will reduce liquidity in an already illiquid sector as intermediaries will be less inclined to hold inventory of securitized products.

The other material change that merits discussion relates to counterparty risk. It has been recognised that the relationship between a credit-risky derivative and a credit-risky counterparty is complex and merits special treatment. One such area of focus is referred to as “wrong way risk”: where the deterioration of the risk being hedged is accompanied by a deterioration of the counterparty’s credit quality. In the future such a transaction would attract an additional capital charge. It has also been suggested that there should be a multiplier for large bank counterparties and for counterparties that are not regulated. Finally, there are plans to introduce capital incentives to encourage the market to use Central Credit Counterparties (“CCP”s).

A troubling feature of the regulatory developments in this area is the apparent failure to appreciate the difference between “good” and “bad” securitisations. Few would disagree that a product created solely to meet the return and rating goals of a specific investor is of little value if the goals can only be achieved through excessive complexity, leverage and abuse of shortcomings in rating agency models. Significant issuance of products of this kind became a source of systemic risk and are rightly characterised as “bad”. But where the product provides the arranger with effective methods for managing bank leverage, risk, capital and funding then, so long as any additional risks are well understood and can be controlled, most would agree that such securitisations could be “good” for the market. Unfortunately, much of the basic workings of these products are similar and hence rules created to limit bad securitisations may well restrict good ones too.

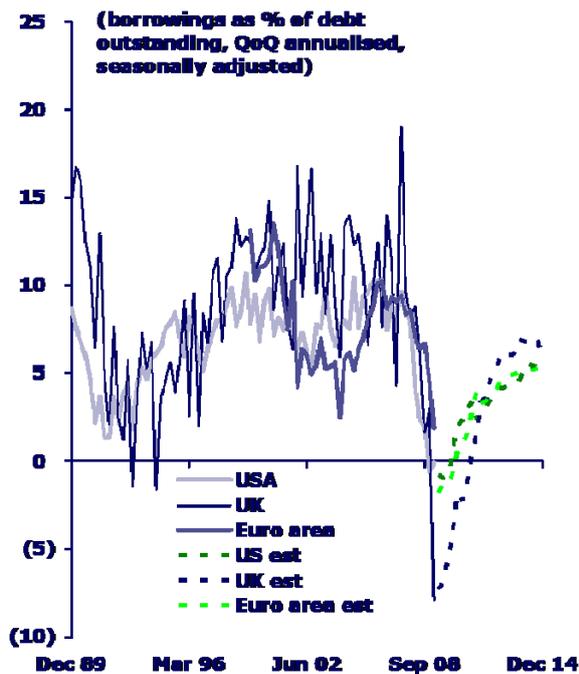
## 1.5. The impact of regulation on credit markets

The combination of a less levered banking sector and a diminished shadow banking sector raises the question of whether the medium term credit needs of the US and Europe can be met. Given the economic down-turn it is no surprise that private sector credit growth has slowed. Chart 5 shows the slowing growth in the US and Europe and the credit contraction seen in the UK during the first half of 2009. IMF estimates of credit growth over the next five years shows a significant reduction compared to the previous decade. However, public debt is growing and it may be that total funding needs are not met by supply. A popular economic view is that credit rationing is a cause not a symptom of economic slowdown; if this is correct, then a shortage of credit presents a problem.

It is difficult to predict how the credit needs of Europe and the US will evolve but a good place to start is to look at the refinancing of existing debt instruments. Clearly this can overstate the problem to the extent that borrowers are deleveraging. But it can also understate the problem by not addressing the migration away from banks and shadow banks to the bond market which, for reasons stated above, could become a bigger source of finance for the European economy.

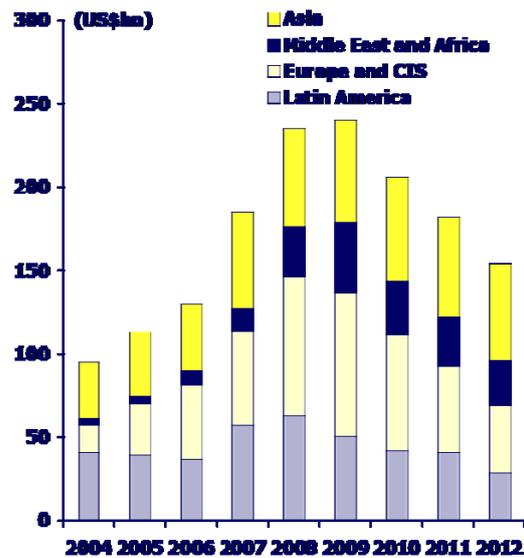
The market for emerging market debt exhibits a less troubling refinancing profile (Chart 6) with the peak in 2008 and 2009 not producing any noticeable market stress. With debt service of bond and loans in 2010 and 2011 estimated at US\$400 billion it is possible that this material demand for funds could divert cash from the US and European credit markets. However, the number of institutions that would divert money on an *ad hoc* basis from, for example, a US high yield risk exposure to add an emerging market exposure is few. Such behaviour is probably the domain of risk-seeking investors. The challenge to other markets will come if, at the institutional level, asset allocations are materially adjusted to reflect the growing importance of emerging markets relative to most other markets.

**Chart 5: Private Sector Credit Growth**



Source: IMF staff estimates

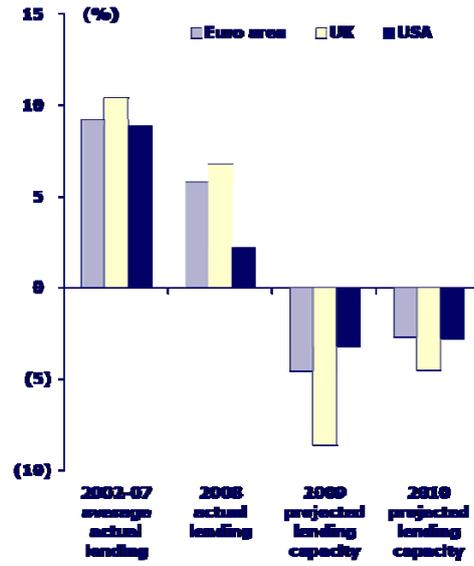
**Chart 6 : Refinancing needs of emerging market forex-denominated corporate debt**



Source: Bloomberg L.P.; IMF

It appears that increased regulatory requirements along with a fragile economic recovery combined with the prospect of increased competition from Asian banks will limit the capacity of European banks to raise capital and thereby also limit their ability to make loans to European businesses and consumers. This is not helped by IMF estimates of a reduction of bank lending during 2010 (Chart 7). But this has to be put in the context of the ability of market sentiment to change rapidly and the considerable and growing pools of cash looking for higher yielding returns.

**Chart 7: Bank lending capacity growth**



Source: IMF

## **2. EU CRISIS MANAGEMENT, BURDEN SHARING AND INTERNATIONAL INITIATIVES**

### **2.1 European financial market supervision**

The European Commission's proposals to establish a European System of Financial Supervisors (ESFS) and a European Systemic Risk Board (ESRB) are premised on the importance of linking micro-prudential supervision and regulation to the macro-prudential oversight of the financial system.<sup>14</sup> Indeed, the linkage is essential for building an efficient EU supervisory regime that allows member states to exercise more effective supervisory oversight over individual firms and investors, while monitoring and measuring systemic risk in the broader European financial system and across global financial markets. Although adopted in the wake of the crisis, these proposals are an extension of the Commission's earlier policy under the Financial Services Action Plan and the Lamfalussy framework of promoting EU financial integration through convergence of supervisory practices and harmonised implementation of EU financial legislation. The FSAP and Lamfalussy process, however, were not able to overcome different sets of standards, responsibilities and powers of member state supervisors that hampered the integration process and resulted in disjointed supervisory practices and a failure to identify and monitor risks building up in the financial system (IMF 2007). The proposed ESFS and ESRB recognise the importance of linking the supervisory practices of member state authorities in a more durable manner so that they can oversee more effectively the growing number of cross-border financial activities and the changing nature of systemic risk in the European financial system. Moreover, the ESFS and the three European Supervisory Authorities will ensure that member state regulatory and supervisory authorities can work more effectively together to control and manage systemic risk and develop a harmonised regulatory code and implementation across all EU states.

### **2.2 A reformed European resolution regime**

Europe now has over fifty financial groups consisting of multiple subsidiaries and branches established in different EU states. During the financial crisis, several of these financial groups collapsed and were taken into receivership, administration, or were bailed out by the group's home authority.<sup>15</sup> When the financial crisis began in August 2007, the impending failure of these financial institutions led to a chaotic scramble by member state supervisory authorities to freeze and seize assets over which they had jurisdiction so that they could be marshalled for later distribution to creditors and depositors if recapitalisation or state bailout was not practicable. As it turned out, most EU states did not have special bank resolution regimes and could only restructure failing banks by taking them into insolvency under domestic law or state ownership. This situation dramatically highlighted the need for an effective EU legal framework to govern the resolution of failing and failed banks, especially for those banks that operate on a cross-border basis in Europe and are managed in group structures.

At present, EU law simply applies the law of the state where the financial institution is incorporated or has its headquarters to the resolution and insolvency of the bank's cross-border operations. EU states, however, have different domestic insolvency laws and procedures for organising a regulator's or administrator's intervention into the affairs of a seriously weak or failing bank. In the recent crisis, these different national approaches in resolving and restructuring the cross-border operations of financial institutions led to the segregation of assets of failed institutions in some EU states which were then not available to pay legitimate claims of depositors and other creditors in other EU states. The uncoordinated and disjointed efforts by EU national authorities highlighted the need for a more effective cross-border EU legal framework to govern the resolution of failing and failed banks.

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<sup>14</sup>Kern Alexander (2010) 'Which supervisory model for Europe' Note to the Committee on the Financial Crisis.

<sup>15</sup> The most dramatic of the group collapses were those of Royal Bank of Scotland, Fortis and Dexia.

The European Commission (2009) has published a Communication entitled 'An EU Framework for Cross-Border Crisis Management in the Banking Sector' which analyses many of these issues and suggests reforms in certain areas which may require more substantive harmonisation of bank resolution requirements. Although these are important proposals, it should be borne in mind that the adoption of a more harmonised EU bank resolution regime will not accomplish the objective of limiting systemic risk unless it is accompanied by stronger powers for national supervisory authorities to exercise prompt corrective action against weak and failing banks and non-bank financial institutions. Lehman Brothers was an example of a complex, interconnected financial institution that however did not carry on the traditional banking business of taking deposits, but nevertheless was a systemic actor whose failure in September 2008 nearly caused a meltdown of the global financial system. An effective EU resolution regime must provide strong powers to national authorities to intervene in the decision-making of management if the supervisor determines that the bank or its management have failed to adhere to prudential standards. Judicial review of supervisory action in the area of prompt, corrective action and prudential regulation should be narrow and provide supervisors wide discretion to intervene in weak and failing banks and to restructure them if necessary. For instance, the supervisor should have the authority to require the bank to recapitalise itself, if necessary over shareholder and management objections. EU company law, however, provides strong rights in the Second Company Law Directive for shareholders of limited liability companies to approve any change in the financial structure of a company. An effective EU resolution regime should require that the Second Company Law Directive be amended to provide stronger powers for supervisors to require weak and failing banks to change their capital structure to satisfy prudential regulatory requirements.

Any proposed EU reforms on bank resolution should perhaps consider closely some of the reforms that have been adopted recently by member states. The UK Banking Act 2009 provides a special resolution regime for deposit banks that empowers the Bank of England to intervene in shareholder rights and the rights of creditors of banks experiencing serious difficulties or which are failing and might possibly be taken into administration or liquidation. The Act provides the Bank of England with stabilization powers to transfer property and shares from a failing bank to a state-owned bridge bank or private bank. Although the exercise of these resolution powers can substantially interfere with shareholder rights and other property rights, these powers have the objective of striking a balance between the legitimate rights of bank shareholders, creditors and depositors while preventing a failing bank from causing a systemic crisis and threatening depositor rights. The UK special resolution regime provides a model for how other states can manage the uncertainties of the present financial climate by balancing the rights and interests of bank owners and creditors with those of broader stakeholders and society who can potentially suffer severe economic damages as a result of a mismanaged bank that results in failure and substantial losses to the broader economy. Nevertheless, to implement an effective resolution regime that provides EU states with prompt corrective powers may require amendments to existing EU Company Law (Second Company Law Directive) in order for authorities to take the necessary measures that require shareholders to recapitalise the bank and to move away from socially risky business models.

### 2.3 G20 and the Volcker rule

An important component of the international policy response to the global financial crisis has been the strengthening of the macro-prudential orientation of financial supervision. Macro-prudential regulation involves a greater focus on the financial system as a whole and its linkages to the macro-economy (FSA 2009, De Larosiere, 2009, and FSF 2009). The origins of the term 'macroprudential' have taken on great significance in the wake of the financial crisis and have been elaborated in the development of EU financial policy.

An important aspect of macro-prudential oversight involves monitoring and assessing systemic risks –that is, the risks created by individual banks and the risks across the financial system.<sup>16</sup> International regulatory reform efforts are being spearheaded by the Financial Stability Board (FSB) – the G20 body consisting of supervisors from the leading twenty seven developed and developing countries – which is overseeing a number of initiatives ranging from capital and liquidity requirements, migrating over-the-counter derivatives onto clearing houses, organising colleges of supervisors to oversee international banks, the adoption of ‘living wills’ for systemically-important banks and common principles for resolution regimes.

In early 2010, the FSB endorsed President Obama’s proposal to prohibit deposit taking banks from proprietary trading in capital markets (ie., trading for their own account) and from investing in hedge funds and private equity. The Obama proposal – the so-called Volcker rule – does not seek a complete separation between commercial and investment banking. Rather, investment banks would still be permitted to engage in securities brokerage, asset management and corporate finance so long as these activities are undertaken on behalf of their client customers and not for the bank’s own account. Banks that rely on deposit insurance for retail deposits would simply be prohibited from using those funds in the bank’s own investment activity and specifically could not invest in hedge funds and private equity. An effect of the proposal would be to limit further growth of banks’ non-retail deposit liabilities because they would not be able to invest the money (as many did prior to the crisis) in speculative structured investment funds. The Volcker Rule is an example of quantitative regulation as distinct from price regulation. In a broader sense, the traditional regulatory approach seeks to make markets work better (by internalising externalities), whereas the quantitative or legal approach seeks to change the structure of markets.

The proposal has been strongly criticised on several grounds. For example, the proposal does not provide any meaningful details about how regulators would distinguish between a bank’s investment services on behalf of its clients and its proprietary trading activities for its own account. It has also been criticised for focussing on deposit taking banks, and failing to address the systemic risks that arise from non-deposit taking financial institutions like Lehman brothers and Bear Stearns, whose interconnected exposures in the wholesale funding market and miscalculated risks on credit default swaps nearly toppled the global financial system in 2008.

It should be emphasised that this proposal is intended to supplement other regulatory reforms the US has adopted such as a 10% cap on national market share for retail deposits and should not be considered a panacea. Once the details are worked out, there is no reason why the proposal should not prove to be effective and workable. Its effectiveness, however, will depend on how well regulators adopt a more holistic approach to controlling the systemic risk that arises in wholesale capital markets and the particular risks posed by complex financial instruments and interconnected institutions and trading systems. EU policymakers should consider the Obama proposal to be a quantitative supplement to a broader regulatory framework that should have what Mervyn King has described as a three-legged stool: 1) more stringent capital and liquidity requirements, 2) resolution regime with living wills that allows unviable banks to fail, and 3) a restructured banking system whose fault lines rely less on wholesale funding liabilities, and that involves banks conducting more of their cross-border business through subsidiaries as opposed to branches so that regulatory capital can more easily be segregated in the jurisdictions where banks are taking the most risks.

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<sup>16</sup> However, “macro prudential” and “systemic risk” are not well-established terms in EU financial market legislation and regulation. Systemic risk however is referred to in EU financial legislation. See Directive 98/26/EC Settlement Finality Directive; and proposed Alternative Investment Fund Management Directive, art 25. However, it is not comprehensively defined.

## 2.4 Sovereign debt crises – A European reform

The problems arising from the Greek sovereign debt crisis raise important issues regarding how the EU and the eurozone institutions should assist member states which are experiencing liquidity and/or insolvency problems. The EU Growth and Stability Pact presently requires member states not to run annual budget deficits in excess of 3% of gross domestic product (GDP) and not to have national debt in excess of 60% of GDP. The lack of enforcement of these rules and their uniform application across all member states regardless of where they are in the business cycle has undermined the Pact's effectiveness. Indeed, the Pact has resulted in neither growth nor stability. Essentially, the EU lacks a fiscal policy dimension to assist states experiencing financial difficulties in crisis situations. Indeed, Article 125 of the Lisbon Treaty prohibits EU institutions from bailing out EU states experiencing fiscal problems.

The shape of necessary reforms has been defined by the Greek episode. The mismanagement of the Greek economy, exacerbated by the collapse of world trade and hence the collapse of shipping revenues, led to cumulative severe pressures on the bond sales necessary to fund the Greek government deficit. Since Greek government bonds are denominated in euros, investors faced no currency risk. However, they did face increasing fears of default. The reaction in European capitals was to initiate a protracted, indecisive debate on raising the funds for a Greek "bail-out". As vague pronouncements were piled on indecision, the fear of default increased, so that when the €120 billion bail-out was at last agreed, it proved inadequate as a defence against the rising tide of default pessimism.

The confused handling of the Greek crisis stands in stark contrast to the rapid and effective measures taken by the United States Government in the Mexican crisis of December 1994, which was very similar. In the latter case, investors in Mexican government tesobonos faced a complex mixture of currency risk and default risk. Yet the US\$50 billion package assembled by the Clinton Administration in a few days, predominantly in the form of guarantees, stemmed the run and rapidly restored confidence.<sup>17</sup>

If a credible eurozone institution had guaranteed Greek bonds at the outset, the immediate crisis would be over, at negligible cost. Finally, EU finance ministers held an emergency meeting on 9 May 2010 where they agreed to adopt an extraordinary rescue package guaranteeing all of Greece's sovereign bonds and the bonds of other eurozone members by establishing an off balance sheet entity which would issue bonds worth up to 660 billion euros (including an IMF 250 billion facility) to banks and other investors which would be fully guaranteed by eurozone states. The emergency rescue package essentially bailed out the banks and other creditors who had purchased Greek sovereign debt and it imposed the burden of adjustment almost entirely on the taxpayers of Greece and indirectly on the taxpayers of all eurozone states. The Greek rescue package will have the effect of increasing moral hazard for the creditors of EU sovereign states by incentivising them to make more and riskier loans to eurozone states with the cost of any adjustment borne by the debtor state and indirectly by European taxpayers.

The confusion and delay in putting together the guarantee fed the flames of volatility and it is now not clear that even this sum will be enough. A more damaging sequence of events would be difficult to imagine, but worse may come. Having at last chosen to follow a sensible guarantee strategy, the eurozone Governments plan to resuscitate the growth and stability pact. The eurozone has been gripped by deficit hysteria, with all Governments being forced to commit to massive cuts in public expenditure. The path to recovery is to be paved with unemployment and bankruptcy.<sup>18</sup>

<sup>17</sup> As Alan Greenspan recounts in his autobiography: "Mexico ended up using only a fraction of the credit. The minute confidence was restored, it paid the money back-the United States actually profited \$500 million on the deal". Greenspan (2009)

<sup>18</sup> As the *Financial Times* leader argued on 25<sup>th</sup> May 2010:

"growth is a precondition for stability, not something to be traded off against it. Putting countries on the rack of debt deflation will not stabilise their economies, only destabilise their politics".

The Greek crisis demonstrates the inadequate crisis management framework in the EU and the need to establish a clear structure of macro-crisis management. As well as clear cut lines of responsibility and decision making, this might include a sovereign liquidity or 'solidarity' fund to which EU states experiencing short-term funding problems would have access to borrow during times of crisis until they regain access to capital markets. The EU 'solidarity' fund would be paid for by a small transaction tax on all sovereign bond sales. The tax could be imposed at a very low level – ten basis points/0.10%, or five basis points/0.05% - so as not to distort significantly the sovereign bond market and it would be easily enforced by the states issuing the bonds who would simply withdraw the tax at source from its coupon payments to investors over a period of time.

If instead the country is not merely illiquid, but insolvent, more drastic measures should be taken and the EU sovereign liquidity fund would continue to be available, but needs to be supplemented by a mechanism for determining collective guarantees. These should be offered on the basis of strict conditionality, in which the state in question may be required to undertake significant structural reforms to, for example, the fiscal system, the structure of macro-economic management, or the labour market. Short-term austerity measures may be a necessary component of a rescue package. But their impact should always be assessed against the needs of medium term recovery.

The approach we are suggesting would involve a major re-think of the political economy of the EU in general and the eurozone in particular. It would require a significant change of direction in fiscal policy, with discretionary policy making replacing the rules of the Growth and Stability Pact that have so conspicuously failed. Whether the institutions for discretionary policy can be constructed on a European scale is a political issue that is beyond the scope of this Study. All that we would say is that to avoid the EU becoming an engine of cumulative deflation that will ultimately undermine the credibility of its institutions, a number of crucial issues in economic decision making must be resolved.

As far as financial regulation is concerned, the breadth of activities permitted in financial markets define the parameters within which discretionary policies can operate. Re-thinking macro-prudential regulation is therefore an integral part of the wider reform of economic policy-making.

### 3. GLOBAL SOLIDARITY MECHANISMS AND FINANCIAL TAXES

The global financial crisis has imposed huge economic and social costs across developed and developing countries, with the burden falling disproportionately on the poorest. The crisis has made it extremely difficult for developed countries to honour their pledges taken at the Gleneagles G7 Summit in 2005 to increase their financial support for global public goods and in particular to achieve the Millennium Development Goals (MDGs). This chapter examines the effectiveness and feasibility of several financial taxes that aim to provide a sustainable source of revenue for governments to absorb some of the costs of crises and to pay for the MDGs and other public goods. In doing so, we evaluate the effectiveness and feasibility of these taxes to accomplish the following separable objectives: 1) to curb excessive risk-taking in the foreign exchange and wholesale securities, derivatives and futures markets, 2) provide adequate revenue to pay for the social costs of financial crises, and 3) and to pay for global public goods.<sup>19</sup> We argue that the effectiveness and feasibility of these taxes will be determined in part by how well their design satisfies the following criteria:

- 1) existing clearing and settlement infrastructure is transparent and supports application,
- 2) the tax level should achieve a balance of economic benefits in terms of risk mitigation that does not significantly distort the market nor undermine liquidity;
- 3) raises adequate revenue to help pay for European and global goods; and
- 4) complies with applicable EU and international legal requirements.

We argue that centralised clearing and settlement systems make it practicable for authorities to monitor and collect a tax on financial transactions, especially for foreign exchange transactions and centrally cleared derivatives. A financial transaction tax is a generic term covering a number of possible taxes that could apply to certain securities investments, derivative contracts or other financial products including commodities. We will examine the currency transaction tax (CTT) and a broader tax on all exchange traded, centrally-cleared and over-the-counter (OTC) derivatives, and a bank balance sheet tax. We conclude that a CTT satisfies these criteria because most foreign exchange transactions are settled by the Continuous Link Settlement Bank (CLS Bank) and the CTT could be imposed on a transnational basis in the CLS Bank infrastructure with support from central bank real-time gross settlement systems (RTGS).

By contrast, the non-forex OTC derivatives market lacks transparency and the institutional attributes that are necessary for effective monitoring and collection of a FTT. Regulatory pressures, however, are leading to more and more OTC derivatives migrating to clearing houses in order to reduce systemic risk and counter party risk. Central clearing of these trades will not only reduce risks and enhance synergies for dealers of these instruments, but also make it feasible to monitor transactions and potentially collect a transaction tax. Nevertheless, there are concerns regarding implementation, circumvention, evasion and enforcement which lead us to conclude that a tax on OTC trading would be very difficult to implement and if policymakers want to adopt it they should phase it in over a period of time until centralised clearing becomes a more accepted practice and then focus the tax mainly on derivatives trades that are centrally cleared. Finally, we recognise that some countries may want unilaterally to impose a tax on bank balance sheets (ie., on non-deposit liabilities or on profits), but we do not believe that this will be an appropriate tax for most emerging market countries.

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<sup>19</sup> Global public goods can be defined as goods or services that are not provided by the market because of market failure and which government can therefore be justified in providing on efficiency grounds in order to enhance economic and social outcomes.

### 3.1 The economic rationale of financial transaction taxes

The recent crisis has raised questions about the possibility of a Tobin or transactions tax to restrain the explosive growth of financial transactions in recent years. Several international organisations, the G20 and some developed countries are debating and examining the viability of a financial transactions tax (FTT) that would be aimed at limiting excessive risk-taking in financial markets, providing an insurance fund for the failure of large financial institutions, and providing revenue to assist countries in coping with the crisis and in providing public goods.

It is important to note that these three objectives are separable, both in their economic rationale and in practice. The first objective, limiting excessive risk-taking is derived from the desire to price risk efficiently. In this case how the funds are used subsequently is not part of the agenda. The proposition that such funds might be used to build an insurance fund is quite separate argument related not to mitigating the riskiness of financial transactions but to pricing accurately the implicit insurance provided to institutions too big to fail. The provision of assistance to those most affected by ill chosen risk-taking is a third component of an efficient pricing strategy. Hence the objective of efficient pricing may be pursued by adopting all three goals at once, or by pursuing them separately.

The idea behind a FTT has been attributed to Nobel Laureate James Tobin who proposed a currency transaction tax in the 1970s primarily to limit the destabilising influence of the growing volume of very short-term forex transactions and enhance control over financial aspects of macro-economic policy.<sup>20</sup> Since Tobin's original proposal, the idea of a financial transaction tax has been developed by economists and civil society groups as a possible revenue source to finance global development objectives (Haq et al., 1996). Recently, the global financial crisis has brought the issue back on the agenda with the G20's efforts to rebuild the financial architecture. Unlike the pre-crisis literature, proposals for a FTT have gained considerable traction, both as a financial stability instrument and/or as a solution to pay for global public goods, such as the UN Millennium Development Goals (MDGs) and the 2009 Copenhagen Agreement climate change policies.

In considering the merits of a financial transaction tax, one should bear in mind that the object of economic activity is to produce goods and services. Financial transactions are the means by which that production is funded. But in recent years transactions have grown much more rapidly than production and trade. This raises two important questions. First, why have they grown so rapidly? Second, what should be the ideal volume of transactions relative to the trade and production they support?

In the 1960s, world trade grew by 8.2 per cent a year. That trade, together with long-term investment flows, was financed by foreign exchange transactions that were roughly double the value of the trade deals themselves. Between 2000 and 2007 growth in trade had slowed to just 5.8 per cent a year. Yet the value of foreign exchange transactions had risen to more than 80 times the value of the underlying trade and long-term investment. Or consider another example of transactions growth, particularly relevant to the current financial distress. At the centre of much of the turbulence has been the use of credit default swaps (CDSs). It is estimated that, at the end of June 2008, the value of CDSs outstanding in major financial markets was US\$57.3 trillion (BIS, 2009). In late 2008, the US Depository Trust and Clearing Corporation revealed that the value of CDS transactions was ten times greater than the value of the underlying risk being insured.

The growth of derivatives markets and in particular of CDSs and other similar instruments can be attributed to the collapse of the Bretton Woods system in the early 1970s. As fluctuations in exchange rates became commonplace, opportunities for profit proliferated, and rules restricting flows of capital were removed.

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<sup>20</sup> Tobin (1978, 154).

And this, in turn, reinforced the need for investors to hedge against fluctuating rates: under the new system foreign exchange risk was no longer borne by the public sector, but by the private sector.

This privatisation of risk created an expansion in the scale and variety of derivative instruments designed to hedge risks. The total value of such contracts rose from just over US\$1,000 billion in 1986, to around US\$516,000 billion in 2007. And less than a third of these were standardised traded instruments, bought and sold on exchanges. The rest were customised transactions between two parties, provided “over the counter” (OTC).

After Lehman Brothers collapsed in 2008, liquidity vanished because it was impossible to sell OTC assets, or to use them as collateral. It became clear that neither the senior executives of sophisticated banks, nor their regulators, understood the deals made in their names. But the risk to the economy as a whole was not just a function of complexity, but also of the sheer size of the transactions themselves, relative to the underlying trade or loans on which they were written. For example, Lehman’s OTC credit default swap book had a notional value of US\$72 billion, yet Lehman’s net exposure to OTC credit default contracts is estimated to have been only about US\$5.2 billion. When the credit rating of AIG was downgraded, it had to post new collateral of US\$13 billion on its gross liabilities – something it was unable to do.

The problem of the seemingly ever-growing tower of transactions erected on foundations of relatively small underlying assets has led to the now generally accepted policy conclusion discussed above in 1.4: As many assets as possible should be forced into clearing systems, or markets where they can be readily bought and sold. If financial instruments are traded, this reveals what they are actually worth. And it has the further advantage of encouraging the development of simpler “plain vanilla” assets, rather than complicated derivatives. These simpler assets can be “netted” to reveal the true underlying risk. The British and US authorities, as well as international bodies such as the G20, the Financial Stability Board and the EU are now all proposing some form of central clearing for CDSs. Some, including the US Treasury and the EU, are calling for all standardised contracts to be traded through a clearing house or an exchange.

This would be a major improvement, but there will still be the issue of the growing volume of non-standard, over-the-counter contracts, and the apparently inexorable growth of the ratio of gross to net transactions. That is where the suggestion of Adair Turner, Chairman of the UK Financial Services Authority, that policymakers should give serious consideration to a transactions tax (Turner, 2010). The growth of transactions imposes a risk on society as a whole. Those who impose that risk should pay for it. If they don’t, then risk is mis-priced.

Academic opinion, however, is strongly divided over what utility financial transaction taxes have in curbing excessive risk-taking and generating sustainable sources of revenue. Proponents of financial transaction taxes have based their views on certain assumptions about trading and pricing in asset markets: that modern financial markets are characterised by excessive trading activity and short-term speculation, and that such speculation generates volatility not only in short-term asset prices, but also in long-term asset prices marked by persistent and dramatic departures from equilibrium.<sup>21</sup> Keynes observed that this led to the ‘predominance of speculation over enterprise’ and led to reduced long-term investment and growth. Accordingly, a tax on transactions in securities and other financial instruments would increase the cost of speculative trading, especially for trades with shorter durations, and this would have a stabilising effect on asset prices. Moreover, the tax would generate revenue needed to assist governments with fiscal consolidation, especially during times of crisis.

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<sup>21</sup> Summers and Summers (1989), Stiglitz (1989), De Long et al. (1990), and Schulmeister (2009).

Opponents of transaction taxes generally share the view that the case is flawed because it ignores the fact that a high number of transactions – both short and long-term - are necessary for the price discovery process to work and for the efficient distribution of risk. More transactions lead to a smoothing in asset price movements towards equilibrium,<sup>22</sup> and short-term trading is necessary to allow effective hedging and should not therefore be limited. Any increase in transaction costs (ie., a tax) would limit parties ability to hedge risk, thus reducing liquidity and increasing short-term volatility of asset prices. An alternative, and fundamentally contradictory point, is that globalised and liberalised financial markets make it very difficult to implement a FTT and will result in evasion and circumvention of the FTT, thereby reducing substantially its effectiveness and its revenue-raising capacity.

### 3.1.1 Global public goods

Many reports have extolled the virtues of financial transaction taxes as a source of innovative financing to pay for economic and social development.<sup>23</sup> The severe economic and social costs of the global financial crisis have reinforced the need for policymakers to consider alternative and innovative sources of finance to fund commitments made by developed states to achieve the UN Millennium Development Goals (MDGs) by promising substantial increases in public resources to reduce poverty in the world's poorest countries.<sup>24</sup> The G7 Heads of State reaffirmed the MDGs in 2005 at the Gleneagles G7 Summit by promising increased financial support for poverty reduction in the world's poorest countries and by raising Official Development Assistance to 0.7% of Gross National Product, along with climate change mitigation measures for developing countries. These financial commitments, however, have not been kept. Indeed, the World Bank has estimated that since 2005 the resource gap between the financial commitments made by developed countries and their actual expenditures and support levels for global public goods grew significantly and would reach an estimated range of between US\$324-336 billion per year sometime between 2012 and 2017 (OECD 2009). This resource gap for global public goods could be reduced, however, if the global economy revives and achieves a self-sustaining recovery with increased growth rates and tax receipts. Nevertheless, even if the global economy improves, the resource gap for developed countries will remain substantial, thus making it difficult for developed countries to fulfil their financial commitments for global public goods. Therefore, policymakers must consider alternative forms of finance to provide sustainable and substantial sources of finance to achieve MDGs and climate change mitigation objectives.

The International Monetary Fund is now considering these taxes and is expected to propose in a report in June 2010 that countries considering FTTs would do best to adopt a financial stability tax on bank balance sheets that would pay for a bank resolution fund and/or a financial activity tax that would be levied on the profits and remuneration of financial institutions and paid to a general revenue fund.<sup>25</sup> Similarly, the European Commission (2010) is considering the various options for a global financial transaction tax and how it might be implemented in the European Union.

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<sup>22</sup> Habermeier and Kirilenko (2003), and Grahl and Lysandrou (2003).

<sup>23</sup> See Task Force for Financial Integrity and Economic Development (2009) 'Taxing Banks'.

<sup>24</sup> UN General Assembly resolution, United Nations Millennium Declaration, (18 Sept. 2000) A/Res/55/2. The United Nations MDGs were adopted by the UN General Assembly at the Millennium Summit in 2000 joining the world together in a fifteen year effort to combat hunger, disease, and poverty. The MDGs are the most comprehensive definition of what global public goods are and have served as a basis for measuring the success of countries' efforts in achieving internationally agreed development goals. The MDGs consist of eight specific goals that include: 1) eradicating extreme poverty; (2) achieving universal primary education; (3) promoting gender equality and empowering women; (4) reducing child mortality; (5) improving maternal health; (6) combating HIV/AIDS, malaria and other diseases; (7) ensuring environmental sustainability; and (8) developing a global partnership for development.

<sup>25</sup> International Monetary Fund 'A Fair and Substantial Contribution by the Financial Sector – *Interim Report for the G20*', pp 2-3 (23 April 2010). The IMF report proposes two types of financial contributions or taxes: 1) a 'financial stability contribution' that is linked to an effective bank resolution mechanism, and 2) a 'Financial Activities Tax' (FAT) that is imposed on the amount of profits and remuneration of financial institutions and would be paid to general revenue.

The European Parliament has supported this initiative and has urged the European Union to agree on a common position in the international framework of G-20 meetings as regards the options as to how the financial sector could make a fair and substantial contribution toward paying for the social costs inflicted on the global economy because of excessive risk-taking and to compensate governments for the costs associated with bank bailouts and other forms of government intervention to stabilise the financial sector during the crisis.<sup>26</sup> Other states have followed the EU Parliament's lead by examining the feasibility of innovative sources of finance (including FTTs) to pay for global development objectives, but expressly not considering the taxes for regulatory objectives.<sup>27</sup>

### 3.2 Currency Transaction Tax (CTT)

The foreign exchange market ('FX market') is crucial for the functioning of the global financial system because it is the largest and most liquid of the asset class markets. In the post-crisis environment, it has taken on an even greater significance because of the recognised importance of liquidity to the successful operation of the global financial system. The FX market is used by most banks' customers – including corporations, institutional investors (life insurance and pension funds), and sovereign wealth and hedge funds. Although trading volumes dropped in 2008-2009 in the aftermath of the Lehman's collapse, daily volumes have now increased from their lows and are expected to grow further as the market recovers. In 2009, the average daily turnover of the FX market was in excess of three trillion US dollars. The vast majority of the market (about 90%) consists of spot transactions, outright forwards and swaps, while non-traditional foreign exchange derivatives and products (currency swaps and options, and exchange traded contracts) make up only ten percent of the market (Chart 8). Most of these trades are either 'spot' (traded immediately) or due to be settled within 7 days, which suggests that most of these trades are mainly speculation and have little connection to underlying trade. Moreover, banks are the main dealers and intermediaries in the FX market because of their institutional capacities to handle high volume trading and the associated risks. The largest foreign exchange dealers are ten banks that control nearly 80% of the market in foreign exchange dealing.<sup>28</sup>

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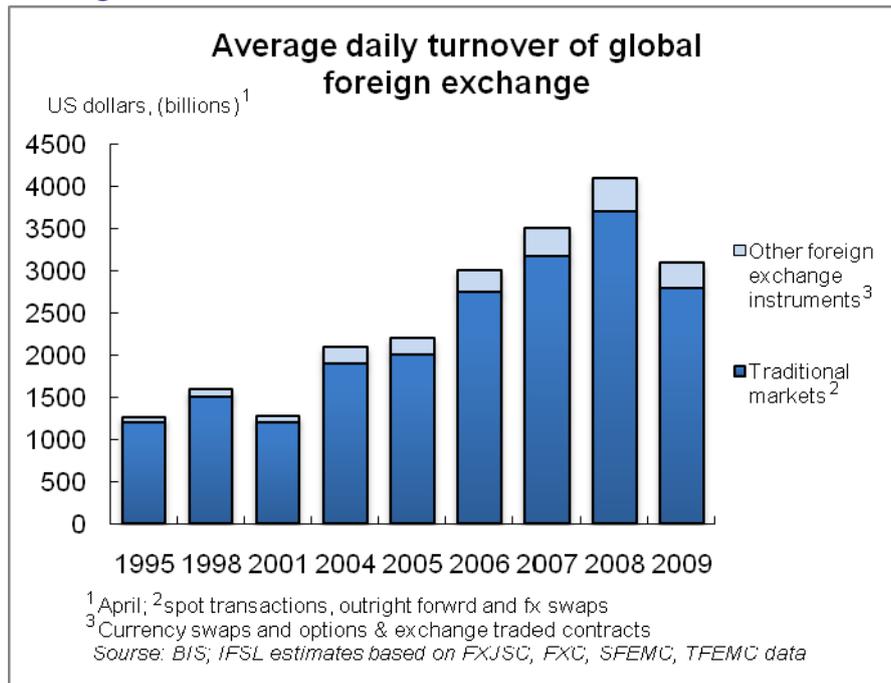
<sup>26</sup> European Parliament, Motion for a resolution to wind-up the debate by the Commission pursuant to Rule 110 (2) of the Rules of Procedure on Financial transaction taxes – making them work' (8.1.2010) B7 0000/2009. In this context, the Parliament has resolved that the EU should adopt its own strategy regarding the range of possible options for prudential regulatory measures, including a global financial transaction tax that will have the twin objectives of addressing serious market failures in the banking and capital markets whilst serving as a source of innovative finance to pay for the social costs imposed on countries by the crisis and providing for global public goods, including the UN Millennium Development Goals (MDGs) and climate change policies.

<sup>27</sup> Financial Leaders Group (a group of countries) has followed the initiative of the EU Parliament and other governments with support for a global currency transaction tax. See FLG Terms of Reference (on file with authors).

<sup>28</sup> The banks ranked in order of their market share: Deutsche Bank, UBS AG, Barclays Capital, Royal Bank of Scotland, Citigroup, JP Morgan, HSBC, Credit Suisse, Goldman Sachs, BNP Paribas. See Annex III. The concentrated market share held by these banks suggests possible competition law concerns in the provision of forex dealer services.

## Chart

8



A CTT would work as follows: it would be assessed on individual foreign exchange transactions by dealers in the foreign exchange market and monitored and possibly collected by the Continuous Link Settlement Bank (CLS Bank) with support from central banks through their real-time gross settlement systems (Annex V). This could work with national authorities conducting the collection on a national basis in cooperation with central banks and with access to information provided by payment and settlement institutions such as the CLS Bank. The financial intermediaries and dealers would pay the tax and if there were no intermediary in the process (eg., intra-group payments within a corporate group) then the taxpayer would be liable itself (ie., the corporate holding company). Generally, however, the country would collect the CTT on all transactions through the intermediaries (banks and other brokers) based within that country, independently of where the transactions are negotiated, the location of transferor or transferee, or the place of settlement.

The CTT is similar to the Tobin Tax, but is different in important respects: the Tobin tax was intended to slow the flow of cross-border capital ('throw sand in the wheels') to enhance the ability of national authorities to conduct monetary policy and to prevent an exchange rate crisis. This meant that the Tobin Tax had to be at a high enough rate (0.50% or 1.0%) to change investor behaviour, which led to the criticism that under certain circumstances it would significantly limit liquidity in the market, which could exacerbate a crisis. Instead, a CTT could be assessed at a low enough rate (0.01%/1 basis point or 0.005%/ one-half a basis point) so as not unduly to limit liquidity, while deterring only those transactions with such low spreads (0.01% or 0.005% or less) that it would not have an appreciable effect on liquidity nor on underlying economic activity.

The advocates of a CTT are motivated by two related concerns. First, it seems appropriate that global public goods are financed out of the profitability of activity driven by globalisation. Second, the exponential growth of foreign exchange turnover has far exceeded the growth of world trade and cross-border investment flows and therefore the tax should be used to reduce the disproportionately large growth of foreign exchange transactions.

The potential revenue to be generated by such a tax, especially if the leading reserve currency countries<sup>29</sup> adopt it on a cross-border basis, would be substantial and could be used to pay for economic development objectives in poor countries and for other public goods, such as climate change initiatives. The average daily value of foreign exchange transactions is close to US\$3 trillion (Chart 8). Accordingly, such a tax could raise billions of dollars per year to pay for global public goods or other social causes. To raise such sums, the rate of the tax could be very low indeed – at 0.005% of the value of the transactions - and still raise substantial sums. Nevertheless, for such a tax to be effective in raising large amounts, it would have to be universal in scope, comprehensive in application, and not easily evaded.

### 3.2.1 How high should the CTT rate be and how much revenue?

The rate at which the tax should be levied involves an analysis of how much revenue can be generated at a particular rate without substantially limiting liquidity. This will depend on two factors: 1) how much the market will decline given the tax rate charged, and 2) the market's capacity to pay the tax. Schmidt (2008) estimates a fall in volume of transactions of 14% if the rate of one half of a basis point (0.005%) is levied. The market's capacity to pay the tax will depend in part on the depth of liquidity in the market and ability of dealers and clients to circumvent and avoid the tax. Some studies suggest significant 'market dampening' and 'leakage' would lead to a market reduction of twenty five percent (Baker, 2008). In contrast to these cautious estimates, the actual experience of financial markets with stamp duties levied on equity share trading (UK) or on both equity and bond transactions (Brazil) is that these markets have generally internalised these taxes without substantial reductions in market trading or avoidance. For instance, the 0.5% UK stamp duty on share transactions generated about £3.9 billion for the UK Treasury in 2009. This did not limit London's role as a leading international financial centre, nor undermine the London Stock Exchange's premier position as a leading international exchange. Moreover, Brazil has successfully levied a tax on currency exchange agreements and a tax on transactions involving bonds and securities which has not led to substantial market dampening.<sup>30</sup> Brazil has generated substantial revenues from its 'umbrella-type' array of transaction taxes on foreign investment in equity stock and debt instruments at a rate of 2%;<sup>31</sup> and its most recent transaction tax on bonds and securities, including those trades carried out on the Brazilian stock exchange, is at 1.5%.<sup>32</sup> Both the UK and Brazilian equity and bond markets continue to grow strongly despite the economic and financial slowdown.

At a 0.005% levy, the proposed CTT is 100 times smaller than the UK's existing stamp duty on shares and therefore should not undermine London's position as the leading centre for foreign exchange trading!<sup>33</sup> Proponents of the CTT estimate that a low tax rate can generate substantial revenue even if only applied to a few reserve currencies (UK sterling, and euro) (Nissanke 2003, 72; Patomaki & Sehm-Patomaki, 1999). Accordingly, it is difficult to show that a UK CTT of 0.005% – equivalent to a £500 charge for a £10m transaction – would undermine London's status as the *world's* leading centre for foreign exchange trading.

<sup>29</sup> The five main currencies which constitute foreign exchange market trading are; the US dollar 86.3%; euro 37.0%; Japanese Yen 17.0%; UK sterling 15.0%, Swiss franc 6.8%;. The ultimate totals for all currencies would equal 200% to reflect the two legs of a currency trade.

<sup>30</sup> See Barbosa, Müssnich and Aragao (14 Dec. 2009) 'Changes in Brazilian IOF/Exchange and IOF/Bonds and Securities Taxes'.

<sup>31</sup> A tax of two percent was applied to foreign investments in stocks and fixed income securities. The tax was aimed primarily to curb capital inflows into Brazil's capital markets which has recently driven up the value of the reals. See Barbosa pp. 3-4.

<sup>32</sup> Decree No. 7,011/09 (Brazilian Official Gazette, 19 Nov. 2009). Under Brazilian law, these taxes are defined as 'extrafiscal' meaning that these taxes have economic and financial purposes, other than the purpose of raising revenue for the government. Unlike other taxes, the authorities can alter these taxes flexibly without parliamentary approval to respond to changing economic and financial circumstances (Barbosa et al., 2009).

<sup>33</sup> London serves as the world's leading foreign exchange trading centre with over 35% of the value of foreign exchange transactions taking place in London, followed by the US (13.9%), Japan (6.7%), Singapore, 6.0%. See International Financial Services London (Sept. 2009).

The most comprehensive and realistic estimates of how much money a CTT can raise are from Schmidt (2008) and Baker (2008). Based on 2007 data before the crisis, Schmidt (2008) provides the more optimistic estimate that a coordinated CTT levied at 0.005% (one-half a basis point) applied to the leading reserve currencies<sup>34</sup> would yield US\$33.41 billion a year.<sup>35</sup> In contrast, a coordinated CTT at the same rate on all the major currencies except the dollar would yield US\$21.24 billion a year, and a coordinated tax on only the euro and sterling would yield US\$16.52 billion a year. His estimates are more realistic and much lower than what other CTT proponents had estimated because he gives more weight to market dampening as a result of the tax.<sup>36</sup> Most of the volume reductions that result from the tax derive from the loss of short-term trading, such as algorithmic trading, that responds to very small spreads of less than one basis point which would be smaller than the estimated tax. On the other hand, his revenue estimates can be considered more optimistic because he minimises the risk of avoidance and circumvention because of the expected effect of centralised settlement in the CLS bank system which would make it very difficult to avoid paying the tax.

Schmidt's higher estimates should be contrasted with those of other CTT and FTT advocates who adopt similar methodologies but give more weight to avoidance and circumvention. For instance, Baker (2008) estimated a CTT yield of only US\$7.8 billion that took into account a higher level of market reduction of 25% based on a tax rate of 0.01% (one basis point). Niskanen (2003) uses 2001 BIS data to estimate that a global CTT at a rate of 0.02% applied to wholesale transactions would yield between US\$30-35 billion while at a rate of 0.01% would yield between US\$17-US\$31 billion a year. We adopt Schmidt's estimate of US\$33.41 billion a year because it offers a realistic assessment of the capacity of the CTT to raise revenue based on the depth and liquidity of the foreign exchange markets and the institutional consolidation that is occurring in centralised settlement of foreign exchange transactions in the Continuous Link Settlement System.

### 3.2.2 CTT implementation – CLS Bank

It is important to consider the potential role of the Continuous Link Settlement System (CLS System) in ensuring that the CTT is implemented effectively. Most foreign exchange transactions are settled – payment for one currency is delivered for payment of another currency (PvP) – through the process of centralised settlement. The CLS System provides an institutional framework for the settlement of currency transactions on a transnational and centralised basis for the leading reserve currencies that are used by its member banks and participating institutions in the CLS System.<sup>37</sup> The CLS system holds data on all foreign exchange transactions which it settles and provides the existing administrative infrastructure that could be used to facilitate and/or collect a currency transaction tax.

The success so far of the CLS bank as a settlement service provider and its growing size in the FX settlement market suggests that the exercise of its settlement function could also be applied to collect a tax on currency transactions. Participants in CLS, however, would likely be nervous that a tax levied through CLS, but not elsewhere, could create a disincentive to use CLS. It is likely that the private benefits of banks using CLS, benefits from reduced counter-party credit risk, systemic liquidity risk, exposure risk, etc, exceed the cost of a small CTT levy of 0.01% or 0.005%.

<sup>34</sup> The leading reserve currencies are the US dollar, euro, Japanese yen, British pound, and Swiss franc.

<sup>35</sup> Schmidt's (2008) estimates for a CTT on the US dollar as one leg alone against all other currencies amounted to: US\$28.8 billion, while a CTT on the euro alone as one leg against all other currencies would yield US\$12.29, and similarly on the yen alone against all other currencies US\$ 5.59 billion, and sterling alone against all other currencies at US\$ 4.98 billion.

<sup>36</sup> For example, this should be compared with the much higher estimate of \$176 billion a year by Frankel (1996).

<sup>37</sup> These currencies are: the US dollar, euro, Japanese yen, UK pound, Swiss franc, Australian dollar, Canadian dollar, Swedish krona, Hong Kong dollar, Norwegian krona, New Zealand dollar, Mexican peso, Singapore dollar, South Korean won.

These private benefits are also social benefits and consequently either banks using CLS should be entitled to a reduction in capital adequacy requirements for their trading books, or alternatively those not using CLS or a similar system should face higher capital adequacy requirements for their trading book.

The CLS Bank is a natural candidate for managing the implementation of the CTT because it holds data on all foreign exchange transactions which it settles and could provide data to national governments regarding the volume and value of foreign exchange transactions with a view to potentially collecting a tax from these transactions. Of course, the CLS Bank does not have the legal mandate to collect taxes for any governmental or state entity and could only do so based on statutory or treaty authorisation. However, if it did have such authorisation, how successful might it be in collecting revenue?

### 3.2.3 CLS estimated volumes and value

CLS Bank has shown consistent growth since 2002 in both the value and volume of foreign exchange transactions it settles (Annex IV). The increasing value and volume of CLS transactions can be attributed in part to the growing value and volume of trades between CLS, its member banks and third party users. CLS now settles trades in 17 currencies, an increase from the original seven currencies in 2002. Although the number of bank members has not changed substantially since 2002, the number of third party users has increased substantially - including non-CLS member banks, non-bank financial institutions, corporations, and investment funds - to over 1400 members in 2010 (CLS 2010). This has resulted in substantial growth in the value and volume of foreign exchange transactions settled through the CLS system.

In 2009, the CLS Bank settled approximately fifty five (55%) of the value of foreign exchange transactions (Annex II).<sup>38</sup> Traditional correspondent banking settles about 32% of the value of foreign exchange transactions (Annex I).<sup>39</sup> The CLS System is clearly the dominant method for foreign exchange settlement because of the synergies and reduced exposure for counterparty banks to foreign exchange settlement and credit risk.<sup>40</sup> These benefits make it profitable for banks to incur the relatively low costs of participating in the CLS System while achieving the regulatory objective of reducing settlement risk and systemic risk.<sup>41</sup>

However, using CLS to settle foreign exchange transactions is optional – even for its shareholder banks – and therefore if banks perceive that they can save costs by settling certain transactions through other methods (ie., bi-lateral correspondent banking) they are free to do so, even though this may not be desirable from a regulatory perspective. Moreover, the Basel II capital rules do not create incentives for banks to settle their foreign exchange trades through CLS: banks are required to hold the same level of capital on their forex exposures whether they are settled through CLS, bilaterally, or otherwise. Market participants are highly price sensitive and not obliged to settle through the CLS infrastructure.

<sup>38</sup> Recent, unconfirmed data suggest that CLS now settles about 70% of the global forex market. Meeting with Rob Close, CEO of the CLS Bank (1 March, 2010).

<sup>39</sup> A lower portion of the FX settlement market is held with 'on-us without settlement risk' (3%) and 'on-us with settlement risk' (1%) where both legs of a foreign exchange trade are settled across the books of a single institution. See definitions and description of 'on-us without settlement risk' and 'on-us with settlement risk' in Annex II.

<sup>40</sup> Some suggest that CLS could expand its range of foreign exchange coverage by offering same-day settlement of trades, such as dollar-yen, which has been difficult to achieve because of the time difference between the US and Japan, and further expanding the currencies it covers and signing up more banks as members (BIS 2008).

<sup>41</sup> Although we assert that CLS Bank would provide an efficient institutional mechanism for collecting the tax, we however recognise that there are accountability concerns in having a private US bank perform such an important public function and therefore we would suggest that the 17 participating central banks in the CLS System agree with the private bank members of the CLS System to change the governance structure of the CLS System to allow participation of non-CLS member central banks and tax authorities so that they can be involved in monitoring data related to the tax and its collection.

Unless there are offsetting benefits therefore from using CLS there is concern that there is a significant possibility of capital flight from the CLS system, thereby potentially leading to adverse economic effects from the tax.<sup>42</sup>

The CLS Bank's growing share of the foreign exchange settlement market suggests that it will have institutional dominance in the future over the management and collection of data related to the value and volume of foreign exchange transactions. Nevertheless, its growing market share is fragile and could drop if member banks and their customers decided to settle FX transactions through more traditional ways, such as bilateral correspondent banking, or other alternative settlement arrangements.<sup>43</sup> However, member banks and their customer financial firms and institutions which settle through CLS gain substantial benefits and synergies in terms of risk reduction and would probably not want to sacrifice these significant cost advantages for the sake of paying a very low tax rate on foreign exchange trading. Based on the above, it is difficult to estimate reliably how much tax could be raised through the existing CLS system given the voluntary nature of CLS for its member banks. However, assuming the current size of the FX market (US\$3 trillion a day) and the substantial synergies and risk reduction benefits banks gain from settling through CLS bank, we can surmise that a low tax of 0.005% would probably not deter many transactions from settling in the CLS system. Therefore, based on the gross size of the FX market and the CLS market share of 55%, we can conclude based on Schmidt's estimates in **3.2.1** that if the tax were only collected on foreign exchange transactions settled through the CLS bank it would generate just over US\$18 billion a year.

#### **3.2.4 Technical feasibility and incidence**

In considering the administration of a financial transaction tax, previous studies support the viability of such a tax being administered in modern foreign exchange settlement systems. Indeed, Schmidt (2008) has observed:

"The infrastructure for settling foreign exchange trades is increasingly formal, centralized and regulated. This is due to new technology, subject to increasing returns to scale, and to cooperation between trading and central banks to reduce settlement risk. Settling a foreign exchange trade requires at least two payments, one of each of the currencies traded. Settlement risk is eliminated when payment obligations are matched and traced to the original trade, and then payments are made simultaneously. The technology and institutions now in place to support this make it possible to identify and tax gross foreign exchange payments, whichever financial instrument is used to define the trade, wherever the parties to the trade are located, and wherever the ensuing payments are made."

The CLS Bank, along with the CLS infrastructure, could permit currency transaction taxes to be imposed at relatively low levels, which has little effect on the relative costs of the transaction. Nevertheless, central banks that operate RTGS systems have emphasised that there was nothing in their mandate that would authorise them to support the CLS bank in collecting a CTT. Understandably, central bankers charged with financial stability are very concerned about undermining market stability, and would be concerned about any process that drove participants off well established and well run existing markets which might hinder liquidity and significantly raise transaction costs. This point is reinforced by the belief that the CLS bank had performed extremely well during the crisis and especially during the week in September 2008 when Lehman's Brothers collapsed the CLS bank settled effectively \$26.3 trillion in foreign exchange payments for the 17 reserve currencies settled in the CLS system. Central Banks would like more use of CLS because of the high transparency of the transactions.

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<sup>42</sup> CLS Bank costs £80mn a year to run CLS which is recouped by a charge on the transactions going through CLS – a charge of only 22p on a transaction/instruction of £1 million. This charge was described as "a struggle to get the market to bear".

<sup>43</sup> See Annex II.

Nevertheless, in an age when authorities have effectively nationalised the bulk of banking systems, where governments and central banks have purchased substantial quantities of hard to value private instruments, if regulators believe using a central settlement system promotes financial stability then using such a system can be made mandatory for instruments to be legally valid or there could be higher capital adequacy requirements for those taking greater systemic risk for not using a central settlement system with central bank participation.

On the other hand, the incidence of the tax may create private costs that offset the social benefits from enhanced regulation. Foreign exchange trade encompasses a huge amount of different commercial activities with differing motivations. While foreign exchange speculation was one type of commercial activity taking place on the market, a large number of trade, investment, savings, and pensions activity – conducted by individuals and business entities at the retail and wholesale levels - involves the foreign exchange markets. As such, a large proportion of ‘activity’ on the foreign exchange market is already taxed in numerous ways. Also, foreign exchange trading supports international trade in goods and services and a tax on currency transactions might hinder international trade itself by increasing the cost of trade finance, especially for developing countries. It is uncertain whether it is desirable to try and exclude from the CTT transactions that primarily support international trade because it might be difficult to differentiate between foreign exchange speculation and hedging transactions and currency transactions that are incidental to international trade. On the other hand, the size of the levy being proposed is unlikely to make any material difference to a corporate or real goods trade transaction. It may be useful to note that on many of these transactions, legal and banking fees often amount to well in excess of 1.0% or 100 basis points. In large cross-border corporate finance transactions, banks charge advisory fees, arrangement fees and commitment fees, and each of these is a large multiple of a basis point. In trade finance transactions, banking fees are similar, amounting to many multiples of a basis point.

Some critics, however, are sceptical that the tax would have a ‘negligible effect’. Whilst the proposed size of the levy (0.005% or 0.5 basis points) appears very low, it is not low relative to the spreads for the most liquid exchange rates in the foreign exchange market such as euro/US\$, £/US\$, and US\$/¥. In times of low volatility, spreads for these currencies were reported to stand at around one basis point, in which case a 0.5 basis point levy would be very significant. Nevertheless, it should be noted that the spread is not a reflection of trading profitability, but reflects the price of liquidity. Banks make profit from trading foreign exchange partly by charging for this liquidity, but primarily by following trends in the market place and in their customer business.

Regarding the burden of the tax, it should be observed that in terms of information the foreign exchange market is primarily a wholesale market. Retail transactions are a very small proportion of total transactions. The burden of the tax will fall on those carrying out thousands of transactions over short periods of time – this is decidedly not retail, it is wholesale and is primarily algorithmic trading. For instance, a pension fund investor will execute transactions in a long-term fund a few times a year, whilst a hedge fund would do so hundreds of times.

### **3.2.5 The CTT in summary**

To be effective, a currency transaction tax should be adopted on the broadest definition of foreign exchange transactions. The tax should be paid on each foreign exchange transaction regardless of how it is settled. Although it would be desirable for the countries and jurisdictions which issue the 17 reserve currencies of the CLS Bank to sign an international treaty that would give the tax universal effect, such an international agreement would probably take a few years to negotiate and ratify. Therefore, we recommend that countries should in the first instance decide unilaterally to impose the tax on all foreign exchange transactions in a particular currency wherever the transaction takes place in the world.

The tax can be imposed in an inexpensive and efficient way at the point of transaction settlement through the Continuous Link Settlement Bank with support from CLS's participating central banks which issue the main reserve currencies. The fact that all foreign exchange transactions are electronic makes collection cheaper and evasion very difficult. A levy on the euro will need a consensus from all euro area members. However, countries, such as the UK, Switzerland, Sweden, Norway, and Denmark could implement a CTT unilaterally for little expense in cost, time and effort, if they so wished.

The tax could be collected nationally through a country's RTGS payment settlement systems or trans-nationally by the CLS Bank and the proceeds could be shared between national governments and international organisations. Once collected, the revenue could be distributed either to national authorities first who might then have an obligation to use a pre-agreed portion of the revenues for domestic crisis and poverty relief before sending another agreed portion of the proceeds to international organisations to be distributed to specified overseas development assistance programmes. Alternatively, the money once collected could be distributed directly to a global solidarity fund which could be established to use the money to finance crisis and poverty relief programmes and global public goods, such as climate change initiatives. Regarding enforcement, the doctrine of foreign illegality authorises courts to refuse to recognise contracts that violate the laws of foreign and friendly countries on public policy grounds. In this case, contracts which are not stamped as paid under the CTT (or other approved tax) would not be recognised or enforced by the courts of other jurisdictions who would also be signatories to an international treaty recognising enforcement of the CTT. For contracts not stamped as paid, their lawfulness and enforceability would be called into doubt, thus undermining their effectiveness.

### 3.3 A FTT on exchanged-traded, centrally cleared derivatives and other products

Based on the rather low estimates of revenue to be derived from a globally coordinated CTT (about US\$34 billion a year), it is necessary to consider a broader FTT, especially in light of the growing costs of financial crises and the magnitude of public resource gaps identified by UN and the OECD as necessary to achieve global public good objectives. A financial transaction tax could be extended beyond a currency transaction tax to include a broader number of transactions that would include most areas of the over-the-counter derivatives (OTC) market and certain exchange traded derivatives and possibly equity and bond markets. Although the tax could be levied at a rate similar to the CTT, it could be applied at different rates to reflect different risks posed by the instruments and different liquidity requirements in the markets in which the instruments trade. This rationale would not apply to the CTT because the foreign exchange market is dominated by five main reserve currencies (along with twelve other currencies in the CLS system) and the FX dealing market is heavily concentrated and dominated by ten or twelve leading international banks.<sup>44</sup> In contrast, dealing and trading in other instruments may involve a broader number of players located in multiple jurisdictions. In considering a broader FTT, Spahn (2004) has proposed that different tax rates apply to different counterparties (regulated banks, other financial institutions and private capital, and non-financial corporations and public institutions) depending on their size and the systemic risk they pose. This proposal assumes that some categories of counterparty (e.g. hedge funds) or transactions (e.g. certain derivative products) are more prone to speculative trading than others. Such a multi-tiered tax regime should aim to identify the desirable level of reduction in trading activities, which should be large enough to eliminate short-term speculative trading, but not so large as to limit unduly or hamper the normal functioning of markets.

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<sup>44</sup> The five main currencies which constitute foreign exchange market trading are: the US dollar 86.3%; euro 37.0%; Japanese Yen 17.0%; UK sterling 15.0%, Swiss franc 6.8%;. The ultimate totals for all currencies would equal 200% to reflect the two legs of a currency trade.

Schulmeister (2009) has adopted a methodology to estimate how much a broad FTT can raise across a wide number of financial instruments (including bonds, exchange-traded, centrally-cleared and OTC derivatives). His estimates incorporate conservative parameters for market dampening, avoidance and circumvention. Although his estimates are rather cautious, they appear the most realistic of the studies reviewed and provide probably the most accurate estimate to date of the market impact of a FTT at tax rates of 0.5%, 0.1%, or 0.01%. Based on his methodology, we consider the lowest tax rate of 0.01% on exchange-traded and OTC derivatives, including those related to interest rates and credit-linked instruments because these types of instruments usually involve shorter term positions and consist of higher levels of leverage and thereby pose more risk to the financial system. Based on his model, we estimate a broad-based FTT could potentially yield between US\$100-US\$120 billion a year.

### 3.3.1 FTT implementation and centralised clearing of derivatives

As with the CTT, it would be advantageous to implement the tax through centralised clearing and settlement structures. Recent regulatory initiatives in Europe and the United States have encouraged centralised clearing of many types of standardised derivatives contracts. As discussed in **1.4.3**, the US Congress has before it two bills that would require most standardised derivatives contracts to be cleared through a clearing house with some exceptions for non-financial firms that enter hedging transactions. Similarly, the European Commission has strongly encouraged dealers in OTC credit derivatives to use centralised clearing to reduce systemic risk and enhance transparency. Clearing houses are part of the post-trade infrastructure that supports the trading of many financial instruments, which usually occurs on exchanges. They act as buyers for every seller and sellers for every buyer, thereby ensuring that transactions are completed, even though one of the counterparties may default. The Market in Financial Instruments Directive (MIFID) lifted the regulatory controls on competition between clearing houses and CCPs in Europe and liberalised restrictions on who could own them. Clearing houses/CCPs are usually owned by banks, other financial firms and increasingly by exchanges and compete with each other for the clearing business. However, this has led to concerns over systemic risk that might arise because CCPs might be lowering their risk management standards and reducing margin requirements in order to attract more business. Regulators also require that CCPs issue detailed statements and reports on their tariffs, charges and costs for dealers and other users (Barnes 2010, 1). This type of centralised clearing network provides vital information to regulators and to customers about financial transactions involving their value and counterparty exposures. A CCP could also maintain and report the necessary data for a tax on centrally-cleared derivatives transactions to financial intermediaries and national authorities regarding the value of the transactions and how much tax is owed. CCPs in Europe already have sophisticated reporting processes for withholding tariffs and other charges and maintaining up-to-date data on all cleared transactions (Barnes, 2010). These reporting and data management processes could be applied to calculating and reporting the applicable amount of tax owed for a financial transaction tax.

Although there are multiple CCPs operating across European derivatives markets, they can arrange to exchange information on their transactions and customers on a cross-border basis and potentially provide the necessary data that would support a transaction tax. This is occurring because interoperability among Europe's CCPs and the new 'user choice' model involving trading platforms that offer participants the ability to clear through multiple CCPs has become the norm (Ibid.). Indeed, the growing interoperability between CCPs (clearing houses) provides the institutional framework to make collecting a FTT on derivatives transactions a practical proposition. Similar institutional developments are occurring in the US where a regulatory initiative in February 2009 involving supervisors from regulatory agencies with direct authority over one or more of the existing or proposed credit-default swap central counterparties discussed possible information sharing arrangements and other methods of cooperation within the regulatory community.

In September 2009, the group of regulators announced the establishment of the OTC Derivatives Regulators' Forum (the "Forum") to provide regulators and central banks from other countries with a means to cooperate, exchange views and share information related to OTC derivatives, CCPs and trade repositories.

In addition, the Depository Trust and Clearing Corporation (DTCC) Trade Information Warehouse for credit derivatives (the "Warehouse") is a user-governed, not-for-profit cooperative that provides a registry of the details of almost all outstanding credit default swaps traded globally. As of March 2010 the Warehouse held data on approximately 2.3 million contracts from OTC counterparties located in 52 countries, covering credit obligations of entities located in more than 90 countries around the world.

Centralised clearing has therefore resulted in consolidated data bases on all counterparties along with the value and type of derivatives transactions. This constitutes an important source of information that can make it possible to administer and monitor the application of a financial transaction tax on these types of instruments and ensure that the appropriate amount is collected. It is worth noting that the task of regulators in reviewing CDS data would be very difficult were there multiple warehouses for credit derivative data divided by geography, but this data in the case of OTC derivatives has been centralised with a clearing house and can be maintained if necessary for assessment and collection of a tax.

Based on the above, a transaction tax on either exchange traded derivatives and/or derivatives that are centrally cleared would be possible to administer at a basic level without great complexity, but would need to be phased in over time as centralised clearing extends its coverage over most OTC derivatives transactions. We therefore recommend this tax as an option for EU policymakers after further consolidation of centralised clearing of derivatives transactions.

### 3.4 A bank balance sheet/profits tax

Some countries have experienced mixed results after adopting a financial transaction tax. Sweden adopted a financial transaction tax in the mid 1990s that applied to all securities transactions – both equity and debt instruments. The result of the financial transaction levy was that much of the securities trading activity in Sweden moved to London and other financial centres.<sup>45</sup> Because the FTT led to substantial volumes of trading activity migrating to other jurisdictions, Sweden is now urging other G20 countries not to adopt a FTT and instead to adopt a levy on banks' balance sheets. Sweden adopted a so-called 'stability fee' in 2009 that was a direct levy on Swedish banks that provided a fund to pay for the bailout of any Swedish bank. The Swedish stability fee on banks and credit institutions now serves as a model for other countries. The Obama administration proposed a similar fee in March 2010 that it calls a 'responsibility fee' to be imposed on the largest US banks in order to repay US taxpayers for the costs of the US bank bailout programme. The Swedish levies are allocated to a stability fund managed by the Swedish National Debt Office. The government plans to continue levying the fee over a period of fifteen years until the revenue generated reaches 2.5% of Swedish GDP.<sup>46</sup> Banks will be required to pay the levy on an annual basis at a rate of 0.018% of each institution's liabilities, excluding equity capital and certain subordinated debt, based on audited balance sheets. Banks are not expected to make their first payments into the fund until 2010 after the balance sheets are audited and the government has injected an initial 15 billion kronor into the fund. Beginning in 2011, the bank levy will increase to 0.036 percent of liabilities with the government planning to introduce a weighted charge as well. Banks with riskier balance sheets would pay a higher percentage.

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<sup>45</sup> See Letter of Anders Borg, Finance Minister of Sweden, (20 Jan. 2010).

<sup>46</sup> The Swedish government estimates that 2.5% of GDP to be the cost that a full-scale banking crisis would cost the Swedish economy.

Such a tax on bank liabilities may not however address some types of excessive bank risk-taking and may result in banks being double-charged on their liabilities if they have retail or wholesale deposits which often require reserve requirements at the central bank.

Recently, other countries – including Germany - have adopted stability taxes on bank non-retail deposit liabilities. The G20 and the Financial Stability Board are reviewing this type of tax. Other bank balance sheet taxes might include a tax on risky assets or on remuneration packages that are viewed to encourage excessive risk-taking. In our view, however, we do not recommend a global tax on bank balance sheets because it would potentially impose serious financing costs on banks in developing and emerging market economies. In addition, such a tax might impose disproportionate cost on countries with bank-led financial systems. However, developed countries should have the option of imposing these taxes and coordinating their application with other jurisdictions, including by extraterritorial means if necessary.

### 3.5 Legal obstacles to implementation

#### 3.5.1 National sovereignty

The adoption of a financial tax raises not only economic issues regarding who bears the cost and the impact of the tax on liquidity, innovation, and risk distribution, but also raises important issues regarding national sovereignty and the authority of nation states to impose taxes and to recognise and enforce the taxes imposed by other jurisdictions. The international legal principle known as the 'revenue rule' prohibits states in the absence of a treaty obligation to the contrary from enforcing or recognising the revenue or tax laws of other states.<sup>47</sup> The effective application of a FTT and/or CTT in globalised and liberalised financial markets will require universal application and therefore necessarily involve the leading jurisdictions and states which issue the main reserve currencies to enter into a network of bilateral treaties or a multilateral treaty that recognises the application of the tax by the other signatory states. It will also be necessary for the 17 states which issue the main reserve currencies to require that financial transactions and currency transactions using their currencies are not legally enforceable in their domestic courts unless the parties can demonstrate that the relevant contract has been stamped 'paid.' International legal issues must also be addressed as well including whether the Organisation for Economic and Development (OECD) should adopt a multilateral model treaty or model bilateral treaty to authorise countries, especially those with reserve currencies and financial centres, to exchange data on all relevant transactions and parties so that the tax can be applied effectively.

#### 3.5.2 EU free movement of capital

The adoption of a FTT and/or CTT in Europe will raise significant legal issues under the EU Treaty's (TFEU's) principles on free movement of capital. Article 63 (1) & (2) of the Lisbon Treaty prohibits 'all restrictions on the movement of capital' and 'payments' between 'member states and between member states and third countries'.<sup>48</sup> EU treaty articles have horizontal and vertical direct effect against member states and private parties. The application of a CTT in Europe would have important legal ramifications because it is a potentially discriminatory limitation on the free movement of capital.

<sup>47</sup> The English courts enunciated this principle in *Holman v. Johnson* (1775) 98 Eng Rep. 1120 (Lord Mansfield observed in *obiter dicta* that '[f]or no country ever takes notice of the revenue laws of another').

<sup>48</sup> Article 63 (1) & (2) of the Treaty on the Functioning of the European Union (Lisbon Treaty) states:  
 (1) Within the framework of the provisions set out in this Chapter, all restrictions on the movement of capital between Member States and between Member States and third countries shall be prohibited.  
 (2) Within the framework of the provisions set out in this Chapter, all restrictions on payments between Member States and between Member States and third countries shall be prohibited.

See also European Commission Communication discussing effect of prohibitions (Commission 2010, 25-26).

This would be the case regardless of whether it was imposed by a national authority, central bank or non-state entity such as the CLS Bank because it would apply to transactions involving payments using different currencies issued by member states and on transactions involving payments using a currency issued by an EU state and that of a third country. Member states might argue that such a restriction on free movement of capital can be justified on public policy grounds or as a matter of overriding public security (art. 65 (1)(b)) because it aims to promote prudential regulatory objectives and pay for European and global public goods. Nevertheless, these exceptions permitting restrictions on the free movement of capital can not be arbitrarily discriminatory between member states or disproportionate in their application. This raises important legal obstacles to the CTT because it would *prima facie* discriminate against all transactions involving EU member countries which use different currencies (ie., between euro and non-eurozone countries) compared to those cross-border transactions within the eurozone using only the euro.<sup>49</sup> Regarding proportionality, it could be argued that EU states alternatively could raise a similar amount of revenue by imposing non-discriminatory taxes on the exchange traded and/or centrally cleared derivatives markets or on bank balance sheets or on commodities futures contracts that would not violate a treaty freedom, rather than imposing a CTT that would arguably violate the free movement of capital in an arbitrary and discriminatory manner within the Union. Nevertheless, the CTT's regulatory objective of reducing excessive foreign exchange transactions, providing a fund to pay for the social costs of a crisis, and raising revenue for European and global public goods provides a strong public policy and security rationale that could justify its limitation on the free movement of capital.

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<sup>49</sup> The European Commission has made this argument by stating that the CTL 'could represent a restriction of the free movement of capital and payments (Article 63)' and that even if a 'justification sufficient for purposes of the Treaty could be found' (raising money for global public goods) 'that requirement could not explain why transactions involving countries with different currencies would be treated less favourably than those involving only one currency'. Moreover, the Commission asserts that the CTL is 'disproportionate as funds could alternatively be raised by other means of budget attribution without affecting a basic freedom of the Treaty and, in any event, because the scope of the tax would be unrelated to the risks to be covered by the tax revenue raised.' (Commission, 2010, 26).

## 4. CONCLUSION AND RECOMMENDATIONS

**We call for an enhanced approach to regulation and supervision that monitors and assesses risk across markets and at the level of the financial system. We also identify the desirability of providing for a sustainable and dependable source of finance to support prudential regulatory objectives whilst also providing additional financing for global and European public goods in a manner which is complementary to other regulatory objectives.**

We argue that an effective macro-prudential regime will need to impose strict leverage ratios on banks and financial firms and possibly quantitative leverage caps for the broader financial system. Other aspects of macro-prudential regulation which we recommend for the EU include counter-cyclical regulatory capital buffers for banks that would be determined in part by the business and economic cycle. Also, maturity mismatches in wholesale funding for financial institutions should be subject to limitations and non-deposit liabilities should be kept within a strict ratio of total liabilities. Although the securitisation market is vital in many developed countries for economic recovery, certain synthetic instruments should be subject to higher capital charges and standardised credit risk transfer instruments should be migrated onto clearing houses where they would be subject to lower capital charges than if they were traded in the over-the-counter market.

The amended version of Basel II will probably result in regulatory capital having a more harmonised definition and consisting mainly of tangible common equity. This will have a disproportionate effect on the cost of bank capital raising in most EU countries and may have the effect of limiting the economic recovery. **Therefore, it is essential that such bank capital reforms be accompanied by rule-based counter-cyclical capital requirements that permit banks to hold lower levels of regulatory capital while their economies are in recession and to hold a proportionately higher percentage of tier one capital after the recovery has begun.**

The new EU institutional framework is intended to recognise the interdependence between micro- and macro-prudential risks across EU financial markets and the need to be accountable to the views of market participants and all EU stakeholders, including financial institutions, investors and consumers. **We recommend however that effective EU crisis management necessitates reforms of the EU bank resolution regime, the creation of an EU solidarity fund that would provide liquidity assistance to sovereign debtors during a crisis that could be paid for by a small tax on EU sovereign bond issuance, and by consideration of methods by which discretionary macroeconomic policy might be conducted in the event of severe crises.**

We are concerned that financial institutions will find ways to circumvent these requirements and will adopt innovations that will ultimately expose the system to new and more virulent forms of systemic risk. Indeed, modern history demonstrates that financial crises are recurrent, especially in liberalised financial markets, and will continue to impose substantial costs on taxpayers and society. Therefore, dependable and sustainable funding sources in the financial sector should be identified to help absorb these costs in a manner that supports prudential regulatory objectives and achieves broader social and public goods. Moreover, the global financial crisis has imposed huge economic and social costs across developed and developing countries, with the burden falling disproportionately on the poorest. The crisis has made it extremely difficult for developed countries to honour their pledges taken at the Gleneagles G7 Summit in 2005 to increase their financial support for global public goods and in particular to achieve the Millennium Development Goals (MDGs).

**We recommend therefore that international standard setting bodies such as the Basel Committee examine certain financial transaction taxes as a prudential regulatory measure to limit excessive risk-taking and as a crisis management measure to help states pay for the tremendous social costs caused by financial crises.**

These taxes can take various forms, and we compare several options, including a currency transaction tax, a broader tax on OTC and exchange-traded instruments, and for some countries who have suffered bank bailout problems a tax on bank balance sheets and profits. We compare the advantages and disadvantages of each tax and make recommendations based on whether these taxes meet the following criteria: 1) uses existing clearing and settlement infrastructure and administrative transparency in implementation; 2) the tax level should achieve a balance of economic benefits in terms of risk mitigation that does not significantly distort the market nor undermine liquidity; 3) yet generates substantial revenue to pay for public goods; and 4) is not unlawfully discriminatory under EU or international law. Practically, this means that the tax would have to be levied at a very low rate not to significantly distort the market and would have to be imposed almost universally on transactions that constitute a large and growing part of the financial markets in order to collect substantial and sustainable revenue. Also, the most efficient and effective mode of collection would have to be through national authorities and/or central banks. The data on taxable transactions could be collected and managed by payment information intermediaries such as SWIFT. Clearing houses and settlement institutions could also withhold taxes on transactions that take place on their systems and pass on to national authorities. These criteria should guide policymakers in considering what taxes would be most appropriate for their jurisdictions, but we recommend that policymakers agree on a universal approach through an international treaty or model bilateral treaties so that whatever financing mechanism is adopted it can be done so in a way that is coordinated between national authorities with adequate oversight and surveillance that minimises arbitrage and circumvention.

**We conclude that the currency transaction tax (CTT) most effectively satisfies the above criteria and could be used to promote prudential regulatory objectives as well as to generate substantial revenue for public goods both in Europe and internationally.** Although subject to some uncertainty under EU law, the CTT would, if applied to the leading reserve currencies, yield an estimated US\$33.41 billion a year. This estimate is based on a cautious view of the effects of circumvention and market dampening due to the tax. The adoption would take an important step towards limiting the disproportionate growth of financial transactions relative to overall economic growth while generating revenue to assist developed countries in meeting their Millennium Development Goal commitments and paying for other global public goods such as climate change. In recommending the CTT, we also believe that a broader FTT on OTC and exchange-traded derivative instruments and the broader securities markets could generate significant additional revenue, but that such a tax on a broad area of the financial markets should be phased in over time with a closer analysis of the incidence of the tax.

**We recommend that the CTT be implemented through the Continuous Link Settlement System and the Continuous Link Settlement Bank and that other FTTs can be similarly implemented through centralised clearing houses.** The CLS system acts as a trusted third party between two counterparty financial institutions in a foreign exchange transaction. CLS bank is well situated to monitor the wholesale transactions between the leading banks and foreign exchange dealers and could monitor, report and/or withhold the relevant tax on settled foreign exchange transactions. Central banks may also play a role in assisting CLS bank in monitoring the transactions to be taxed and providing information to national tax authorities. Effective implementation of the CTT will require that the CLS bank work closely with the national central banks in monitoring the tax through their real-time gross settlement systems.

Similarly, centralised clearing of derivatives transactions will provide the institutional framework for effective monitoring and implementation of a transaction tax on financial instruments that are cleared or exchange traded. Future regulatory reforms will provide incentives such as lower capital charges for intermediaries to clear their derivatives trades through CCPs and clearing houses and therefore a small transaction of tax of 0.01% (1 basis point) or 0.005% (one-half basis point) would be a small price to pay for the cost savings and reduced risk of clearing trades through clearing houses.

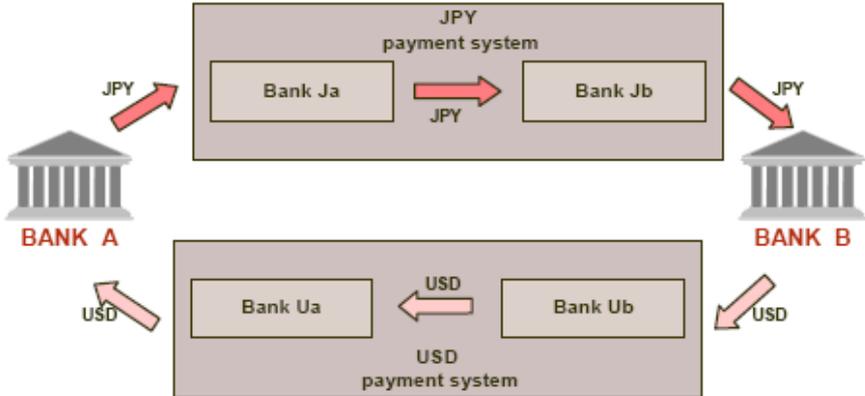
**We recommend that some of the revenue from these taxes be allocated through existing international aid bodies to supplement overseas development assistance and to help pay for public goods for the world's poorest countries and Europe's poorest regions.**

A well-designed financial transaction tax can be a source of innovative financing that can enhance market efficiency as well as generate substantial revenue to pay for social and economic development. FTTs/CTTs constitute a potentially revolutionary solidarity mechanism that can bind the prospects of the poorest in developing countries and emerging markets with those of the richest in developed countries, especially helping the governments of the poor countries who have suffered so much in the recent crisis. FTTs/CTTs can also play an important role as an alternative regulatory measure to limit excessive risk-taking and reduce socially useless transactions. These taxes can have a dual regulatory and economic development objective that can potentially enhance financial stability while providing sustainable funds for economic and social development in Europe and globally.

# ANNEXES

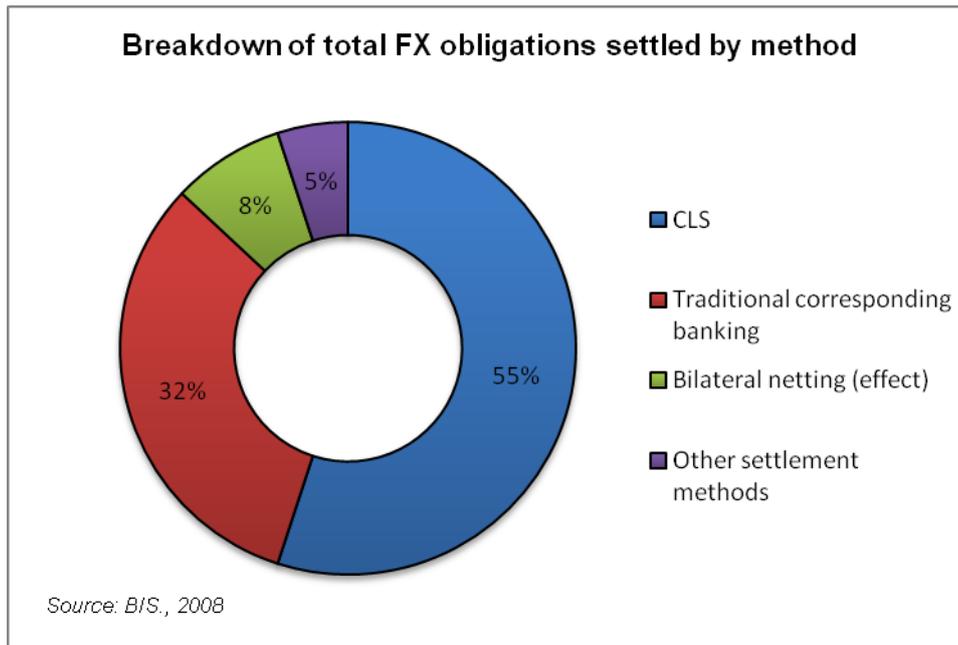
## Annex I

An example of how traditional correspondent banking settles FX trades



Data source: BIS 2009

## Annex II



	CLS	Traditional corresponding banking	Bilateral netting (effect)	Other settlement methods
<b>USD</b>	55	31	8	6
<b>EUR</b>	58	29	7	5
<b>JPY</b>	62	24	8	6
<b>GBP</b>	54	32	9	4
<b>CHF</b>	58	26	8	7
<b>AUD</b>	58	30	8	3
<b>CAD</b>	38	43	13	6
<b>SEK</b>	66	22	6	6
<b>HKD</b>	47	46	1	6
<b>NOK</b>	70	22	4	4
<b>KRW</b>	30	65	2	3
<b>NZD</b>	59	30	7	4
<b>SGD</b>	52	42	3	2
<b>DKK</b>	74	20	2	4
<b>ZAR</b>	58	33	6	3
<b>All other</b>	-	84	13	3
<b>Total</b>	55	32	8	5

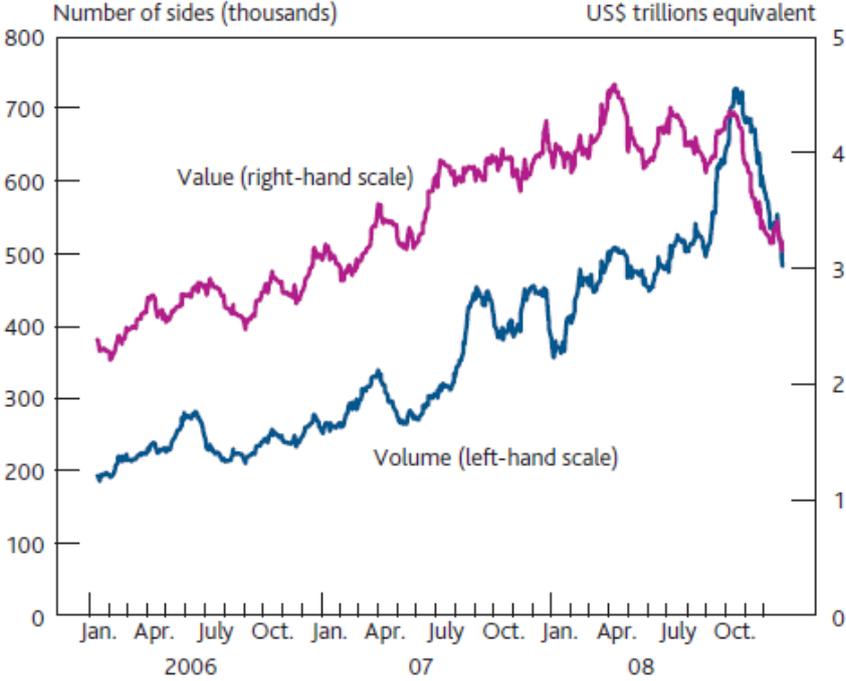
Annex III

<b>Largest foreign exchange dealers</b>	
% of overall volume, May 2009	
Deutsche Bank	21.0
UBS AG	14.6
Barclays Capital	10.5
Royal Bank of Scotland	8.2
Citigroup	7.3
JP Morgan	5.4
HSBC	4.1
Goldman Sachs	3.4
Credit Suisse	3.1
BNP Paribas	2.3
Other	20.1

Source: Euromoney FX survey

Annex IV

Daily volumes and values settled in CLS  
(30-day moving average)<sup>(a)</sup>



Source: CLS Bank International.

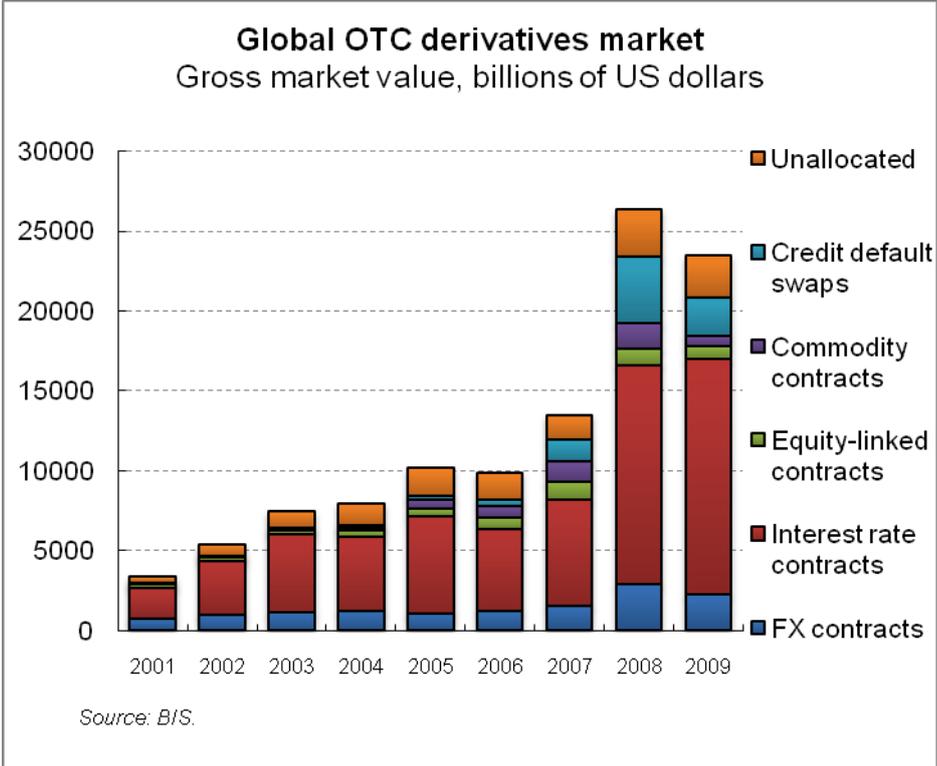
(a) The unit of measurement for trade volumes is 'sides'; there are two sides to each transaction. Both sides are counted in the value figures.

## Annex V – What is CLS Bank?

In 2002, central banks and leading private banks established a centralised international settlement system for foreign exchange trading by creating the Continuous Link Settlement System (CLS) and the Continuous Link Settlement Bank International (CLS Bank). This centralised foreign exchange settlement system involved the creation of a comprehensive payment v payment service for settling foreign exchange transactions that reduces settlement or principal risk and counterparty credit risk among participating financial intermediaries. The CLS Bank holds the deposits of its 59 member banks denominated in the 17 currencies of its participating central banks (the leading reserve currencies) in the CLS system so that if one member bank cannot fulfil its counterparty obligation to another CLS member, then the CLS bank can draw on the defaulting member's relevant currency deposit to cover the obligation owed to the non-defaulting CLS member. Also, the CLS Bank is used by individual institutions to improve their control and monitoring of foreign exchange exposures, while central banks have supported the CLS Bank by enhancing their payment and liquidity facilities and making them available to the CLS Bank. CLS Bank is an Edge Act Corporation under US federal banking law and authorised to conduct international banking business, including, but not limited to, settling foreign exchange transactions. The CLS System consists of its holding company, CLS Group Holdings AG, which has two main operating subsidiaries. 1) CLS Bank International ('CLS Bank'), and 2) CLS Services, Ltd., a company organised under the UK Companies Act 2006 with principal place of business in London and which provides technical services to CLS Bank. CLS Bank observes the Core Principles for Systemically Important Payment Systems published by the Committee on Payment and Settlement Systems of the central banks of the G10 countries (CPSS). The directors of CLS Group Holdings are elected by CLS Group shareholders.

**Annex VI – Global OTC derivatives market**

To consider the breadth and scope of the global OTC market and the potential for applying a transaction tax to this market, the data below provide the gross market value in trillions of US\$ on a daily basis. In considering whether to impose a tax on the OTC market, we consider the BIS’s estimates of how the volume of the OTC market has grown in recent years. Between 2004 and April 2009, the average daily turnover in the OTC market across all asset classes increased dramatically from about US\$8,000 billion a day to about US\$23,500 billion a day. See also data in BIS Triennial Survey (2007). As the chart indicates, interest rate contracts are the largest part of the OTC market amounting approximately to US\$13,500 billion a day (about 60% of the total OTC market).



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