



A FAIR AND SUBSTANTIAL CONTRIBUTION BY THE FINANCIAL SECTOR

FINAL REPORT FOR THE G-20

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EXECUTIVE SUMMARY

This report responds to the request of the G-20 leaders for the IMF to: “...prepare a report for our next meeting [June 2010] with regard to the range of options countries have adopted or are considering as to how the financial sector could make a fair and substantial contribution toward paying for any burden associated with government interventions to repair the banking system.”

While the net fiscal cost of government interventions in support of the financial system may ultimately prove relatively modest, this greatly understates the fiscal exposures during the crisis. Net of amounts recovered so far, the fiscal cost of direct support has averaged 2.8 percent of GDP for advanced G-20 countries. In those most affected, however, unrecovered costs are on the order of 4–6 percent of GDP. Amounts pledged, including guarantees and other contingent liabilities, averaged 25 percent of GDP during the crisis. Furthermore, largely reflecting the effect of the crisis, government debt in advanced G-20 countries is projected to rise by almost 40 percentage points of GDP during 2008–2015.

Many proposals have been put forward to recover the cost of direct fiscal support, and some have been implemented. Proposals for the government to recover these costs include levies related to selected financial sector claims and taxes on bonuses and specific financial transactions. The least distortionary way to recover the fiscal costs of direct support would be by a ‘backward-looking’ charge, such as one based on past balance sheet variables. This would define a fixed monetary amount that each institution would owe, to be paid over some specified period and subject to rules limiting the impact on net earnings.

The focus of countries’ attention is now shifting to measures to reduce and address the fiscal costs of future financial failures, through both regulatory changes and, perhaps, levies and taxes on financial institutions. Measures related to levies and taxes should: ensure that the financial sector meets the direct fiscal cost of any future support; make failures less likely and less damaging, most importantly by facilitating an effective resolution scheme; be reasonably easy to implement, including in the degree of international coordination required; enable, to the extent desired, an additional fiscal contribution from the financial sector to recognize that the costs to countries of crises exceed the fiscal cost of direct support; and address existing tax distortions at odds with financial stability concerns. A package of measures may be needed to attain these objectives.

Measures that impose new costs on financial institutions will need to reflect and be coordinated with regulatory changes under consideration. This is critical for ensuring policy coherence, enabling market participants to plan accordingly, and avoiding adverse effects on economic growth from placing an excessive burden on the financial sector.

After analyzing various options, **this report proposes two forms of contribution from the financial sector, serving distinct purposes:**

- **A “*Financial Stability Contribution*” (FSC) linked to a credible and effective resolution mechanism.** The main component of the FSC would be a **levy to pay for the fiscal cost of any future government support to the sector.** This could either **accumulate in a fund to facilitate the resolution of weak institutions or be paid into general revenue.** The FSC would be paid by all financial institutions, **initially levied at a flat rate (varying though by type of financial institutions) but refined thereafter to reflect individual institutions’ riskiness and contributions to systemic risk—such as those related to size, interconnectedness and substitutability—and variations in overall risk over time.**
- **Any further contribution from the financial sector that is desired should be raised by a “*Financial Activities Tax*” (FAT) levied on the sum of the profits and remuneration of financial institutions, and paid to general revenue.**

International cooperation would be beneficial, particularly in the context of cross-border financial institutions. Countries’ experiences in the recent crisis differ widely, and so do their priorities as they emerge from it. But none is immune from the risk of future failures and crises. **Unilateral actions by governments risk being undermined by tax and regulatory arbitrage.** Effective cooperation does not require full uniformity, but **agreement on broad principles, including the bases and minimum rates of the FSC and FAT.** Cooperation would promote a level playing field, especially for closely integrated markets, and greatly facilitate the resolution of cross-border institutions when needed. Risk adjustment of the FSC would facilitate wide participation in its adoption, providing some automatic adjustment for countries’ and institutions’ varying circumstances. Countries without contribution schemes should avoid actions that undermine the effectiveness of schemes implemented elsewhere.

Actions are also needed to reduce current tax distortions that run counter to regulatory and stability objectives. The pervasive tax bias in favor of debt finance (through the deductibility of interest but not the return to equity under most corporate tax regimes) could be addressed by a range of reforms, as some countries have already done. **Aggressive tax planning in the financial sector could be addressed more firmly.**

I. INTRODUCTION

1. **This report responds to the request of the G-20 leaders, at the 2009 Pittsburgh summit**, for the IMF to: “...prepare a report for our next meeting [June 2010] with regard to the range of options countries have adopted or are considering as to how the financial sector could make a fair and substantial contribution toward paying for any burden associated with government interventions to repair the banking system.” In doing so, it also reflects the call made by G-20 ministers and central bank governors in April 2010, to whom an interim report was presented, for the IMF to undertake “further work on options to ensure domestic financial institutions bear the burden of any extraordinary government interventions where they occur, address their excessive risk taking and help promote a level playing field, taking into consideration individual country’s circumstances.”

2. **The backdrop to this work is a fragile economic recovery and an active, full agenda for financial sector regulatory reform.** This makes it important that possible changes to tax arrangements for financial institutions be considered in conjunction with proposed regulatory reforms to ensure policy coherence, enable market participants to plan accordingly, and avoid adverse effects on financial intermediation and growth from placing an excessive burden on the financial sector.

3. **The report benefitted from survey responses from G-20 members, and discussions with officials, industry and civil society.** Section II assesses the costs of the *recent crisis*, with specific reference to the cost of direct fiscal support provided to the financial sector, and evaluates the measures adopted and considered by countries in its wake. Section III focuses on *future failures and crises*, developing objectives against which to evaluate potential measures to limit and cover their fiscal cost, and assessing specific options. Section IV proposes a way forward. Supporting material and further discussion are provided in appendices.

II. THE RECENT CRISIS: PUBLIC SUPPORT PROVIDED AND MEASURES TO RECOVER IT

A. Public Support Provided

4. **The financial crisis required many G-20 governments to provide extensive support to their financial sectors, especially in advanced countries.**¹ Measures included capital injections, asset purchase and protection schemes, guarantees, provision of liquidity and other support by central banks, and expanded deposit insurance coverage. Reflecting its origin, advanced economies—a few in particular—were more affected by the crisis than most emerging economies.

5. **In the advanced G-20 economies, pledged public support was massive, but was used only in part, and is in part being repaid.** Excluding guarantees (some 11 percent of

¹ Appendix 1 provides a more detailed analysis.

advanced G-20 GDP), resources made available for direct government support averaged about 6.2 percent of GDP. Reflecting the return of market confidence that it helped encourage, however, much of this pledged support was not used, and gross direct support amounted to 3.5 percent of GDP. This cost has been reduced by repayments and fees paid by banks (for example, for asset protection schemes and the provision of guarantees and deposit insurance). The fiscal cost of direct support, net of amounts recovered as of end-2009, is estimated to average 2.8 percent of GDP.²

6. **While the net fiscal costs may ultimately prove relatively modest, they greatly understate the fiscal exposures experienced during the crisis and the wider costs.**

Although some countries had very low or no fiscal cost, in other cases, costs unrecovered as of end-2009 were high: 6.1 percent of GDP in the United Kingdom, 4.8 percent in Germany, and 3.6 percent in the United States. Moreover, the wider fiscal, economic and social costs related to the financial crisis are even higher. The general government debt of the G-20 advanced economies is projected to increase on average by almost 40 percentage points of GDP over 2008–15, an increase in large part related to the crisis. Looking to the wider economy, the cumulative output loss so far in those G-20 countries that experienced a systemic crisis is about 26 percent of GDP.³

B. Measures Adopted or Considered

7. **To pay for the fiscal costs of the crisis, two main types of measures have been adopted (or are under legislative consideration):** levies on selected financial sector claims and taxes on bonuses.⁴

8. **The government of the United States has proposed a Financial Crisis Responsibility (FCR) fee to recover intervention costs.** Banks and thrifts, insurance and other companies that own insured depository institutions and broker dealers with assets of more than \$50 billion would be subject to an annual levy of 0.15 percent on—as initially proposed—total liabilities excluding Federal Deposit Insurance Corporation (FDIC)-assessed deposits and insurance policy reserves. The FCR fee is estimated to raise \$90 to \$117 billion over a 10 to 12 year period. It will be left in place until the cost of the Troubled Asset Relief Program (TARP) is fully covered (consistent with the requirement of cost recovery in the TARP legislation). The proposal is currently under legislative review, with the most recent revision being to use risk-weighted assets minus equity and insured liabilities as the base.

² Given the experience of gradual cost recovery in past crises, the medium-term net costs of direct support measures could be still lower in some cases. Indeed, data for 2010 suggest that in some countries recoveries may bring the net costs down substantially.

³ The output losses are estimated as the difference between trend and revised expected GDP for the 4-year period beginning with the crisis year, where trend GDP is estimated over the 20-year period prior to the crisis year and expected GDP is taken from the April 2010 *World Economic Outlook* projections. Fiscal costs are essentially transfers, and so not directly comparable to output losses: the resource loss from the former corresponds only to the associated efficiency losses from the policies needed to finance them.

⁴ Annex Table 1 and Appendix 2 provide details of these schemes and of forward-looking mechanisms referred to later.

9. **The United Kingdom and France have introduced temporary bonus taxes.** The “Bank Payroll Tax” in the U.K., which expired on April 5, 2010, taxed at 50 percent all bonus payments in excess of £25,000, and is projected to raise £2 billion. The scheme in France, which applied to bonuses paid during accounting year 2009, was also charged at 50 percent above a broadly similar threshold, and is projected to raise about €360 million. Unlike the FCR fee, these schemes are not intended to recover any specific amount.

10. **The public debate prompted by the crisis has produced many other proposals for cost recovery.** One, for instance, is to limit the use of tax losses built up by financial institutions during the crisis. Some advocates of a financial transactions tax (FTT) also view its potential for recovering the fiscal cost of the crisis as one of its merits. Many of these proposals, however, including for an FTT, are for permanent taxes—not simply recovering the costs of the recent crisis—and so are assessed in Section III on forward looking measures.

C. Assessment

11. **The least distortionary way to recover the fiscal costs related to the recent crisis would be by a ‘backward-looking’ tax,** meaning one assessed on some attribute—with balance sheet variables a logical choice—that was determined prior to the announcement of the tax. This would define a fixed monetary amount that each institution would have to pay, over some specified period and subject perhaps to rules limiting the impact on net earnings. The advantage of this approach is twofold: first, there would be very little scope for avoiding the tax (hence very little need for international coordination). Second, its incidence—the real burden of the tax—would likely fall largely on owners or managers in the financial sector, since the amount of tax due could not be affected by changing behavior. Care would be needed in selecting the base so as to avoid legal challenge as retrospective taxation; and, as with any retroactive measure, there would be risk of reducing the credibility of the tax policy framework. Other forms of cost recovery, in contrast, mean that the amount payable can be affected by decisions not yet taken, and so will potentially affect financial markets participants’ behavior (including through avoidance).

12. **The focus of countries’ attention is now shifting from recovering the direct fiscal costs of the recent crisis to reducing and addressing the costs of future financial failures and crises.** The rest of this report concentrates on these issues.

III. MEASURES TO LIMIT AND HELP MEET THE COSTS OF FUTURE CRISES

A. Objectives

13. **Regulatory changes under consideration by international standard setters aim to reduce the risks of financial failure.** It is assumed in the following discussion that these initiatives will address many of the risks in individual regulated institutions (such as over-leveraging and liquidity mismatches) that contributed to the recent crisis. They should also

help reduce systemic excessive risk-taking.⁵ It is also anticipated that the new regulatory standards and policies will be adopted and implemented by all G-20 members.

14. **Even with the efforts to improve market discipline and strengthen regulation and supervision, there will always be failures of financial institutions.** Financial institutions have to take risks in order to perform their intermediation and maturity transformation roles. As for any business, the possibility of failure is essential to enforce market discipline and discourage excessive risk taking. However, for these incentives to work effectively, **it is essential to ensure that the costs of failure are borne fairly and efficiently, and do not endanger the broader financial system or real economy.**

15. **Measures to pay for and contain the fiscal costs of future financial failures should be guided by two key objectives.** They should:

- **Ensure that the financial sector pays in full for any fiscal support it receives.** Expecting taxpayers to support the sector during bad times while allowing owners, managers, and/or creditors of financial institutions to enjoy the full gains of good times misallocates resources and undermines long-term growth. The unfairness is not only objectionable, but may also jeopardize the political ability to provide needed government support to the financial sector in the future. Full cost coverage could be achieved by a mixture of ‘ex ante’ payments reflecting the expected costs of future failures, and, as with the proposed FCR fee in the U.S., ‘ex post’ recovery charges (charged after failure occurs). Sole reliance on ‘ex post’ recovery, however, will be argued below to have substantial drawbacks in terms of both incentives and fairness.
- **Reduce the probability and the costliness of crises.** Measures should reduce incentives for financial institutions to become too systemically important to be permitted to fail, and should discourage excessive risk-taking. This has two aspects:
 - ✓ First, and importantly, the adoption of ***improved and effective resolution regimes***—to resolve weak institutions in a prompt and orderly manner, including through interim administration by the state (Box 1). Such regimes are emphatically not for bail outs: the crisis has shown that they are essential precisely in order to make bail outs less likely, by reducing the likelihood that governments will be forced, for fear of systemic implications, to provide fiscal support to shareholders and unsecured creditors. Such resolution mechanisms require resources, and, as a cost of doing business, it is appropriate that the financial sector pay for them through some form of charge.

⁵ The Basel Committee (2009) has proposed a number of reforms to the regulatory framework to improve the soundness of individual institutions and address deficiencies highlighted in the crisis. The Financial Stability Board has been tasked to deliver proposals for lowering the probability and impact of systemic financial institutions’ failures through strengthened regulatory and resolution frameworks that ensure these firms internalize the externalities they **impose** on the system, including by increasing the quantity and quality of (contingent) capital they are required to hold.

- ✓ Second, taxes and contributions may have a role in supplementing regulation *in addressing adverse externalities* from financial sector decisions, notably through the creation of systemic risks and excessive risk taking.⁶ Understanding of the proper roles of corrective taxation and regulation in this context is, however, quite limited. The issues, which are complex, are reviewed in Box 2 and at more length in Appendix 3. What is clear is that the design of any new contributions introduced to deal with the direct fiscal costs of failure should take into account the implications for incentives. They should be structured, in coordination with other regulatory initiatives, to have beneficial effects in reducing inappropriate private sector behavior and so make it less likely that fiscal costs will arise at all.

16. **Measures should be guided by three additional objectives.** They should:

- **Be reasonably easy to implement, accommodate differences in national financial structures, and recognize both national sovereignty and potential mutual gains from collective action.** New measures need to be readily implementable across various classes of financial institutions, and avoid creating scope for tax arbitrage. Understandably, countries have differing priorities and experiences as they emerge from the crisis. However, they all are vulnerable to failures and systemic crisis. Given the close integration of global financial markets, agreement on broad principles underlying measures will be beneficial and may facilitate cross-border resolution.
- **Enable, if desired, a contribution of the financial sector to reflect the wider fiscal and economic costs of financial crises.** Some may feel recovery of direct fiscal costs to be too narrow a goal. Fairness also requires that tax payments not be undermined by unacceptably aggressive tax planning.⁷
- **Address existing tax distortions, create few new ones, and ensure a reasonable overall burden of regulation and taxation.** Ideally, new measures would address or mitigate existing tax distortions (notably the tax bias in favor of debt),⁸ so improving the efficiency of resource allocation and reducing excessive leverage. Furthermore, recognizing the special importance of financial intermediation to wider economic performance, it is critical that the design of new levies/charges take into account the expected costs of future regulatory policies. This is needed to avoid imposing, through both explicit and implicit taxation, excessive costs on financial institutions.

⁶ As discussed, for example, in Acharya et al (2009), Bank of England (2009), Shin (2010b), U.K. Treasury (2009), and Weder di Mauro (2010).

⁷ The issue has been little studied, but recent work by Markle and Shackelford (2010) suggests that effective corporate tax rates tend to be lower for financial activities than in almost any other sector, and several G-20 tax administrations have taken initiatives specifically targeted at tax planning—on their own behalf and for others—by financial institutions.

⁸ This arises because interest is deductible against corporate tax while the return to equity typically is not.

Box 1. How Would an Improved Resolution Scheme Work?

Special powers need to be created for determination and resolution. As soon as there is a determination (usually by the supervisor) that an institution is insolvent or unlikely to be able to continue as a going concern, an empowered resolution agency (which may be a function within an existing financial oversight agency) would intervene. Upon intervening, the resolution agency would take the failing institution into “official administration” and exercise all rights pertaining to the board of directors and shareholders (including by replacing managers, recognizing losses in equity accounts, and, as necessary, exposing unsecured creditors to loss). The objective would be to stabilize the institution, assess its true state, and contain loss of value. Such a resolution framework would address the common failing in most countries that for financial institutions (particularly those that are systemically important) the public interest in financial stability too often leads to bailouts.

Liquidity support would not be the purpose of a resolution scheme. Such support is typically made available to viable institutions and not meant to deal with solvency problems. A solvent institution that faces liquidity problems would be expected to apply for liquidity support from the central bank only (not the resolution agency), provided of course that it has adequate collateral.

The resolution scheme would allow the intervened institution to continue operating, without any bailout. Secured contracts would be honored, limiting the disruption and value destruction of an ordinary bankruptcy procedure, and limit spillovers to other parts of the financial system and the real economy. It would allow time for an orderly resolution, which may involve recapitalization, spin-offs of business lines, “purchase and assumption” transactions, and the liquidation of unviable units and business lines. The objective should be to return the institution’s viable operations rapidly to private ownership and control.

Working capital would be required in the course of the resolution process, notably for bridge financing. The gross financing needs can be sizable, and could, in principle, come from general fiscal sources, an industry-financed fund, or a combination of the two. If established, the industry-financed resolution fund—as discussed in Section III.B—would be a first recourse in these cases. In addition, a government back-up line of credit should be available.

The need for and scope of reforms to current resolution regimes would depend on the ability of the present system to handle quickly and efficiently (without the need for judicial intervention) the restructuring and/or bankruptcy of financial institutions. The resolution regime and deposit guarantee scheme should be closely integrated to support a holistic approach to failing financial institutions, particularly as there may be overlaps in concerns for stability and the protection of depositors. Moreover, the resolution regime should apply to at least those nonbank financial institutions that could be systemic, which would bring a new challenge given the differences in balance sheets and regulatory frameworks across types of financial institutions. In practice, experience with resolution of nonbanks is quite limited and confronts many legal complexities. Furthermore, the regimes should be compatible across countries.

Special resolution regimes are being adopted or under consideration in a few countries. The United Kingdom has recently established such a Special Resolution Regime for banks (Brierley (2009), Bailey (2010)). Legislation has been proposed in the United States to expand the resolution powers of the Federal Deposit Insurance Corporation to address all systemically important financial institutions in the country. Related to this work, the IMF (at the request of the G-20) is preparing a paper addressing issues pertaining to cross-border bank resolution.

Box 2. Taxation and Regulation to Address Adverse Externalities from the Financial Sector

While the regulatory changes under consideration will be the primary tools to reduce the risks of financial failure, corrective taxation has a complementing role. Regulatory initiatives underway will reduce many of the risks in individual institutions and help reduce systemic excessive risk-taking. To the extent, therefore, that new contributions are introduced, it is important to understand their relationship with regulatory measures so as to achieve the greatest synergy in modifying behavior.

Taxes and regulation face complex complementarities and potential trade-offs, however, which are still poorly understood. Key considerations include:

- ***In a simple ‘textbook’ world regulation and corrective taxation would be equivalent tools—but the conditions for this do not apply in practice.*** If the government was perfectly well-informed, financial markets were complete and a range of other conditions were met, the same disincentives to risk taking could be imposed by either tool. For example, any desired capital or leverage ratio could be achieved by either taxing leverage or imposing costly capital requirements. And the differing impact on public revenues and after-tax profits could be offset by corresponding lump-sum transfers. The real world, however, falls far short of this theoretical benchmark, and the choice of instruments is then a substantive one.
- ***Buffers—public and private.*** Bank capital and revenues from a corrective tax can play complementary roles as buffers. Capital requirements create buffers within financial institutions and reduce the probability of individual failure. Taxes provide fiscal space for crisis intervention: a buffer at the system level. Whatever instrument is used, an improved resolution mechanism is essential to avoid moral hazard associated with expected government intervention.
- ***Uncertainty.*** When policy must be set to apply in a range of circumstances, tax measures have the advantage of providing more room for the private sector to respond, and regulation has the converse advantage of assuring more certain outcomes. The balance of benefits depends on the relative sensitivities of private sector responses to taxation and of marginal social damage from variations in the outcome. Where the latter can be very substantial—as in times of large systemic risk—regulation is likely to have the edge.
- ***Asymmetric information.*** For example, in order to reduce risk-taking taxation needs to be sufficiently progressive in the relevant range of possible outcomes. (This is because a proportional tax reduces the variance of after-tax risk for the investor; so to take on the same after-tax risk, greater before tax-risk will be taken on.) Hence, its effectiveness in this respect depends critically on the tax-setter having reasonably good information on the distribution of returns as perceived by the decision taker. In contrast, regulatory limits (such as caps on leverage or the outright preclusion of certain activities) can reduce risk taking even when regulators do not have access to information fine enough to impose an effective progressive tax.
- ***Institutional considerations.*** It may be easier to use soft information in regulation and supervision than in taxation (through tools based on Pillar II of the Basel Accord). By the same token, however, any lesser scope for discretion under taxation may guard against regulatory capture. Another consideration is that international coordination mechanisms appear to have been more effective in relation to regulation than in detailed tax policies.

17. **No single instrument is likely to achieve all these objectives.** A package of measures may therefore be needed.
18. **Instruments that are being considered can be grouped into two broad categories:**
- **Levies on financial institutions:** charged on financial institutions to cover the net fiscal cost of direct public support to financial institutions and help reduce excessive risk-taking.
 - **Other tax instruments:** to ensure a wider revenue contribution from the sector, to tax rents (i.e., payments in excess of the minimum competitively required), and/or to potentially address adverse effects of financial sector behavior.

B. Levies on Financial Institutions

19. **Several countries have established or proposed levies to help meet the cost of future crises.** The governments of **Germany, France, Italy, Sweden, the U.K., and the U.S.**,⁹ and the European Commission have proposed levies on their financial service industries, covering their banks and in some cases other classes of financial institutions (such as insurance corporations) as well. (Annex Table 1 and Appendix 2 provide an overview). Some of these proposals envisage that the proceeds of the levy would accumulate in a fund, others that they would go to general government revenues.
20. **Such levies require an effective resolution regime to avoid the perception that the receipts would be used to support failing institutions** (see Box 2). The legislation setting out the resolution scheme needs to define the principles underlying the levy, including the implementing authority. With the levy tightly linked to the resolution mechanism, its monitoring and collection would likely best reside (subject to overarching guidelines) with the resolution agency.
21. **In designing a levy, several aspects are critical:**
- **Perimeter of the levy:** The perimeter (i.e., the institutions that would pay the levy) could be narrow (such as banks only) or broad (i.e., all financial institutions). A narrow perimeter would single out specific institutions and create incentives for systemic risks to migrate. A broad perimeter, with appropriate allowances for riskiness in the base and rate, would address these concerns and better cover institutions that could become systemic in the future. In addition, it would recognize that all institutions benefit from the public good of enhanced financial stability provided by the resolution scheme. It would also help create a broad constituency to provide some level of accountability that any funds raised are used efficiently and remain available for financial sector support. Finally, singling out a narrow group of institutions to pay the levy could worsen moral hazard by

⁹ Initially proposed in both the House and Senate versions of pending legislation.

suggesting that they are less likely to fail than those outside the scheme. These considerations suggest that the levy should be imposed on all financial institutions.

- **Base of the levy:** Box 3 concludes that a broad balance sheet base, including some off-balance sheet items, but excluding capital (e.g., Tier one for banks) and with some allowance for insured liabilities, would meet the objectives of reducing risk, enhancing fairness, and raising revenues reasonably efficiently.¹⁰ The base definition will differ by institution type (e.g., an insurance company would typically have a lower base than a bank, reflecting the lower volatility of its funding).
- **Rate of the levy:** The rate should be adjusted to address institutions' specific risks and their contribution to systemic risk (see Box 3).¹¹ The setting of the rate could draw on experiences of past crises and their fiscal costs, and should take into account the risk profile of the financial system (including its structure and regulatory framework). Empirical analysis (Appendix 4) suggests that, given present institutional structures in major G-20 countries, (implicit) government support provides too big to fail financial institutions with a funding benefit between 10 and 50 basis points, with an average of about 20 basis points. The rate for non-systemic and less risky financial institutions could be substantially lower, implying a lower overall rate. As risks vary over the cycle, the rate would have to be adjusted so as to help make the financial system less pro-cyclical.
- **Implementation:** There should be an adequate phase-in period to avoid harming the ability of financial institutions to strengthen their capital base and adjust to the new regulatory regime, while continuing to support growth. The rate could initially be uniform by broad classes of financial institutions, but should be refined over time, to reflect individual financial institutions' risks. As regulatory reforms begin to reduce systemic risk—especially through enhanced resolution regimes—the rate could be reassessed. Past experiences suggest, as a rough guide, that for many countries the costs to be provisioned for would approximate 2–4 percent of GDP.¹² Assuming the average contribution rate to be 10 basis points and to be applied on a broad base of liabilities with a broad perimeter of financial institutions, this provisioning would be achieved for the major G-20 countries over about 10 years. Analysis suggests that such a charge would have only a very modest impact on credit expansion and economic growth (see Appendix 4).

¹⁰ Excluding equity also goes some way to counterbalancing the tax preference for debt under the corporate tax.

¹¹ Since the purpose of the levy is to ensure that financial institutions face an appropriate cost structure, the amount of levy paid should be deductible, like any other, under the corporate income tax. (Account will need to be taken of this in setting the rate of the levy, since deductibility will reduce corporate tax revenues). Similarly, while the incidence of the levy may well be passed wholly or in part to users of financial services (as discussed in Appendix 4), this is appropriately so, just as with any other cost.

¹² For countries in which the financial sector is particularly large relative to GDP, the risks to be provisioned for should be correspondingly higher. More generally, the rate of the levy should reflect differences in the structures of financial systems, e.g., as between emerging markets and advanced countries.

22. **The proceeds of a levy could finance a resolution fund, or they could feed into general revenues** (Box 4). Proposals in several countries link such a levy to the creation not only of a more effective resolution scheme but also to a fund. Sweden has established a financial stability fund to be capitalized by the financial sector. Germany is preparing legislation that will improve its ability to deal with failing financial institutions, including through imposing a levy on commercial banks to build a resolution fund. **Maintaining a levy, even when a fund is built up, to feed general revenues would preserve its beneficial corrective impact on the behavior of financial institutions.**

23. **An advantage of a dedicated resolution fund is that it could help empower a resolution agency.** While in some countries this function is assigned to an existing agency, such as the deposit insurance agency or the central bank, others may wish to establish a newly empowered agency, with the financing coming via a fund, that could: (i) take on the duties of managing the resolution of failing financial institutions (e.g., temporary operation of institutions, the disposition of assets, sale of business units), and (ii) determining the application of the levy (e.g., establishment of the base, perimeter, and rate in coordination with the supervisor). Establishing a dedicated fund would help secure the necessary income to support these administrative functions while maintaining the necessary independence of such a function from the standard budget process.

24. **As gross financing needs can be large, a contingent credit line will be needed.** As in the recent crisis, the initial gross support needed quickly may substantially exceed the final net costs. As a result, the revenue raised through the levy may be less than the up-front financing needs. This financing gap requires that the resolution agency have access to a credit line provided by the government to complement the resources provided by the levy (as with pre-funded deposit insurance agencies). Such a credit line would also avoid the perception that governments' capacity to support the resolution of institutions during crises would be limited to the revenues collected through the levy. Because the availability of this credit line is a continuing commitment on the government's general resources, it requires that a separate additional fee—no doubt much smaller than the levy—be paid by industry, with (for simplicity) the same base as for the levy, and accruing to general revenues.¹³

25. **The design of levies, and funds if established, should be guided by an internationally accepted set of principles, especially with a view to facilitating the resolution of cross-border institutions.** These principles might cover the determination of the target size of the fund (if established), the level of annual levies and the base on which they are imposed, the treatment of foreign branches and foreign subsidiaries, and the treatment of different classes of creditors in case of resolution. This would facilitate cooperation across countries and help ensure a level playing field, including by avoiding double charging/taxation. Most importantly, it could facilitate resolution of cross-border institutions. The creation of a multi-country (e.g., pan-European) fund can be envisaged and

¹³ For ease of implementation, the resolution agency might collect both the levy and the fee, remitting the latter to government.

is almost a necessity for closely integrated financial markets. It would provide a large impetus to addressing presently unresolved legal and operational issues—such as differing national insolvency regimes, lack of common triggers for intervention actions and approaches to supervision, and varying deposit guarantee schemes across countries.

26. **Recovery charges, imposed after a crisis has occurred, could supplement the ex ante levy.** This would avoid the government having to sustain the cost of supporting the financial sector. Ex post recovery charges do, however, have significant drawbacks. First, they impose a burden only on industry survivors; failed institutions pay nothing. Second, ex post financing may be pro-cyclical, requiring the industry to meet costs precisely when it is least able to do so. Thus, while they should complement a system of ex ante charges, sole reliance solely on ex post charges would be unwise. The base for such an ex post charge, when needed, could be similar to that of the levy.

C. Possible Additional Tax Instruments

27. **There may be reasons to consider additional tax measures beyond a levy of the type just discussed, including:**

- The large fiscal, economic and social costs of financial crises may suggest a contribution of the financial sector to general revenues *beyond covering the fiscal costs of direct support*.
- As discussed in broad terms above, taxes might have a role in *correcting adverse externalities* arising from financial sector, such as the creation of systemic risks and excessive risk taking. Specific proposals include for taxes on short-term and/or foreign exchange borrowing, on high rates of return (to offset any tendency for decision makers to attach too little weight to downside outcomes), and for corrective taxes related to notions of systemic risks and interconnectedness (see Appendix 4). The presumption is that receipts from these taxes would go to general revenue, although they need not equal the damage—however defined—that they seek to limit or avert.¹⁴ Of course, explicitly corrective taxes (on systemic risk, for instance) would need to be considered in close coordination with regulatory changes (such as additional capital requirements for systemically important institutions).
- The rest of this section focuses on two possible instruments directed largely to revenue-raising,¹⁵ though in each case their behavioral and hence potentially corrective impact cannot be ignored.

¹⁴ This is because corrective taxes need to address the *marginal* social damage from some activity, which may differ from the average damage.

¹⁵ There are other possibilities, including for instance a surcharge on the rate of corporate income tax applied to financial institutions (European Commission, 2010).

Box 3. A Levy on Financial Institutions: Base and Rate

The amount paid by any institution should reflect its contribution to systemic risk. Financial institutions differ in how much they contribute to systemic risk and consequently in the potential social costs of their failure. This different contribution should be reflected in the choice of the base to vary by type of financial institution (for example, banks versus insurance companies); and rate to vary within institution type (for example, across different banks) depending on their individual risk profile. The process of setting the rate and base would necessarily entail coordination between the regulatory agencies and the deposit insurance agencies in the case of banks.

The base of the levy would include balance sheet measures. The composition of the balance sheet of financial institutions captures risk considerations better than other variables (such as the volume of financial transactions or profitability). In deciding which components of the balance sheet to include, two issues arise: (i) whether the base should be represented by assets or liabilities; and (ii) whether it should be broad or narrow (e.g., include or not off-balance sheet items).

- ***There are tradeoffs between using assets and liabilities for the base of the levy.*** The use of risk-weighted assets has the merit of international comparability, given the broad acceptance of the Basel capital requirements and the methodology for determining risk weighted assets. One particular asset-based approach would be to tax the holding of level 2 and 3 trading assets—those assets not readily marked to market using observed prices, which could serve to discourage the buildup of assets that proved less liquid during the crisis.¹⁶ A levy on risk-weighted assets could, however, duplicate the effects of regulations also targeted at riskiness on the asset side (e.g., the Basel Committee capital requirements).
- ***A broad base on the liability side of the balance sheet may be preferable,*** as it allows a lower rate for any given amount of revenue, and so limits the risk of unintended distortion. Such a base would also reflect that the cost of resolution arises from the need to support liabilities. However, it would be important to exclude equity (so not to discourage capital accumulation). In principle, other liabilities could also be excluded to reflect their risk-characteristics or to avoid double taxation, such as subordinated debt, government guaranteed debt and intra-group debt transactions (an approach taken by Sweden). Indeed, the levy could be applied only to select liabilities (such as wholesale funding, short-term debt or foreign funding) with the explicit objective of discouraging such activities. However, the narrower the base concept, the higher the risks of arbitrage, evasion, and unintended effects. To avoid double imposition, insured liabilities could be excluded or, better, a (nonrefundable) credit given for payment of premiums in respect of insured liabilities.

Off-balance sheet items could be included to the extent that they represent a significant source of systemic risk. Any treatment of derivatives and other qualified financial contracts should be consistent with the forthcoming Basel Committee guidelines related to the measurement of leverage ratios. Accounting standards should also be taken into account, though ideally this concern would be addressed through a converged accounting standard. For example, the treatment of derivatives under European IFRS causes balance sheets to be much larger than under U.S. GAAP.

In sum, a broad balance sheet base on the liabilities side, excluding capital (e.g., Tier one for banks) and possibly including off-balance sheet items, and with a credit for payments in respect of insured liabilities is preferable.

The rate could be flat initially but risk-adjusted in the future. A uniform rate has the benefit of ease of implementation, but does not contribute to reducing riskiness and systemicness. A risk-adjusted rate could be designed to address the contribution to systemic risk. Ideally, the rate would vary according to the size of the systemic risk externality, e.g., based on a network model which would take into account all possible channels of contagion. In practice, however, existing models are not able to fully capture all propagation channels. Therefore, the degree of systemic relevance has to be estimated based on a series of indicators, as also contemplated by the Basel Committee in designing a capital add-on charge for systemic banks (see also IMF (2010)). As with some deposit insurance schemes, risk-differentiation could reflect both quantitative information (e.g., compliance with capital requirements) and qualitative assessments (e.g., a scoring system based on supervisory information). Quantitative indicators could include measures such as size, interconnectedness and complexity. When systemic risk can be identified to arise from specific activities (e.g., excessive reliance on short-term and wholesale funding), the rate could be adjusted accordingly.

¹⁶ Lepetit (2010).

Box 4. Should There be a Fund?

It makes no substantive difference to the public sector’s financial position whether a levy accrues to general revenues or to a fund that invests in government securities. Payment to general revenue leads, in the absence of changes to other taxes or spending, to less need for the government to sell debt on the open market. Payment to a fund which then purchases government debt has the same effect. The only difference is that payment to general revenues reduces the gross amount of debt issued, whereas payment into a fund leaves it unchanged, but with part of debt now held by a public entity—the fund. In both cases, *net* public debt—the net amount owed to the private sector by the government and the fund combined, which determines the interest burden—is lower, and by the same amount. The table below illustrates, for a levy of 100.

	Flows of Payments			Government debt	
	Private sector	Fund	Government Revenues	Gross debt	Net debt
No fund	-100	0	+100	-100	-100
Fund	-100	+100	0	0	-100

When failure occurs and cash is needed, the impact is again the same: with no fund, financing needs can be met by the government selling new debt on the open market; with a fund, financing needs are met by selling its holdings of government debt or passing them to institutions which may sell them.

Other considerations, related to market and public perceptions, and institutional constraints, can favor either approach:

- If not tied explicitly to an effective resolution regime, a fund may worsen moral hazard by creating an expectation that institutions will receive support from the government (through some combination of official support that pre-empts burden sharing by debt and equity holders) rather than being resolved. Payment into general revenue does not eliminate this risk (as was evident in the recent crisis). Hence, the need for a strengthened resolution scheme in either case.
- If a fund becomes too large, it may be vulnerable to diversion to purposes other than financial stability. This can be limited by capping the size of the fund and ensuring the fund’s mandate is well established to guard its independence. Payments, however, should continue into general revenues.
- Payment to general revenues may risk receipts being spent rather than used to reduce government debt. This may happen, for instance, if fiscal policy is focused on deficit or gross debt targets that remain unchanged when the levy is collected. However, the extent to which setting up a fund would allay this risk depends on its institutional classification. On standard statistical conventions, a fund would be part of “general government” if the government sets its broad policies. Its receipts would then be regarded as general government revenues and could be used to meet any fiscal rules at the general government level.
- In some countries (e.g., Germany), the constitution requires that the proceeds of a tax imposed only on some taxpayers be earmarked for their benefit.

Taxing financial transactions

28. **The recent crisis has renewed interest in the possibility of a general tax on financial transactions.** It is important to assess such proposals on their policy merits. Suggestions for some form of financial transactions tax (FTT) differ, including in their goals and degree of detail; one particular form is for a ‘Tobin tax’ on foreign exchange transactions. The common feature, focused on here, is applicability of the tax to a very wide range of transactions. Advocates argue that an FTT could raise substantial amounts. For example, a tax of one basis point has been estimated to raise over \$200 billion annually if levied globally on stock, bonds and derivative transactions, and a 0.5 basis point Tobin tax on spot and derivative transactions in the four major trading currencies to raise \$20–40 billion.

29. **The FTT should not be dismissed on grounds of administrative practicality.**¹⁷ Most G-20 countries already tax some financial transactions.¹⁸ Perhaps the broadest coverage is in Argentina, which taxes payments into and from current accounts, and in Turkey, which taxes all receipts of banks and insurance companies. Other countries charge particular financial transactions, as with the 0.5 percent stamp duty on locally-registered shares in the U.K. Collecting taxes on a wide range of exchange-traded securities (and, possibly, derivatives) could be straightforward and cheap if withheld through central clearing mechanisms, as experience with the U.K. stamp duty shows. Certainly the widespread use of a few clearance and settlement systems is helpful for implementing transaction taxes more generally. Of course, some important practical issues are not yet fully resolved. Questions remain, for example, as to whether such a tax might drive transactions into less secure channels. **But implementation difficulties are not unique to the FTT**, and sufficient basis exists for practical implementation of at least some form of FTT to focus on the central question of whether such a tax would be desirable in principle.

30. **There may indeed be a case to supplement a levy of the kind described above with some other form of taxation, but an FTT does not appear well suited to the specific purposes set out in the mandate from G-20 leaders.** With multiple objectives potentially to be served, as discussed in Section III.A, some instrument additional to the levy set out above may be needed. But an FTT is not the best instrument for these purposes:

- It is *not the best way to finance a resolution mechanism* of the kind discussed above, since the volume of transactions is not a good proxy for either the benefits it conveys to particular institutions or the costs they are likely to impose on it.
- It is *not focused on core sources of financial instability*. **An FTT would not target any of the key attributes—institution size, interconnectedness, and substitutability—**that give rise to systemic risk; adjusting the tax rate to reflect such considerations would be possible in principle, but highly complex in practice. (More generally, if the

¹⁷ Staff working papers reviewing both policy and administrative aspects of the FTT will be completed shortly.

¹⁸ Appendix 5 reviews this and other aspects of the current tax treatment of the financial sector in the G-20.

aim is to discourage particular types of transactions, this could be done more effectively by taxing or regulating them directly). Corrective arguments for an FTT are focused on rather different aspects of financial market performance (Box 5).

Box 5. A Corrective Role for an FTT?

Several arguments have been made for an FTT as a way to improve financial market performance, but there are significant drawbacks:

- ***“An FTT would reduce “wasteful” financial transactions.”*** Some stress the very large increase in the ratio of financial transactions to global GDP as suggestive of socially unproductive financial activity. But, even apart from data issues, quite what that ratio would ideally be is far from clear. While there are reasons to suppose the sector may in some cases be too large, this is best addressed by other means, as discussed in the next section.
 - ***“An FTT would reorient financial transactions toward long-term investment based on fundamentals, and reduce speculative bubbles.”*** An FTT would indeed eliminate some short-term trading. And while some of this may well be felt to have little social value, it is difficult to distinguish ‘undesirable’ from ‘desirable’ short-term trading—or to assess their relative importance. Not all short-term trading is trend-following; some is contrarian. Nor is it clear that lower transactions costs intensify cyclical market price swings: asset bubbles arise even in markets with very high transactions costs, such as real estate. If the aim is to discourage particular short-term transactions, regulation or targeted taxes are more effective.
 - ***“An FTT would reduce market price volatility.”*** It is now generally recognized that this is not always true in either theory (thinning of markets, for instance, can increase volatility) or practice (the empirical finding generally being that transactions taxes either do not affect price volatility or increase it).
 - ***“An FTT would not distort real investment and hedging.”*** While an FTT would have the greatest impact on low-margin, short-term trading, it would also increase the cost of capital for all firms issuing taxed securities, since investors would require higher returns to compensate them for reduced liquidity. This increase would be greater for issuers of more frequently traded securities, such as large corporations, since expected costs of trading activity would be capitalized into security prices. Some studies find that these effects are quite large, and hence could have a significant adverse impact on long-term economic growth.
- ***Its real burden may fall largely on final consumers rather than, as often seems to be supposed, earnings in the financial sector.*** No doubt some would be borne by owners and managers of financial institutions. But a large part of the burden may well be passed on to the users of financial services (both businesses and individuals) in the form of reduced returns to saving, higher costs of borrowing¹⁹ and/or increases in final commodity prices. Indeed, this is more likely the more general the adoption of the tax, since that helps industry pass on the cost to its customers. Because it is levied on every transaction, the cumulative, ‘cascading’ effects of an FTT—tax being charged on values that reflect the payment of tax at earlier stages—can be significant and non-transparent. It is not obvious that the incidence would fall mainly on either

¹⁹ Schwert and Seguin (1993), for example, estimate that a 0.5 percent securities transactions tax in the U.S. would increase the cost of capital by 10–180 basis points.

the better-off or financial sector rents.²⁰ In sum, while the incidence of an FTT remains unclear—as with other taxes considered in this report—it should not be thought of as a well-targeted way of taxing any rents earned in the financial sector.

31. More widely, care should be taken in assessing the potential efficiency of an FTT in raising revenue:²¹

- It is a weakness of the FTT that it *taxes transactions between businesses, including indirectly through the impact on the prices of non-financial products*. The argument that an FTT would cause little distortion because it would be levied at a very low rate on a very broad base is not persuasive: **it is a central principle of public finance that if the sole policy objective is to raise revenue then taxing transactions between businesses (which many financial transactions are) is unwise**: distorting business decisions reduces total output, so that more could be raised by taxing that output directly. A tax levied on transactions at one stage ‘cascades’ into prices at all further stages of production. This is why, for instance, most countries have found the VAT—which effectively excludes transactions between businesses—to be a more efficient revenue-raiser than turnover taxes.²² **In pure revenue-raising terms, there are more efficient instruments than an FTT.**
- Experience shows that—even leaving aside the question of whether transactions could, or would, escape the tax if imposed only by a few countries—financial transactions seem to be particularly vulnerable to *avoidance by engineering*. An example is the use of ‘contracts in differences’²³ in the U.K. Looking forward, anti-avoidance rules would be needed to deal with notional principal contracts (such as swaps) more generally. As with any cascading tax, there would be an incentive to avoid the tax by integration (conducting transactions within rather than between businesses): absent special provisions, the result could be larger financial institutions.

A Financial Activities Tax

32. A ‘Financial Activities Tax’ (FAT), levied on the sum of profits and remuneration of financial institutions, could raise significant revenue and be designed to serve a range of purposes.²⁴ While, like the FTT, a FAT would (absent special

²⁰ Most current proponents of an FTT do not envisage that its base would include current account bank transactions, but it is cautionary to recall that while some had advocated this as a relatively progressive form of taxation, such evidence as there is suggests the opposite: Arbeláez, Burman, and Zuluaga (2005).

²¹ See, for instance, Schmidt (2007), Schulmeister, Schratzenstaller and Picek (2008), and Spratt (2006).

²² Under a turnover tax, tax paid on inputs ‘sticks’; under a VAT, a credit is provided for input tax so as to ensure that, while tax is collected from the seller, it ultimately does not affect businesses’ input prices.

²³ These reallocate the income associated with share ownership without changing ownership itself.

²⁴ Broadly speaking, since value added is simply the sum of profits and wages, a FAT would bear the same relationship to an FTT as the VAT does to a turnover tax—a FAT in effect taxes *net* transactions of financial institutions, whereas an FTT taxes *gross* transactions.

arrangements) tax business transactions—because no credit would be given to their customers for FAT paid by financial institutions—alternative definitions of profits and remuneration for inclusion in the base of the FAT enable it to pursue a range of objectives. Appendix 6 elaborates on the design and revenue potential of these alternative forms of FAT now discussed.

33. **A FAT would approximate a tax on rents in the financial sector²⁵ if the base included only high levels of remuneration and with the profit component also defined appropriately**, to in effect exclude a normal return to capital. To the extent that this is achieved, it would be both non-distorting and meet equity objectives that have been prominent in public debate.

34. **A FAT could be designed in other ways, to serve other of the objectives above:**

- With inclusion of all remuneration, a FAT would effectively be a tax on value added, and so would partially *offset the risk of the financial sector becoming unduly large because of its favorable treatment under existing VATs*. For technical reasons, financial services are commonly VAT-exempt—which means that, purely for tax reasons, the financial sector may be under-taxed and hence perhaps ‘too big’²⁶ (see Appendix 5). Taxing value-added in the financial sector directly would mitigate this. To avoid worsening distortions, the tax rate would need to be below current standard VAT rates. The size of financial sector value-added in many countries suggests that even a relatively low-rate FAT could raise significant revenue in a fair and reasonably efficient way: in the U.K., for instance, a 5 percent FAT (with all salaries included in the base), might raise about 0.3 percent of GDP (Appendix 6).
- With inclusion of profits only above some high threshold rate of return, the FAT would become a tax on ‘excess’ returns in the financial sector. As such, it would *mitigate excessive risk-taking* that can arise from the undervaluation by private sector decision-makers of losses in bad outcomes (because they are expected to be borne by others), since it would reduce the after-tax return in good outcomes.²⁷ Of course (and as noted in Box 2), there may be more effective (tax and regulatory) ways to do this.

35. **A FAT should also be relatively straightforward to implement**, since it would draw on the practices of established taxes. Taxing profits and withholding on remuneration are everyday functions of almost every tax administration. Clearly there would be technical issues to resolve, but most are of a kind that tax administrations are used to dealing with. Indeed some jurisdictions already have taxes of this general type. And while there would be

²⁵ Philippon and Reshef (2008) estimate that in recent years rents accounted for 30–50 percent of the wage differential between the financial sector and the rest of the economy in the U.S.

²⁶ Relative, that is, to a situation in which the VAT applied uniformly to financial services and all other goods and services. This argument does not apply to the U.S. and Saudi Arabia, the only G-20 countries without a VAT (though for the former, financial services benefit from relatively low taxation of services in general).

²⁷ The argument for progressive profit taxation on these grounds is developed by John, John and Senbet (1991).

difficulties in potential shifting of profits and remuneration to low-tax jurisdictions, a low rate FAT might not add greatly to current incentives for tax planning—and indeed would not greatly change them if adopted at broadly similar rates in a range of countries.

36. **Like an FTT, a FAT would tend to reduce the size of the financial sector—but with less uncertainty as to its impact on the structure of financial markets, effective implementation and, to some extent, incidence.** While the FAT will fall on intermediate transactions, it differs from the FTT in not directly distorting activities of financial institutions (although also encouraging integration in the sector). Insofar as it falls other than on rents, it would tend to reduce the size of the sector without changing its activities. Box 6 elaborates on the nature, incidence and implementation of a FAT (its design and revenue potential being discussed further in Appendix 6).²⁸

Box 6. The Nature and Incidence of a Financial Activities Tax

The FAT has, in many respects, the nature of a VAT: as for VAT, there would be no direct impact on the structure of the activities undertaken by financial institutions themselves, as liability depends on profit, not on how it is earned or on the volume of turnover. Of course, one difference from a VAT is that the tax would also fall on businesses, not just on final consumers.

The incidence of, and revenue from, a FAT would depend on the precise definition of the base:

- The base could include profits above a “normal” level and “high” remuneration, in this way targeting rents. The closer the tax is to falling on rents, the less is the incentive for it to be passed on to customers rather than borne by owners and managers. Regarding profits, in order to tax “rents” the definition of profits would have to differ from that used for income tax purposes. It would need to be closer to that implicit in the standard VAT.²⁹ Setting a higher reference rate of return converts the tax into one on ‘excess’ returns above that rate, as discussed in the text. Regarding remuneration, excluding remuneration above some critical level can be only a very rough way of targeting rents, since it does not distinguish between rents and returns due to high productivity. Fairness may call for similar taxation of high remuneration in other sectors too, through the income tax, but a case might be made that the regulatory apparatus creates distinct scope for rents in the financial sector, including through the existence of institutions that are too-big-to-fail. And if the rents are not there, a well-designed tax of this kind will, in principle, simply raise no revenue.
- If the FAT were applied to all remuneration, it would likely be passed on to purchasers of financial services, since business customers, like final consumers, would receive no credit for it. This would be appropriate if the objective were to correct for the light taxation of financial services. There are indeed precedents for taxing the sum of profits and remuneration in the financial sector. Israel applies such a tax; the province of Quebec in Canada has a related tax; Italy applies a tax with broadly similar structure to all activities, including finance and insurance. France levies an additional tax on remuneration for firms, including financial, whose output is largely untaxed under the VAT.

²⁸ A staff working paper on the FAT is under preparation.

²⁹ The standard VAT is in effect a tax on wages and profits with the latter defined in terms of ‘cash flow’ (investment fully deductible, no depreciation or deduction for interest). An equivalent (in present value) outcome can be mimicked under a FAT by defining taxable receipts and expenses to include principal amounts, by taxing only net distributions to shareholders, or by providing an allowance for both interest expense and a notional return on equity (together with economic depreciation).

37. **While much detail remains, its potential merits are such that the combination of a FAT and a levy of the kind described above offers a coherent package for addressing the objectives set out above.**

D. International Considerations

38. **Even countries that provided little or no support to their financial sectors during the recent crisis should consider forward-looking contribution schemes.** Many countries may emerge from the crisis with little or no fiscal cost—whether gross or net—of direct support to the sector. That is a good reason not to impose backward-looking charges, but no reason to dismiss the possibility of putting in place now clear strategies to pay for the future failures and crises from which no country can prudently regard itself as immune. Almost all G-20 countries have experienced a systemic financial crisis within the last few decades. Furthermore, the massive contingent liabilities incurred during the crisis and its large broader fiscal costs suggest it is prudent to provision for the future.

39. **Distortions will arise if the contribution measures are adopted by only some countries, though they may not be as large as some that already exist.** The mobility of capital and sophistication of financial institutions and markets mean that the effectiveness of contribution schemes—as of regulatory measures—can be undermined by the relocation and restructuring of financial activities. And to the extent that they cannot be completely negated in this way, the application of different schemes will distort competition between financial institutions based in different jurisdictions. It is worth bearing in mind, however, that corporate tax rates already vary across advanced and emerging countries by more than twenty percentage points; an FSC that amounts to, on average, 10 basis points, taking in the order of 3 percent of pre-tax earnings (see Appendix 4), would intensify these differences only modestly if applied in some but not all countries.³⁰

40. **The danger of significant distortions can be limited by international cooperation—which does not mean identical application everywhere.** Competitive and other distortions will be less if the leading financial centers adopt contribution measures based on similar principles. Both theory and practice suggest that the collective losses from non-cooperative tax-setting can be limited, while respecting differing national circumstances, by common adoption of minimum tax rates. Countries might agree, for example, to impose an FSC on some broadly common base at no less than some specified rate, allowing any that wish to charge a higher rate.

³⁰ Similarly, a low rate FAT from which exported financial services were excluded would do little to tilt the competitive playing field. The greatest (and significant) difficulties would be with the form of FAT intended to discourage risk-taking, which would need to be set at a fairly high statutory rate to have the intended effect.

41. **Risk-adjustment would facilitate participation, by reassuring countries that have very strong supervisory systems, including good resolution schemes—so that risks are well-managed—that they are not burdening their financial institutions inappropriately.**

Acknowledging that no country is immune from financial failures, the charge could nevertheless be set lower in countries where institutions contribute less to systemic risks, national as well as international. On the other hand, non-participation carries the risk of attracting high risk activities, with consequent distortions in international capital flows and challenges for regulation and, potentially, higher risk of future failures.

42. **Countries that adopt contribution schemes would benefit from coordinating their design.** Some commonality of base, in particular, may not only serve to reduce financial institutions' compliance costs but also avoid double taxation (e.g., if one jurisdiction levies tax on a worldwide basis and another on the basis of residence) or unintended zero taxation (if both use a residence test, but on a different basis).³¹ Coordination will also facilitate resolution of cross-border institutions.

43. **Countries that do not adopt contribution schemes should act as 'good neighbors' to those that do.** Just as the G-20 has enjoined tax havens not to undermine the tax systems of other countries, so countries that choose not to adopt new contribution schemes should take reasonable steps not to hamper implementation in those that do. This may mean, for instance, refraining from offering particularly favorable tax treatment to activities or institutions that are a focus of such schemes. International cooperation should include a willingness, subject to appropriate safeguards, to exchange relevant information between authorities in different jurisdictions when appropriate, to allow enforcement of those charges. Where more than one authority could collect contributions, it is important to determine which authority will be responsible for resolution and potential costs of failures.

IV. A WAY FORWARD

Elements of reform³²

44. **The direct fiscal costs of financial sector failures should be contained and covered by a “*Financial Stability Contribution*” (FSC)** linked to a credible and effective resolution mechanism. The main component of this FSC would be a levy to provision for the net fiscal cost of direct support to the financial sector and help reduce excessive risk-taking; a second and smaller component would be a fee to pay for the availability of a credit line to ensure that the gross financing needs can be met even if the resources accumulated through the levy are insufficient. The first element could—but does not need to—feed a *resolution*

³¹ Accounting practices may be important here: IFRS as employed in the European Union and U.S. GAAP in the United States, for example, can result in very large differences in balance sheet bases because of differing accounting treatment, particularly of derivatives. Allowing for adjustments to the base or differing (minimum) rates may mitigate this difficulty, but close and cooperative attention to detail will be critical.

³² Annex Table 2 summarizes.

fund that would put aside the levies paid by the industry to cover the expected costs of resolving failed institutions. The second would go to general revenue regardless of the existence of a fund. The rate of the FSC should be refined over time to reflect explicitly systemic risk. *The FSC would ensure that the sector helps meet the costs of any potential resolutions and would reduce systemic risk. If properly designed and resourced, resolution mechanisms will avoid governments in the future being forced to bail out institutions deemed too important, too big, or too interconnected to fail.* The FSC could be supplemented, if needed, by a temporary ex post recovery charge.

45. **Any further contribution desired from the financial sector should be raised by a “Financial Activities Tax” (FAT)** levied on the sum of the profits and remuneration of financial institutions, and paid to general revenue. *Depending on its design, the FAT would ensure that the financial sector contributes to the wider fiscal costs associated with financial crises, address some equity concerns, help offset tax distortions that may result in the financial sector being too large, and/or reduce excessive risk-taking.*

46. **International cooperation would be beneficial given the importance and complexity of cross-border financial institutions.** The experiences of countries in the recent crisis differ widely, and so do their priorities as they emerge from it. But no country is immune from the risk of future—and inevitably global—financial crisis. Unilateral actions risk being undermined by tax and regulatory arbitrage, and may jeopardize national industries’ competitiveness. Coordinated action, especially by the leading financial sectors, would promote a level playing field, ease implementation, and facilitate the treatment of cross-border institutions. Effective cooperation does not require full uniformity, but broad agreement on the principles, including on the base (adjusting for accounting differences), minimum rate, risk-adjustment, and on avoiding double taxation across countries. The need is likely to be less for the FSC than for (some forms of) the FAT: in principle, risk-adjustment of the former would mean that countries which fear penalizing their own relatively safe financial sector would simply find that their levy was correspondingly lower.

Other considerations and next steps

47. **While new instruments are clearly required, action is also needed to reduce current tax distortions that run counter to regulatory and stability objectives.** The pervasive tax bias in favor of debt finance could be addressed by any of a range of reforms to the corporate income tax, such as providing a tax deduction for some notional return on equity (and possibly limiting that for interest too), as several countries have already done. Aggressive tax planning in the financial sector could be addressed more firmly, perhaps building on the cooperation already established in relation to tax havens.

48. **Implementation of these measures needs to be coordinated with that of the wider regulatory reform agenda, and the effects on the wider economy carefully assessed.** Regulatory and tax policies towards the financial sector have been formed largely independently of each other. A more holistic approach is needed to ensure that they are properly aligned in both the incentives and the overall burden they imply for the sector. It is

important that the reforms be carefully designed so as not to harm the industry's ability to rebuild its capital base, and to ensure that shadow banking or other distortions are not encouraged by over-regulating or over-taxing some parts of the financial sector.

49. **The IMF stands ready to undertake further analysis of the issues and proposals raised in this report**, particularly in the context of the joint IMF/FSB/BCBS work on assessing the cumulative quantitative impact of regulation and tax burdens on the financial sector. Clearly there is scope too for more analysis of the desirable forms, level, scope, and impact of any new levies or taxes.

Annex Table 1. Current Proposals for Forward-Looking Financial Sector Contributions

	U.S. (House of Representatives Proposal)	U.S. (Senate Proposal)	Germany	Sweden	European Commission
Source (status)	House Bill HR 4173 IH (Proposal)	Senate Bill (Proposal: as passed at the end of May 2010)	Cabinet decision (Proposal)	Act SFS 2008:814 (Active)	COM(2010) 254 final May 26 press release
Features of Levy					
Perimeter	Financial institutions with min. US\$50bln assets on a consolidated basis and hedge funds with min US\$10bln assets on a consolidated basis	NR	Banks	Domestically incorporated banks and their foreign branches	Banks and investment firms
Type	Ex-ante	Ex-post	Ex-ante	Ex-ante	Ex-ante
Rate	ND	NR	ND	0.036 percent	ND
Risk weighted	Yes. Institution risk profile	NR	Yes. Contribution to systemic risk	Not now. Yes in the future	In principle, but details not discussed
Base	ND	NR	ND	Uninsured liabilities	Preferably based on liabilities but Commission is still considering alternatives
Destination	Fund	NR	Fund	Fund	National Funds within a “harmonized” framework
Fund	Yes	NR	Yes	Yes	Yes, but member states may decide to earmark to deficit reduction as a second best
Size	About 1 percent of GDP (US\$150bln)	NR	ND	2.5 percent of GDP	2–4 percent of GDP
Phase in	ND	NR	ND	15 years	ND
Investments	Non tradable debt	NR	ND	Remunerated government account	Geographically well diversified portfolio in highly liquid non-bank assets with low credit risk in support of real economy
Use	Special resolution regime	NR	Special resolution regime	Temporarily: capital injections, loan and guarantees. After 2011: deposit insurance (proposal)	Within harmonized framework. To facilitate orderly resolution. Not insurance against failure or to bail out. Where feasible, in coordination with the scope of local deposit guarantee funds.
Government Backstop	US150bln freely + US50bln with legislative approval	To fund resolution, FDIC can borrow from Treasury up to a	ND	Unlimited	ND

	U.S. (House of Representatives Proposal)	U.S. (Senate Proposal)	Germany	Sweden	European Commission
		<p>maximum amount for each covered financial company equal to:</p> <ul style="list-style-type: none"> - during the 30-day period immediately following the appointment of the receiver, 10 percent of the book value of the consolidated assets (based on its most recent financial statements available), and - after such 30-day period, 90 percent of the fair value of such company's total consolidated assets that are available for repayment. 			
Special Resolution Regime	Yes	Yes	Yes	No	Yes
Perimeter	Same as levy	Financial institutions with at least US\$50bln in consolidated assets excluding real sector subsidiaries and specific state-owned financial institutions.	Banks	NR	Same as levy
Authority	Systemic determination: Federal Reserve and relevant supervisor. Resolution authority: FDIC	Systemic determination: Treasury to request special judicial order to appoint FDIC as receiver. Resolution authority: FDIC	Systemic determination: ND Resolution: Financial Stabilization Market Authority (FSMA)	Fund: National Debt Office	National authorities within a "harmonized" framework
Cross border provisions	ND	ND	ND	ND	Subject to forthcoming proposals
Key characteristics and outcomes	Losses imposed to shareholders and unsecured claimants; management removed. Bridge facility and purchase and assumptions	Losses imposed to shareholders and unsecured claimants; management removed. Bridge facility and purchase and assumptions. Receiver required to liquidate the entity being resolved.	Bridge bank facility	Open support	Losses imposed to shareholders and unsecured claimants and holders of subordinated debt; management removed. Bridge bank facility, partial transfer of assets and/or liabilities, good bank/bad bank split.

Notes: NR = not relevant; ND = not discussed. The U.K. has indicated that it expects to announce a levy shortly.

Annex Table 2. Summary of Forward-Looking Contribution Proposal

Instrument		Objective	Frequency	Received by	Based on
Financial Stability Contribution	Ex-ante levy 1/	Pay for expected financing needs and costs of resolution, help reduce excessive risk-taking	Continuous, with reassessment over time in light of other reforms aimed at reducing systemic risks	Resolution fund or general revenue	Benefit from financial stability, risk of fiscal costs and externalities
	Ex-post charge	Pay for financing needs and costs of resolution in excess of ex ante proceeds	Temporary, post-crisis (until unexpected losses are recouped)	General revenue	Actual loss experiences
Financial Activities Tax 2/		Revenue raising/wider costs of crisis			
		Taxing financial sector rents	Continuous	General revenue	Profits plus high remuneration
		Correct for under-taxation of the financial sector	Continuous	General revenue	Profits plus all remuneration
		Discourage excessive risk-taking	Continuous	General revenue	Profits in excess of some high return plus high remuneration

1/ There would also be a charge (paid to general revenue) for the availability of a credit line in case resources accumulated through the levy prove insufficient.

2/ The design of the FAT would differ according to its primary objective: see Appendix 6.

Appendix 1. Fiscal Costs of the Recent Crisis

In response to the global economic and financial crisis, many G-20 countries have provided significant support to their financial sectors.³³ While the magnitude and nature of support measures has varied across countries, with support in advanced countries being preponderant, interventions have been generally bold. Support measures have included recapitalizations, asset purchases and swaps, asset/liability guarantees, deposit insurance, and liquidity support.

Pledged support and initial financing requirements

The announced or pledged support for capital injections and purchase of assets varied significantly. As of end-December 2009, for capital injections and purchase of assets the advanced G-20 economies had pledged \$1220 and \$756 billion respectively: equivalent to 3.8 and 2.4 percent of GDP (Table A1.1). The corresponding amounts in the emerging G-20 economies were \$90 and \$18 billion, respectively: 0.7 and 0.1 percent of GDP (Table 1). Within both groups, there was significant variation in the announced amounts allocated in these two categories, with the bulk in advanced economies accounted for by Germany, Japan, the U.K., and the U.S., while others provided no support (see Table A1.4 at the end of this appendix for details).

Table A1.1. Amounts Announced or Pledged for Financial Sector Support
(In percent of 2009 GDP, unless otherwise noted)

	Capital Injection	Purchase of Assets and Lending by Treasury	Direct Support	Guarantees	Asset Swap and Purchase of Financial Assets, including Treasuries, by Central Bank	Upfront Government Financing
	(A)	(B)	(A+B)	(C)	(D)	(E)
G-20 Average	2.6	1.4	4.0	6.4	4.6	3.1
Advanced Economies	3.8	2.4	6.2	10.9	7.7	5.0
In billions of US\$	1,220	756	1,976	3,530	2,400	1,610
Emerging Economies	0.7	0.1	0.8	0.0	0.0	0.2
In billions of US\$	90	18	108	7	0	24

Source: IMF staff estimates based on G-20 Survey. Columns A, B, C, D, and E indicate announced or pledged amounts, and not actual uptake.

Note: Column E includes gross support measures that require upfront government outlays and excludes recovery from sale of acquired assets.

³³ This appendix is based on responses to survey questionnaires sent to all G-20 members in early December 2009. Countries were then requested to review and update staff estimates of direct support to financial sectors, consisting of recapitalization and asset purchases; liquidity support comprising asset swaps and treasury purchases; and contingent support consisting of deposit insurance and guarantees. The period covered was June 2007 to December 2009.

The amounts announced or pledged for guarantees, liquidity support and expansion of deposit insurance in the middle of the crisis have been even larger. Substantial funds were pledged for guaranteeing banks' wholesale debt and interbank liabilities, almost entirely in the advanced economies (10.9 percent of GDP) (Table A1.1). In addition, central bank support was provided primarily through the scaling-up of liquidity provisions, expansion of credit lines, widening the list of assets eligible as collateral, purchases of asset-backed securities and lengthening the maturities of long-term refinancing operations (7.7 percent of GDP). To maintain depositor confidence, several governments also expanded the coverage of deposit insurance to different types of deposits or raised the limits for the amounts covered.

While support amounts were large, financing requirements were more limited. The financing requirements largely reflected injection of capital and purchase of assets. Upfront commitment of such support is estimated at 5.0 and 0.2 percent of GDP for the advanced and emerging G-20 countries, respectively. Guarantees as well as central bank support and liquidity provisions do not require upfront financing in most cases, although they could lead to a significant build-up of contingent liabilities.

Utilized support

Estimates based on the survey indicate that the utilized amount of financial sector support has been much less than the pledged amounts. For the advanced G-20 economies, the average amount utilized for capital injection was 2.1 percent of GDP, that is \$653 billion, or just over half the pledged amount (Table A1.2). France, Germany, the U.S. and the U.K. accounted for over 90 percent of this (see Table A1.5 at the end of this appendix). For the advanced G-20 economies, the utilized amount for asset purchases was around 1.4 percent of GDP, less than two-thirds of the pledged amount. Similarly, the uptake of guarantees has been markedly less than pledged. The amounts utilized in the G-20 emerging market countries have been proportionately even lower.

Table A1.2. Financial Sector Support Utilized Relative to Announcement
(In percent of 2009 GDP, unless otherwise noted)

	Capital Injection		Purchase of Assets and Lending by Treasury	
	Amount used	In percent of announcement	Amount used	In percent of announcement
G-20 Average 1/	1.4	52.8	0.9	60.2
Advanced Economies	2.1	53.5	1.4	61.0
In billions of US\$	653	...	461	...
Emerging Economies	0.3	43.0	0.03	27.5
In billions of US\$	38.4	...	5.0	...

Source: IMF staff estimates based on G-20 Survey.

There are several reasons for the generally low utilized amounts. In part, they reflect the precautionary nature of initial pledges, reflecting the uncertainties prevailing at the time and the need to err on the side of caution so as to increase market confidence. In part, the lower rates reflected more efficient use of government resources, e.g., using capital injections rather than asset purchases. They also reflected increasing stability of market conditions and improving bank liquidity (uptakes slowed down markedly after initial recapitalizations). In some cases, lags in implementation of programs for recapitalization and purchase of assets may have also played some role.

Recovery of assets and net cost of support measures

Many of the support arrangements were structured so that the financial sector pays, at least in part, for the cost of the support over time. Recoveries related to the capitalization efforts will reflect repurchases, dividends, and the sale of warrants. For asset protection schemes, banks paid to participate and were charged an exit fee for signing up and when exiting. Fees were also received for the provision of guarantees, and for deposit insurance funds monies were sometimes recouped from special levies assessed on the banking sector.

As economic conditions and markets have stabilized, some recovery of assets has begun, but recovery to date has been relatively low.³⁴ Survey responses³⁵ suggest that to-date, recovery—mainly through repurchase of shares, fees, and interest income, and to a very small extent the sale of assets—amounts on average to about 0.8 percent of GDP (that is, \$237 billion) (Table A1.3). Taking into account these data, the net direct cost of recapitalization and asset purchases are estimated to average 2.8 percent of GDP (\$877 billion) for the advanced G-20 economies and 1.8 percent of GDP for the G-20 as a whole. This gives a recovery rate to-date of 21 percent. While this is significantly lower than the average (55 percent) in past crises in advanced countries, historically, recovery has occurred over a period of five to seven years.³⁶ Total expenditures in public recapitalization to address the crisis have been only slightly below historical norms, while guarantee measures have been used more extensively.³⁷

³⁴ For cross-country consistency, ‘recovery’ here does not include unrealized gains on assets acquired by the public sector as part of the financial sector support package, but occurs only when these gains are realized as the assets are divested.

³⁵ The information requested was for recovery projected for the next three years, but most authorities provided data only on recovery to-date.

³⁶ Though volatile, a mark-to-market valuation of the assets acquired by the government during the crisis could provide some indication of the extent of future recovery by divesting the assets. For example, in the United Kingdom, £69.7 billion worth of common stocks were purchased for recapitalizing banks, £2.56 billion of which have been sold. The market value of the common stocks still held by the government was around £57.6 billion at end-2009, and increased further to £70 billion as of end-April, 2010, implying that if divested now, this particular support measure is likely to generate net gains to the government.

³⁷ Bank recapitalization expenditure for countries undergoing a systemic crisis in the past has averaged 8 percent of GDP (Laeven and Valencia, 2008). According to Laeven and Valencia’s (2010) definition, only three G-20 countries experienced a systemic crisis in 2007–09 (U.S., U.K. and Germany) and their direct fiscal costs averaged 4.8 percent of GDP.

Table A1.3. Recovery of Outlays and Net Direct Cost of Financial Sector Support
(In percent of 2009 GDP unless otherwise noted)

	Direct Support		Recovery	Net Direct Cost
	Pledged	Utilized		
G-20 Average	4.0	2.2	0.4	1.8
Advanced Economies	6.2	3.5	0.8	2.8
In billions of US\$	1,976	1,114	237	877
Emerging Economies	0.8	0.3	-	0.3
In billions of US\$	108	43	-	43

Source: IMF staff estimates based on G-20 Survey.

Although uncertainties abound, the direct net budgetary cost appears to be below historical norms. This reflects extensive use of containment measures that minimize the actual cost—historically, the net cost of guarantees has tended to be much lower than that of capital injections or asset purchases. In addition, general fiscal support to the economy through automatic stabilizers and discretionary measures has helped stabilize the financial sector and prospects for recovery by limiting negative feedback loops between the financial sector and the real economy. In contrast, historically, many crisis countries, facing limited fiscal space, had to tighten fiscal policy.

Indeed, for those G-20 countries that experienced systemic crises, the costs are comparable to earlier episodes (5.4 percent versus 8 percent historically). And the broader measures of costs, in terms of the fiscal impact of induced recessions and real economic costs, are estimated to be both significantly higher and broadly similar to past crisis episodes.³⁸ Importantly, total debt burdens have risen dramatically for almost all G-20 countries. Moreover, uncertainties in the markets continue, in part relating to the high risk exposures of sovereign balance sheets. This suggests that forward-looking tax measures should likely have a broader remit.

³⁸ Laeven and Valencia (2010) show the average increase in public debt to be about 24 percent of GDP and the output losses also to be about 26 percent of potential GDP for those countries which experienced a systemic banking crisis in 2007–2009. These estimates are not significantly different from historical averages. They note that, this time around, policies to address banking solvency were implemented much sooner than in the past, which may have contributed to keeping direct outlays relatively low.

Table A1.4. Amounts Announced or Pledged for Financial Sector Support, by Country
(In percent of 2009 GDP unless otherwise noted)

	Capital Injection	Purchase of Assets and Lending by Treasury 2/	Direct Support 3/	Guarantees 4/	Asset Swap and Purchase of Financial Assets, including Treasuries, by Central Bank	Upfront Government Financing 5/
	(A)	(B)	(A+B)	(C)	(D)	(E)
Advanced Economies						
Australia	0.0	0.0	0.0	13.2	0.0	0.0
Canada	0.0	9.1	9.1	0.0	0.0	9.1
France	1.3	0.2	1.5	16.9	0.0	1.1
Germany	3.4	0.0	3.4	17.2	0.0	3.4
Italy	1.3	0.0	1.3	0.0	2.7	2.7
Japan	2.5	4.1	6.6	7.2	0.0	0.4
Korea	1.2	1.5	2.7	11.6	0.0	0.8
United Kingdom	8.2	3.7	11.9	40.0	28.2	8.7
United States	5.1	2.3	7.4	7.5	12.1	7.4
Emerging Economies						
Argentina	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	0.0	0.8	0.8	0.5	0.0	0.0
China	0.0	0.0	0.0	0.0	0.0	0.0
India	0.0	0.0	0.0	0.0	0.0	0.0
Indonesia	0.0	0.0	0.0	0.0	0.0	0.0
Mexico	0.0	0.0	0.0	0.0	0.0	0.0
Russia	7.1	0.5	7.7	0.0	0.0	1.9
Saudi Arabia	0.0	0.0	0.0	0.0	0.0	0.0
South Africa	0.0	0.0	0.0	0.0	0.0	0.0
Turkey	0.0	0.0	0.0	0.0	0.0	0.0
G-20 Average	2.6	1.4	4.0	6.4	4.6	3.1
Advanced Economies	3.8	2.4	6.2	10.9	7.7	5.0
In billions of US\$	1,220	756	1,976	3,530	2,400	1,610
Emerging Economies	0.7	0.1	0.8	0.04	0.0	0.2
In billions of US\$	90	18	108	7	0	24

Source: IMF staff estimates based on G-20 Survey.

1/ Columns A, B, C, D, and E indicate announced or pledged amounts, and not actual uptake.

2/ Excludes treasury funds provided in support of central bank operations.

3/ Includes some elements that do not require upfront government financing.

4/ Excludes deposit insurance provided by deposit insurance agencies.

5/ Includes gross support measures that require upfront government outlays. Excludes recovery from the sale of acquired assets.

Table A1.5. Financial Sector Support Utilized Relative to Announcement, by Country
(In percent of 2009 GDP unless otherwise noted)

	Capital Injection		Purchase of Assets and Lending by Treasury	
	Amount used	In percent of announcement	Amount used	In percent of announcement
Advanced Economies				
Australia	0.0	...	0.0	...
Canada	0.0	...	4.4	48.4
France	1.1	83.2	0.0	0.0
Germany	1.2	35.0	3.7	...
Italy	0.3	20.3	0.0	...
Japan	0.1	2.4	0.1	1.4
Korea	0.4	32.5	0.1	3.8
United Kingdom	6.4	78.5	0.1	4.0
United States	2.9	57.0	1.9	84.0
Emerging Economies				
Argentina	0.0	...	0.0	...
Brazil	0.0	...	0.3	43.5
China	0.0	...	0.0	...
India	0.0	...	0.0	...
Indonesia	0.0	...	0.0	...
Mexico	0.0	...	0.0	...
Russia	3.1	43.0	0.0	0.0
Saudi Arabia	0.0	...	0.0	...
South Africa	0.0	...	0.0	...
Turkey	0.0	...	0.0	...
G-20 Average	1.3	51.7	0.9	60.2
Advanced Economies	2.0	52.3	1.4	61.0
In billions of US\$	639	...	461	...
Emerging Economies	0.3	43.0	0.03	27.5
In billions of US\$	38.4	...	5.0	...

Source: IMF staff estimates based on G-20 Survey.

Appendix 2. Contribution-Related Measures Adopted or Proposed

This appendix describes eight tax or contribution-related initiatives adopted or proposed since the crisis: the Financial Crisis Responsibility levy proposed in the U.S., the temporary taxes on bonuses adopted in France and the U.K., the permanent tax on bonuses and stock options introduced in Italy (all pure tax instruments), the proposed levy in Germany and dissolution fund in the U.S., the Swedish stability fund (all linked to initiatives on resolution) and the resolution funds and levy proposed by the European Commission.

A. Financial Crisis Responsibility Fee in the U.S.

On January 14, 2010, the Obama Administration announced that it would seek to impose a 0.15 percent tax on the liabilities of large financial institutions to repay the budgetary expenditures associated with the financial crisis. Covered institutions would include firms that were insured depository institutions, bank holding companies, thrift holding companies, insurance or other companies that owned insured depository institutions, or securities broker-dealers as of January 14, 2010, or that become one of these types of firms thereafter. Both domestic firms and U.S. subsidiaries of foreign firms with assets of more than \$50 billion would be subject to the “Financial Crisis Responsibility” fee (FCR). The proposed nature of the base has evolved during legislative discussion, the suggestion at the time of this report being that it comprise total (risk weighted) assets minus Tier one capital minus FDIC assessed deposits (or insurance reserves, as appropriate).

The Administration estimates that (net of corporate income tax, against which it is deductible) the FCR will raise \$90 billion during 2011–2020. The Congressional Budget Office (CBO) estimates that total the cost of the TARP will be about \$99 billion, plus \$200 million annually in administrative costs. Some \$47 billion of these costs were generated by bailouts of the three U.S. automakers, which will not be subject to the FCR fee. The Administration has said, consistent with a cost-recovery provision in the TARP legislation, that the fee will be left in place until the TARP is fully paid off.

The CBO estimates that about 60 entities currently qualify for taxation under the FCR. A few of these, such as AIG, GMAC Financial Services, and CIT Group, generated TARP losses. However, most did not generate losses, as they either (i) did not participate in TARP, (ii) are current on preferred dividends, or (iii) have repaid their TARP loans. All covered firms did, however, benefit generally from the financial system support provided by the bailout. The Administration anticipates that about 60 percent of FCR fees will be paid by the 10 largest institutions. U.S. corporations will be taxed under the FCR based on their worldwide consolidated assets, while foreign entities will be taxed based only on their U.S. assets.

The incidence of the FCR will depend on the level of competition in markets for financial products. Because only a subset of large financial institutions will be taxed,

competition from untaxed entities not subject to the FCR fee may prevent them passing along the costs to their clients. In this case, employees and/or current shareholders would bear the cost of the tax in the form of lower compensation and/or share values, respectively; if the market for financial skills were sufficiently competitive, the real cost of the fee would be borne solely by shareholders.

The CBO projects that due to its low rate, the FCR will not have a significant economic impact. Affected financial institutions may reduce their debt slightly in response to the tax or become more dependent on deposits. However, the CBO notes that the fee could give an incentive to taxed institutions to assume more risk in order to recoup reduced profitability. Other commentators note that the effect of the fee could vary greatly among markets and products, with high-margin activities being little affected but low-margin activities, such as repurchase financing and foreign exchange trading, being sharply curtailed.

B. Bank Levy in Germany

On March 31, 2010, the German government announced plans to introduce a systemic risk-adjusted levy and a new resolution arrangement for banks and banking groups.

The perimeter of the levy includes all banks, and the rate of the levy will be set to reflect systemic risk. Systemic risk will be determined on the basis, inter alia, of the size of a bank's liabilities, excluding capital and deposits, and its interconnectedness with other financial market participants. The purpose of the levy is to mitigate incentives leading to excessive systemic risk by internalizing the negative externalities of systemic relevance. Thus, the bank levy is designed to be corrective, and likely to be permanent. The Federal Ministry of Finance is to monitor the level of the levy and the burden on German banks.

The levy is to be paid into a stability fund which will finance a special resolution regime for systemically relevant banks. Financial supervisors will be given expanded legal powers to intervene in banks, and to transfer systemically important parts of a bank to a private-sector third party or a state-owned bridge bank, in order to enable an orderly wind down of non-systemic assets. Additional characteristics of the proposed resolution fund and process are: (i) resolution powers will include the ability to provide capital injections, guarantees and reorganization/restructure to preserve the value as an ongoing concern of the institution; (ii) the state-owned bridge company could then be sold to the private sector or liquidated, depending on the outcome of the restructuring process; (iii) the fund is not to be used to provide liquidity support, with such measures being provided ex ante through the mutual support arrangements in the three pillar system; and (iv) the size of the fund is not yet determined.

The fund and the special resolution regime will be entrusted to the Federal Agency for Financial-Market Stabilisation (FMSA). The FMSA was created in 2008 to manage the recapitalization and restructuring of failing financial institutions during the financial crisis. It is now planned to become a permanent financial restructuring and resolution agency, and will be in charge of collecting the levy.

Ongoing discussions anticipate that there will be a government backstop. However, it is not yet decided whether it will be explicit, and if so of what size, or implicit and determined case by case.

C. Temporary Bank Payroll Tax in the U.K.

The U.K. implemented, from December 9, 2009, a temporary tax on bonuses paid to bank employees: the “Bank Payroll Tax” (BPT). The stated objectives of the BPT were to address “remuneration practices that contributed to excessive risk-taking by the U.K. banking industry” and “encourage banks to consider their capital position and to make appropriate risk-adjustments when settling the level of bonus payments.” It was intended to cover the period until the U.K. introduces new financial regulation legislation to better regulate remuneration practices.

The BPT applies at a (tax-exclusive) rate of 50 percent to the excess of discretionary payments over £25,000 made by banks and building societies to their employees until April 5, 2010. Taxable institutions include banks, U.K. resident investment companies, U.K. resident financial trading companies in a banking group, building societies, U.K. branches of foreign banks and U.K. branches of a foreign financial trading company in a banking group. The tax is charged on amounts in excess of the threshold and applies only to amounts awarded between announcement of the BPT on December 9, 2009 and April 5, 2010. The gross bonuses remain subject to income tax and social security contributions, resulting in effective marginal rates on bonuses of up to 64 percent. Payments are not deductible against the corporate income tax. Tax due is to be remitted by taxable institutions on or before August 31, 2010. Anti-avoidance rules attempted to prevent banks bypassing the tax—for example, by using loans which are in substance earnings, or by deferring payment. Bonuses paid in the form of certain types of approved shares or share options are not subject to the BPT.

Originally forecast to raise £550 million (0.04 percent of GDP), the BPT is now projected to raise about £2 billion.³⁹ The initial estimate apparently assumed that introduction of the tax would radically curb bonus payments—in other words, that the burden of the tax would ultimately be borne, at least in large part, by the employees. Experience appears to have been otherwise.

D. Temporary Bonus Tax in France

France has implemented a temporary tax on bonuses granted in the accounting year 2009 (including deferred bonuses, bonuses awarded as shares and guaranteed bonuses). The tax is payable by credit institutions and investment firms—except asset management

³⁹ This is projected to be reduced to £1.3 billion by behavioral responses reducing receipts from the personal income tax and social contributions.

companies—based in France subject to French corporate income tax. The tax is therefore payable by French branches of foreign financial institutions of this kind.

The tax is levied at 50 percent (tax-inclusive) on the excess of bonuses over €27,500. The tax is assessed on bonuses paid to “financial market professionals whose activities are likely to have a material impact on the company's risk exposure” and financial market professionals controlling such individuals. The scope of the tax includes variable compensation of traders (forex, fixed income, securities or derivatives traders), but does not include compensation of employees in support or control positions (back and middle office employees). Nor does it include brokerage activities, management portfolio services, merger and acquisition business, or financial analysis.

Revenue is projected at €360 million. The proceeds of this tax were initially to be allocated (up to €270 million) to the French Deposit Guarantee Fund (reflecting the E.U.-wide extension of the guarantee from €70,000 to €100,000 per depositor). However, amendments were filed for the proceeds to be allocated to the financing of OSEO, a public institution in charge of financing innovation as well as support of SMEs.

E. Permanent Tax on Bonuses and Stock Options in Italy

Italy has recently introduced a permanent tax on bonuses and stock options paid to managers and independent professionals working in the financial sector. Implemented by decree (subject to parliamentary approval), the tax takes effect from January 1, 2010. Its stated objective is to curb the use of bonuses and stock options as forms of remuneration in consideration of their “distortionary effects on the financial system and the world economy...as highlighted in the G-20 meetings.”

The tax is charged at 10 percent on all bonuses and stock option gains exceeding three times managers' fixed remunerations. Its scope is broad, covering managers and independent professionals working in banks and other financial institutions. The tax is applied in addition to the personal income tax, and brings the highest effective marginal tax rate on these forms of remuneration in the sector to 53 percent.

The yield is expected to be about €10 million per year. This assumes that only high income individuals (with income above €100,000 a year), working in the financial sector, would receive bonuses and stock options.

F. Systemic Dissolution Fund in the U.S.

House Bill

Design of the fund

The U.S. systemic dissolution fund is foreseen in Bill HR 4173 IH. It would be established within the Treasury, managed by the FDIC, and invest in non-tradable government debt. Its purpose would be to facilitate the orderly dissolution of any covered financial company.

Covered financial institutions are all large and potentially systemic financial companies. The financial companies included in the scheme would be those with at least \$50 billion, or \$10 billion in the case of hedge funds, in consolidated assets adjusted for inflation. These include banks, thrifts, insurance companies, other companies that own insured depository institutions and broker dealers.

The fund has both minimum and maximum sizes. The minimum has not yet been defined. The maximum is \$150 billion: this is roughly 1 percent of U.S. GDP, and is rationalized as the size of the fund that would have been necessary to dissolve the systemically important institutions in the autumn of 2008 that instead were then deemed too big to fail.

Use of the fund

The dissolution fund is conceived within a new extra judiciary (administrative) and fast track resolution regime to dissolve systemically important financial institutions that were deemed “too big to fail” during the recent crisis. The traditional regimes in the bankruptcy code (chapter 11 and chapter 7) remain the default exit mechanisms for all ailing companies. The new regime is similar to that existing for FDIC-insured banks and is intended to instill confidence, for both the market and policymakers, that closing systemically important institutions will not lead to a systemic collapse. In particular, the regime leverages on the rule making powers of the FDIC and on the use of a bridge company with its own access to liquidity to provide continuity during the receivership process, while better preserving the value of financial assets for the benefit of creditors.

The use of a bridge company is key to the proposed resolution regime. This tool allows the receiver to transfer assets and contracts from the failed firm to the bridge institution in order to retain franchise value and avoid fire sales of financial contracts. Under the proposed resolution process, financial market contracts could be transferred to the bridge institution run by the governmental receiver without triggering netting and liquidation rights. This could prove vital to avoid panic. The bridge financial institution can also maintain other systemically significant functions such as payments processing, securities lending, and the settlement of ongoing government securities or other transactions. Most critically, the bridge financial institution allows time to avoid a sudden loss of critical services and promotes market confidence.

The dissolution fund is used as working capital for the bridge company and cannot be used to provide open support to ailing companies. The bridge financial institution option, and the continuity it can provide, requires access to liquidity for ongoing operations. To achieve this, the proposed special resolution process includes ready access to liquidity for the bridge financial institution from a resolution fund provided from assessments paid by the industry. The fund can only be used to cover the receivership costs incurred by the FDIC in overseeing or acting as a receiver and the costs associated with the operations of the bridge company for the dissolution of covered financial institutions under the new extra judiciary, administrative, dissolution regime.

Assessment fee

The fee would take several factors into account: (i) actual or expected losses to the fund; (ii) risk factors represented by the financial company to the financial system, in order to make the assessment risk-based; (iii) other assessments eventually paid by the institution to avoid double imposition of both the FCR and other fees (under the Federal Deposit Insurance Corporation (FDIC) Act, the Securities Investors Protection Corporation (SIPC) Act, the Federal Credit Union (FCU) Act, and relevant state insurance rehabilitation, restructuring and insolvency proceedings); and (iv) general economic conditions affecting financial companies, this serving to introduce a countercyclical element in the assessment.

The details for the calculation of the assessment are yet to be defined. It is unclear how the assessment will vary according to the actual or expected losses to the fund, the risks posed by the covered financial institutions and general economic conditions. Only general risk criteria for basing the assessment are defined in the draft law including: (i) on and off-balance sheet concentration risk; (ii) activities of companies and affiliates; (iii) market share; (iv) exposure to sudden calls on liquidity; (v) amount and nature of leverage; (vi) amount and nature of financial obligations to and claims on other financial companies; (vii) amount and nature of reliance on short term and other sources of funding; (viii) company's relevance as a source of credit to the real sector and liquidity to the financial sector; (ix) amount and nature of the company's liabilities; and (x) other factors that the FDIC may determine as appropriate.

The assessment fee would continue to be paid once the targeted amount of the fund is reached, then going to general revenues.

Borrowing authority from the state

The FDIC can borrow from the Treasury but up to a ceiling. The FDIC can freely borrow from the Treasury up to the maximum size of \$150 billion. It can also seek to borrow for an extra \$50 billion, but such a request must be forwarded by the President of the United States to the legislature for approval.

The government has priority claims on dissolution proceeds. Amounts realized from the dissolution of any covered financial institutions will be used to repay funds borrowed from the government and to re-capitalize the dissolution fund.

Senate Bill

At the time of writing (May 2010), the U.S. Senate approved a different version of the bill. Similarly to the House version of the bill, the Senate version (called “Restoring American Financial Stability Act”) maintains the orderly resolution authority modeled on bank resolution statute. In particular, the FDIC retains its core resolution powers to take control of the institution as receiver, to act quickly to sell all or any selected assets and liabilities to a third party (regardless of priorities among creditors and without the consent of any affected party or court approval) or, if a third party buyer cannot be found at fair value, to establish one or more temporary bridge financial companies to hold the part of the business worth preserving until it can be sold to one or more third parties at fair value or liquidated in an orderly fashion. Some limitations on cherry-picking are introduced to “avoid or mitigate serious adverse effects to financial stability of the United States.” Finally, the Senate bill requires the receiver to liquidate and wind up a company in resolution.

The decision to intervene is different. The Senate bill differs from the House bill in requiring the Treasury Secretary to obtain an order from the U.S. District Court authorizing, within 24 hours, the appointment of the FDIC as receiver. It differs too in limiting the assessment perimeter to financial institutions with at least \$50 billion in consolidated assets. It also excludes non-financial subsidiaries and specific government entities.

Unlike the House version, the orderly liquidation fund is not prefunded. Orderly resolution costs would be funded by the FDIC by borrowing from Treasury up to a maximum amount for each covered financial company equal to 10 percent (in the first 30 days) of book value of covered financial company consolidated assets and up to 90 percent of the fair value of assets that are available for repayment (after the initial 30 days). In addition, the FDIC would be required to repay its borrowings from Treasury within 60 months, if necessary, by imposing assessments on (almost) any claimant that received payments from the FDIC, and, if this is insufficient, from large financial companies with at least US\$50 billion in consolidated assets.

There are other important differences from the House bill. No haircuts would be possible for secured creditors, i.e., they would receive full payment. The Senate version prohibits funds being used to prevent the liquidation of a firm. All funds should be recovered either through disposition of assets of a covered financial company or assessments on the financial sector, to ensure no taxpayer losses. Insurance companies are liquidated or rehabilitated under applicable state law.

G. Financial Stability Fund in Sweden⁴⁰

The Swedish financial stability fund is one of five instruments available to the Swedish government to protect financial stability. The other four (some temporary) include: (i) bank guarantees; (ii) capital injections; (iii) emergency support; and (iv) deposit insurance.

Use and design of the financial stability fund

The financial stability fund is managed by the National Debt Office and is the financing vehicle of the aforementioned schemes. It was introduced in Act SFS 2008:814 on state support to credit institutions, which gives the government a broad mandate to deal with situations that risk serious disturbance to the Swedish financial system. The National Debt Office has been appointed as Support Authority and can intervene on behalf of the government.

Coverage

The scheme covers deposit taking institutions incorporated in Sweden. It is thus essentially limited to banks, and includes all foreign branches of Swedish deposit-taking institutions and local subsidiaries of foreign banks, while excluding foreign subsidiaries of Swedish deposit-taking institutions and local branches of foreign deposit-taking institutions.

Size of the fund and government backstop

The fund is targeted to reach 2.5 percent of GDP in 15 years. Initially, the government allocated public resources to the fund in the amount of 0.5 percent of GDP. Whether the fee will continue to be paid once this cap is reached has not yet been determined.

The fund is supported by an unlimited government back stop. Since it is conceived as an emergency financial stability measure, the fund is supported by the full credit of the government, and the National Debt Office has wide powers to access additional government resources should the fund prove insufficient.

The fund is expected to merge with the deposit insurance fund in 2011. The systemic financial stability fund was conceived as a funding vehicle for temporary financial stability schemes introduced in the aftermath of the recent financial crisis. Current bank support schemes are to expire in 2011. At that date, the systemic financial stability fund is expected to merge into the deposit insurance fund. No details are currently available on whether the stability fund will add to or gross up the deposit insurance fund.

⁴⁰ A more detailed description of these instruments is contained in “State Aid N533/2008 Support Measures for the Banking Industry in Sweden,” European Commission C (2008) 6538.

The stability fee

Covered institutions pay a flat-rate fee levied on a portion of their liabilities. The fee rate is 0.036 percent, payable annually, but transition rules allowed banks to pay only 50 percent of the prescribed rate for 2009 and 2010. The fee base is all liabilities other than: (i) equity capital; (ii) junior debt securities that are included in the capital base according to capital adequacy rules; (iii) internal debt transactions between those companies within the group that pay stability fees; and (iv) an average of the (government) guaranteed liabilities. Thus, institutions do not have to pay twice; both for the explicit guarantee and the more general charge for financial stability.

The fee will be risk based from 2011. No details are available on how risk weighting will be implemented or how it will be merged with the deposit insurance fee.

H. Bank Resolution Funds and Levy in the E.U.⁴¹

The European Commission has proposed a network of bank resolution funds. In May 2010, it proposed a network of national funds for all banks and investment firms,⁴² functioning under a “harmonized” framework.

Use and design of the funds

The funds are intended to facilitate orderly resolution of ailing institutions within a new crisis management framework. The funds are not intended to be used to provide insurance against failure or to bail out failing banks. They are intended as part of a new crisis management framework encompassing: (i) prevention measures (such as risk assessments, preparation of recovery and resolution plans); (ii) early intervention measures (implementation of recovery plans); (iii) use of bank resolution funds (for bridge bank facility, partial transfer of assets and liabilities, separation of good bank/bad bank) as needed in coordination with deposit insurance funds; and (iv) liquidation (liquidation/wind up of all or parts of the failed institution). Within such a framework, shareholders are expected to be wiped out, management removed and losses imposed on unsecured creditors and holders of subordinated debt.

Rate and base

Bank resolution funds would be funded ex ante through a resolution levy. No details are available at the time of writing regarding the type of levy and rate proposed. It is envisioned that the levy perimeter would coincide with the resolution perimeter and the proposal makes

⁴¹ See Press release COM(2010) 254 final.

⁴² In accordance with the scope of application of the EU banking legislation, i.e., the Capital Requirements Directive 2006/48/EC, the reference to “bank” is to be understood to include banks and investment firms.

reference to the size of the fund of between 2 and 4 percent of GDP. However, it is unclear whether this would be defined in terms of national or E.U.-wide GDP.

While favoring a liability base, the Commission is still assessing which base would be most appropriate, given some key principles. While the Commission suggests that banks' liabilities would be the most appropriate indicators of the amounts that might be needed to resolve a bank, it is assessing alternative bases for the contributions to bank resolution funds. It states that base and rate should: (i) avoid any possible arbitrage; (ii) reflect appropriately risks; (iii) take into account the systemic nature of certain financial entities; (iv) be based on the possible amounts that could be needed if resolution becomes necessary; and (v) avoid competitive distortions.

Governance considerations

Governance considerations may dictate specific countries to divert levies to general budget as a second best option. The Commission recognizes that some Member States could find it attractive to use levies to reduce their public deficits. For the longer term, however, it fears that failure to establish dedicated resolution funds may increase the dependence of the financial sector on public funds should new crises occur, and reinforce the moral hazard problem associated with 'too big to fail' institutions. Furthermore, it recognizes that levies paid into the general budget risk being diverted for other uses.

Appendix 3. Regulation and Taxation of the Financial Sector

Policy and academic debates have paid little attention to the potential use of corrective taxes as a tool of financial sector prudential policy, and to comparing and integrating them with regulatory measures. Taxation has long played a central role in addressing a range of externalities, notably environmental. The special features and problems of the financial sector, however, have been addressed almost entirely through regulatory tools. The reasons why fundamental instrument choices have been so different in these two areas have rarely been articulated or investigated. This leaves open a range of questions, for example, as to which should be preferred when they act as substitutes and, whether there are circumstances in which they act as complements.

The roles of regulation and taxation can be considered in relation to both micro-prudential risks (relating to individual institution) and—of more practical importance in the present context—macro-prudential (systemic) risk. Regulation has been the dominant response at the micro-prudential level, with tax policies towards the financial sector largely guided by the general principle of neutrality across. While a change in focus of current micro-prudential approaches away from regulation is highly unlikely and perhaps undesirable, the effective absence of coherent macro-prudential policies made clear by the crisis leaves room for debate on the relative merits of tax and regulation in that context. Indeed, regulatory and supervisory failings in dealing with systemic risk, and the consequent strong impact on public finances, have prompted wide interest in the potential for sector-specific tax measures.

Resolving these issues requires a better understanding of the complementarities and tradeoffs between regulation and taxation in dealing with negative financial sector externalities. This appendix provides a brief review of the issues. It starts by identifying the negative externalities that either regulation or taxation needs to address. It then outlines a number of tax measures (mostly macro-prudential) suggested by recent research and in policy debates. It further discusses some dimensions in which taxation and regulation may complement each other, or be substitutes for each other, in reaching the goals of a stable financial sector and cost-efficient financial intermediation.

Financial Sector Externalities

The rationale for regulatory or corrective tax measures in the financial sector is to address externalities arising from market failures.⁴³ In this context, it is important to distinguish between micro-prudential and macro-prudential externalities.

⁴³ Regulatory or tax measures may also be applied to the financial sector for other reasons, such as consumer protection, or for reasons not distinct from those applied elsewhere (as with the corporate income tax, for instance). These are not considered here. Furthermore, this discussion focuses on negative externalities from the financial sector, though there is also much evidence of positive externalities on financial sector development on

Micro-prudential externalities are predominantly driven by limited liability and asymmetric information. Limited liability means that bank losses in excess of equity capital (or more precisely in excess of the bank's charter value) are of no direct concern to owners or managers and so, to the extent that risk is not fully priced by creditors at the margin, leads to excessive risk-taking. Deposit insurance premia can in effect act as a corrective tax to offset such inefficiency (while at the same time generating resources to provide the insurance), but the superior information of the financial institution makes appropriate risk adjustment of the charge problematic. And even when risk is properly priced by creditors, the effects of limited liability can be amplified by explicit or implicit government guarantees, which will further reduce market discipline by allowing lower borrowing rates. In these circumstances, market forces alone cannot correct excessive risk taking and consequent mis-allocation of resources. Existing regulation of banks, insurers, and other financial institutions responds to these externalities through a series of capital and liquidity requirements and other micro-prudential regulations, coupled with in-depth supervision and the ability to impose corrective measures.

Macro-prudential externalities relate to systemic risk. The failure or distress of one institution can have domino effects on other institutions or clients. Key channels are (as discussed for instance in Brunnermeier et al (2009)): direct financial exposures, market exposures (when leverage and funding constraints at many institutions lead to fire-sales and downward asset price spirals), or reputational exposures (when asymmetric information causes creditors to run from many financial institutions when faced with uncertainty). Additionally, externalities may arise in forms of 'excessive' volatility of asset prices, including exchange rates (with deviations of prices from fundamental values potentially hampering investment and growth),⁴⁴ and related excessive volatility of financial and capital flows (Shin, 2010b). However, establishing analytically and empirically the degree to which there might be excessive volatility in asset prices or capital flows has been challenging (Brunnermeier (2001) and Shiller (2005) review).

Recent experience has confirmed that negative externalities can be especially large during financial crises. The overall effect of systemic risk on the financial system and the real economy can be significantly larger than the initial shock (as was evident when troubles in the relatively small U.S. subprime mortgage market generated disproportionately wide and deep repercussions). Moreover, financial institutions may impose risks on others, while leaving their own balance sheets relatively un-exposed (as in the case of risks created by the distribution of risky financial innovations, e.g., complex securitizations). Systemic financial crises almost always result in significant fiscal costs (for direct financial system support, as well as for automatic stabilizers and possible discretionary stimulus programs) and large economic costs (a cyclical loss of output and possibly an impact on potential growth: see Estevão and Severo (2010) and Laeven and Valencia (2010)).

the real economy (see Levine, 2005 for a review). These positive externalities can call for government involvement, for example, in the provision of institutional infrastructures.

⁴⁴ Schulmeister (2010) develops this argument.

Two factors can amplify financial sector externalities, particularly macro-prudential ones:

- ***The presence of large and complex financial institutions.*** So severe are the costs of their failure that financial markets will typically expect governments to support these institutions to avoid further adverse consequences. This leads to (additional) moral hazard in the form of taking on more risks, and shifting risks and costs to the public sector. Ex-ante, financial markets are distorted, leading to funding advantages for such financial institutions: in effect, there is a fiscal externality from the expectation of government support that is reflected in borrowing costs and capitalized in market values. Ex-post, bailouts entail fiscal costs. Much of the current policy agenda is consequently aimed at reducing the risks associated with institutions that are “too-big-to-fail.”
- ***The inherent pro-cyclicality of the financial system.*** During cyclical upswings, financial institutions build up leverage and risk without having the incentive to consider sufficiently the fallout for the rest of the financial system and the real economy of the adjustment that will become necessary when markets eventually do correct. Risk is typically “under-priced,” leading to rapid asset price appreciation and financial institutions taking on additional exposures. These booms, in turn, often involve increases in non-core short-term liabilities, including in foreign exchange and “carry-trade.” This can, although need not, create adverse general equilibrium impacts when they create systemic risks.

The tools to address macro-prudential externalities are still limited. The recent crisis has highlighted the potentially daunting costs of macro-prudential externalities. Yet existing regulatory structures are predominantly micro-prudential. Distinctly novel types of policy may be needed to help reduce macro-prudential externalities and systemic risks.

Broadly speaking, two types of corrective tax for the financial sector have been proposed:⁴⁵

- ***A systemic risk tax.*** Several studies have suggested imposing a corrective tax based on the expected marginal contributions of individual financial institutions to systemic losses incurred in a financial crisis. Studies suggest capturing marginal losses through Co-Value-at-Risk (CoVaR, the value at risk of financial institutions conditional on other institutions being in distress; Adrian and Brunnermeier, 2009) or the Marginal Expected Capital Shortfall (MES, the expected marginal share of an institution’s loss in overall financial sector loss in a crisis; Acharya et al., 2009). By basing the corrective tax on these measures, institutions would be incentivized to reduce their marginal contribution to systemic risks. One difficulty, however, is that the statistical

⁴⁵ This is not an exhaustive list of policies that might be used to tackle macro-prudential risks.

measurement of marginal systemic risk contributions may prove too complex for direct use in taxation or indeed regulation. Proposals suggest addressing this problem by linking the tax to simple regulatory ratios. Specifically, they identify size, leverage, maturity mismatch (associated with the use of short-term funding), as well as the standalone investment banking business model, as important metrics explaining cross-sectional variation in marginal systemic risk contributions.

- ***A tax on short-term wholesale funding.*** The over-reliance of financial institutions on wholesale funding, particularly short-term but also in foreign exchange, has been one of the key sources of vulnerability during the recent crisis (Huang and Ratnovski (2008), Brunnermeier (2009), Perotti and Suarez (2010), Shin (2010a)). While wholesale funding allows lenders to expand their supply of credit, there is risk of over-reliance on its very risky short-term or currency-mismatched forms. A corrective tax could discourage the use of short-term wholesale funding by raising its cost. Specifically, the tax rate could be calibrated on the difference between short-term and acceptable medium-term borrowing costs *in normal times*. Note that while such a tax would limit the routine reliance on short-term funding, it would not prevent its use should the need arise.

Some recent policy proposals have a corrective motivation. For instance, the levy announced by the German government (see Appendix 2) aims to mitigate incentives towards creating excessive systemic risk, by internalizing the negative externalities of systemic relevance. The FCR as originally proposed by the U.S. administration also has some corrective elements: intended to be levied on the debts of financial firms with more than \$50 billion in consolidated assets, it would provide a deterrent against excessive leverage by the largest financial firms. However, the rate of charge is probably not high enough to cause a large change in the behavior or risk profiles of financial institutions, and hence to significantly alter the risk that government outlays will be needed to cover future losses.

A “Financial Stability Contribution” (FSC) could be designed to have corrective effects. In line with academic proposals, the FSC tax base could be the systemic risk-related by relating its rate to the structure of bank liabilities (similar to the tax on short-term wholesale funding). And it could reflect other determinants of systemic risk, such as size, leverage, and duration of funding.

The Relative Merits of, and Complementarities Between, Taxation and Regulation

Taxation and regulations can both be used to address externalities, but there are many open questions. What then are the advantages that each offers in relation to financial sector externalities? When are they complements, and when substitutes? Are there outcomes that can be achieved with one tool but not the other?

In a ‘textbook’ world, with the government having perfect information and there being no uncertainty, taxation and regulation are equivalent, in the sense that anything that

can be achieved under one can be achieved under the other.⁴⁶ For example, a tax on excessively high VAR could substitute for capital adequacy requirements in controlling bank risk. Similarly, any effect of corrective taxation on bank behavior could in theory be replicated by bank capital requirements, assuming that additional capital is consistently available to banks at a cost. So the effects of a systemic risk tax, for example, could be replicated through a systemic risk capital surcharge. In addition to these broad conceptual equivalences, taxation and regulation share some common challenges in their practical implementation (Box A3.1).

Important differences between regulation and taxation arise, however, from uncertainty and imperfect information. For example, under fairly general conditions, leverage limits will always reduce risk taking, while taxes need to be “progressive enough” with respect to risk or else they will increase (rather than decrease) risk-taking incentives. Implementation issues can also play an important role. We further compare the merits of taxation versus regulation as corrective tools in what follows, using costly capital surcharges as the regulatory tool.

Merits of taxation as a corrective tool

As a price-based corrective tool, taxes can be more directly geared toward certain activities and have a smoother (more continuous) impact on bank finances. A corrective tax can directly be linked to an identified source of systemic risk for a financial institution. Achieving the equivalent (in terms of discouraging a specific source of risk) effect through a capital surcharge would also require an estimation of the financial institution’s cost of capital (such that the capital surcharge times the cost of capital is equivalent to the tax) which can be complex as the cost of capital varies over time and across institutions. Also, taxes impose on banks smooth and continuous costs (e.g., yearly payments). In contrast, higher capital requirements can impose discrete and significant costs if conditions make it difficult to raise new capital. This makes taxes potentially a more dynamically efficient instrument: the imposition of a tax would not involve high up-front cost, so there will be a lower risk of adverse effects such as deleveraging. Similarly, taxes might offer banks and regulators more flexibility during a crisis, when raising additional capital to satisfy the surcharges could be prohibitively costly and undesirable from a cyclical point of view.

Taxes create fiscal space and help reduce the fiscal impact of failure of financial institutions, provided an appropriate resolution framework is in place. Fiscal revenues can be viewed as a form of government-facilitated co-insurance of financial institutions against idiosyncratic risks, and as a payment for fiscal support that may become necessary during a systemic crisis. Insofar as taxes improve the ability of governments to intervene

⁴⁶ This is so, at least, for technically ‘well-behaved’ problems. Note too that this equivalence presumes that the income effect of tax measures can, if desired be undone by returning revenue raised to the taxpayer as a lump sum payment.

effectively, they reduce the impact of distress of financial institutions. Similar to other forms of insurance, however, government-provided buffers may increase moral hazard (more risk-taking on part of financial institutions and/or less efficient government interventions under the perception of softer budget constraints for financial sector support). Therefore an effective resolution framework, balancing insurance and moral hazard considerations, is essential.

Box A3.1. Regulation and Taxation: Common Challenges

There are some important similarities in the design problems facing regulatory and tax policies: incidence, perimeter, calibration, and coordination.

Incidence—Who bears the real incidence of regulation and taxes in the financial sector? This matters for assessing the fairness of alternative measures. (Importantly, incidence is less important in efficiency terms: what matters is the impact of policy on the marginal private costs of particular actions, with the precise working out of that on market prices immaterial). Such issues would include, for instance, the question of how far the real burden of any of the potential taxes discussed below would fall on rents earned in the financial sector and how far it would be passed on to customers.

Perimeter—The set of firms to be taxed or regulated needs to be defined when designing the scope of prudential rules or taxes. One key objective is ensuring that institutions transferring risk are adequately supervised or taxed. Issues arise too as to the extent to which measures aimed at the financial sector can or should be ring-fenced from the rest of the economy: whether, for instance, debt bias in financial activities can coherently be addressed without addressing it for all companies.

Calibration—Determining the appropriate corrective actions requires understanding how the financial sector will respond to policy, and deciding how large the relevant externalities are (to what degree, for instance, they should include wider costs to the real economy). The need for this, and the consequent difficulty of doing so, is made more explicit by the tax approach; it arises too for regulatory policies, though it may then be less visible.

International coordination—The effectiveness of possible measures is likely to depend on the extent of international cooperation in their design and enforcement. The sophisticated and globalized nature of financial services industries leads to substantial international spillovers from both regulatory decisions (as experienced with the extension of deposit insurance schemes in the recent financial crisis) and tax choices (including through the use of low-tax jurisdictions). Not only realizing opportunities but also avoiding mutual damage may call for significant policy cooperation when considering the taxes and charges applied to financial sector.

Taxes might be easier to implement across sectors. A new and consistent instrument might be easier to harmonize or introduce relative to redesigning currently segmented sectors or those financial markets' activities lacking regulation.

Merits of regulation (specifically, capital surcharges) as a corrective tool

Correcting systemic risk through capital surcharges would build on a strong existing institutional framework.⁴⁷ Financial regulators have significant experience interacting with and supervising the financial sector. As a result, the rules for capital surcharges can potentially be more detailed and more easily adjusted than those for taxes. In addition,

⁴⁷ Requiring some forms of contingent capital is another tool that could be used to create buffers, albeit one that remains largely untried.

Pillar II of the Basel Accord already allows regulators to use soft information and consider individual circumstances. In contrast, taxes are normally based on relatively hard information and are non-discriminatory in nature; discretion might be possible but is limited. Also, addressing systemic risk through regulatory means would simplify international co-ordination by relying on existing institutional arrangements (e.g., the Basel Committee for Banking Supervision).

Capital surcharges create buffers, and can directly reduce the probability of failure or distress of a financial institution. A reduction in the probability of failure is particularly important in case of large, complex, and international institutions that are difficult to resolve efficiently, even when the necessary fiscal resources and resolution framework are in place. Also, capital surcharges increase the ‘skin in the game’ (i.e., risk exposure) of bank equity-holders, potentially providing an overall reduction in moral hazard and enhancing market discipline, even reducing systemic risk concerns.⁴⁸

Capital surcharges may have stronger corrective effects when taxes cannot be made risk-sensitive enough. Taxes, in general, reduce profitability and the charter value of a bank, leaving equity holders, and potentially key employees, with less ‘skin in the game.’ Unless taxes are sufficiently risk-sensitive, this would lead to higher risk-taking. In contrast, most capital-based measures, however crude, serve to reduce an institution’s risk. Capital surcharges may therefore be preferred when supervisors do not possess sufficient information to implement risk-sensitive taxes. (Note that this is an additional argument in favor of basing a prospective systemic risk tax on bank liabilities rather than assets: liability risks are easier to capture consistently across banks, e.g., by focusing on duration and concentration.)

Uncertainty

Strict regulatory limits (such as on leverage or precluding certain activities) have particular appeal when small misjudgments of the private sector reaction function can result in large adverse consequences. They are also useful when the costs to the private sector of adapting to (or avoiding) regulation are relatively low, and/or when marginal social damage is very sensitive to the outcome of private decisions.⁴⁹ The non-linear nature of financial stress—with periods of calm, at times erupting in financial turmoil and crises—suggests that hard limits may have a role in complementing tax and surcharge-based measures.

Overall, the discussion suggests that taxes may be a useful complement to regulation in addressing macro-prudential concerns.

⁴⁸ The effects of higher capital adequacy requirements on risk taking are in principle ambiguous, however, since they may lead financial institutions to take more risk to offset the costs: Hellman, Murdock and Stiglitz (2002).

⁴⁹ See Weitzman (1974). Note that the uncertainty as to the magnitude of potential social damage stressed above is not directly relevant to the choice between tax and regulatory surcharges, since it does not in itself affect the outcome under either.

Appendix 4. The FSC: Rate, Revenue and Financial and Economic Implications

This appendix discusses: (i) possible rationales for the FSC and its rate; (ii) measuring the too big to fail subsidy; (iii) likely impact on bank performance, internal buffers and revenue collection; (iv) issues related to pass-through and incidence; and (v) likely impact on lending and economic growth.

Possible Rationales for the FSC and its Rate

Banks can benefit from implicit guarantee that lower their costs of funding, the value of which is a proxy for the incentives to become systemically relevant. One of the reasons financial institutions have incentives to become large and complex is that they enjoy an implicit state guarantee through becoming too-big-to-fail (TBTF). The provision of state guarantees is a competitive distortion. Investors know that TBTF institutions are safer bets than other institutions, even those with otherwise similar characteristics. This creates funding cost benefits for TBTF institutions which they can use to gain market share at the expense of other institutions. Levies can be set so as to have institutions pay for the implicit (TBTF) subsidies they receive and to reduce their incentives to become TBTF.

Levies, taxes and capital surcharges can be used to correct for the negative externalities of TBTF. Levies can be used to correct for the externalities financial institutions generate, including the creation of systemic risk. Many of these externalities also arise from TBTF practices. In theory, a Pigouvian tax could reduce systemic risks to the socially optimal level, if it was set to exactly internalize systemic risk externalities. Alternatively, a surcharge on capital could achieve the same objective. A prerequisite for both types of approaches—taxation or regulation—is some measure of the size of systemic risk externalities. What is a fair level of a capital surcharge on systemic banks? And what is an appropriate Pigouvian tax on systemic risk?

This section estimates the TBTF subsidy as a guide to the level at which a levy could be set. Before the recent financial crisis, regulators in many countries tried to create uncertainty about the extent of state guarantees through a policy of “constructive ambiguity.” The financial crisis led to a series of events and policy decisions that radically changed these expectations. For instance, the declaration by the G-20 heads of state in 2008 that no systemically relevant institution would be allowed to fail marks a drastic change in the TBTF policy across a large number of countries by turning an implicit into an explicit state guarantee. Therefore expectations about the burden sharing of any losses between taxpayers, debt holders and equity holders varied over time.

Measuring Private Benefits from Too-Big-to-Fail Policies

We use two approaches to estimate the value of the TBTF subsidy: an event study and a ratings study:⁵⁰

- **Event study.** The value of the subsidy can be inferred from how market values respond differentially to major events involving changes in TBTF practices. We use the CDS market and the stock market for large financial institutions and nonfinancial corporations in the U.S. and Europe (controlling for some institutional characteristics).⁵¹ Based on this approach, the value of the TBTF subsidy transferred to large financial institutions in excess of the benefits received by nonfinancial firms is estimated to be equivalent to an annual rate on total assets of about 10 bp to 50 bp, with an average of about 20 bp. This estimate is based on incremental changes in TBTF policy and practices, and so may underestimate the total TBTF value.
- **State support.** The competitive advantage in funding associated with TBTF policies can be estimated using rating agencies' expectations of state support to financial institutions. Rating agencies provide a rating as to each institution's own financial strength without government support, and a rating for the support expected from the government for the institution. By regressing the overall ratings on these two subcomponents, the relative importance of the government support can be estimated.⁵² The regressions are based on top 10 banks from each G-20 country and conducted using end-2007 and end-2009 data, before and after major events—including the declaration by the G-20 in December 2008 that no systemically relevant institution would be allowed to fail. The regressions show that there is a marginal increase in the value of the too-big-to-fail subsidy governments provided in 2009 for advanced economies. The funding cost advantage varies with financial strength ratings, but is estimated to be on average 65 bp. This advantage, however, captures both the government subsidy and the competitive advantage of too big to fail banks, which means that the reasonable levy rate should be somewhat smaller.

⁵⁰ There is a small literature that has tried to estimate the value of the TBTF subsidy. Rime (2005) and Soussa (2000) use the rating agencies' expectation of state support to financial institutions to back out the value of the subsidy, and estimate the value of the subsidy to range from 5 bp to 128 bp, depending on the credit rating of the bank. Baker and McArthur (2009) use the difference in funding costs of small and large U.S. banks before and after the change in the TBTF policy which was established with TARP as proxy for the value of the TBTF subsidy. Their estimates of value of the subsidy range from 9 bp to 49 bp. See also Haldane (2009) for estimates of the funding advantages due to TBTF.

⁵¹ The specific events we analyze are the bailout of Bear Stearns; the bankruptcy of the Lehman Brothers; the introduction of TARP; the failure of IKB in Germany; the nationalization of Northern Rock in the U.K.; and the EU Summit declaration of no failures of large financial institutions.

⁵² As the support rating measure captures not only government support but also potential support from parent companies, foreign bank ownership is controlled for when estimating state support.

These approaches suggest that the TBTF subsidy is on average 20 bp. Based on the aforementioned two different approaches, estimates indicate that the TBTF subsidy currently enjoyed by large and complex financial institutions would be offset by an annual levy on total assets of about 20 bp on average, ranging from 10 to 50 bp depending on firm and country characteristics.

Impact on Profitability, Internal Buffers and Revenue Collection

This section assesses the impact of a Financial Stability Contribution (FSC) on financial institution performance, internal buffers, and on fiscal revenues. In particular, we look at (i) the impact on profitability of banks and insurance companies in G-20 economies in terms of net earnings; (ii) the impact on Tier one capital of banks, as a proxy for internal buffers; and (iii) the impact on revenue collection over a twenty year horizon. The analysis is based on a normalized measure of past net income before taxes as a proxy for future profitability and using alternative tax bases for the FSC levy.⁵³ Table 1 summarizes the alternative bases considered.⁵⁴

Table A4.1. Alternative FSC bases for banks and insurers

	B1	B2	B3
Banks	Total consolidated assets – deposits.	B1 – tier I capital.	B2 – tier II capital.
Insurers	Total assets – technical provisions.	B1 – equity	B2 – subordinated debt.

Impact on profitability

The analysis makes the simplifying assumption that the FSC is fully absorbed by earnings of the financial institutions. This is obviously an extreme case, since financial institutions will likely be able to pass on some part of the levy to customers (by adjusting

⁵³ For banks, we took 80 percent of the 2004–07 average return on assets (ROA) before taxes and multiplied it by 2009 consolidated assets. For insurers, we followed the same methodology but did not reduce the average ROA due since the ROA curve for insurers has been, on average, much less volatile than for banks. This normalized measure for insurers is equivalent to an average ROA of 1.3 percent and a return on equity (ROE) of 19 percent, before taxes.

⁵⁴ Insured deposits are excluded from the base to avoid double imposition of levies in the presence of deposit insurance. Equity is also excluded so as not to discourage the accumulation of internal buffers against unforeseen idiosyncratic shocks. Subordinated debt is excluded in consideration that forthcoming regulatory initiatives will increase its loss absorbing properties. For insurers, the same rationale for exclusion of certain items applies to those items in common with banks. However, under the term “technical provisions” we include not only provisions related to insurance and financial contracts but also deposits in the case of insurance groups owning banks and other minor insurance related liability items like insurance balance payables, net asset value attributable to unit holders, separate account liabilities associated with the provision of annuity and pension products, funds held under reinsurance treaties and other accrued liabilities directly stemming from direct insurance and reinsurance operations.

prices and quantities of different business lines and margins) or employees. In practice, their ability to do so will depend on the elasticities of demand and supply and their degree of market power in any business segment.

The impact of different FSC rates on banks' earnings will vary with the size of the base.

A 20 bp levy, for example, would reduce pretax profits of retail banks by about 10 percent (27 percent for investment banks) when the rate is applied to a base with only deposits excluded from total assets (case B1). The impact would not substantially change when subtracting from the base also Tier one equity (case B2) and Tier two equity (case B3), reflecting the fact that banks are highly leveraged institutions. Banks would be impacted in proportion to the size of their deposits base: the smaller the deposit base, the higher the charge.

The impact on insurer earnings are more muted. A 20 bp FSC would reduce pretax profits by between 5 percent on average when the rate is applied to a base with only technical provisions excluded from total assets. The impact of the charge is reduced to only 3 percent if it also excludes equity and subordinated debt. At other charges, the impact on earnings changes linearly. For all financial institutions combined, a 10 bp FSC would amount to some 3 percent of profits.

Impact on internal buffers

For banks, the FSC could have an impact on Tier one capital adequacy ratio. If all net earnings are fully retained to increase capital, such capital increase would be curtailed one-by-one by the FSC. Assuming unchanged dividends, a 20 bp FSC would reduce by between 10 bp to 60 bp the growth of the Tier one capital adequacy ratio for banks.

Revenue

The amount of FSC contributions can also be estimated. We assume the perimeter to be limited to the banking sector (i.e., insurance companies and other financial institutions are not included in the estimates), and the base to be total consolidated liabilities of domestic institutions, excluding total deposits and equity (but not subordinated debt). Under these assumptions, and using 2008 data consolidated banking dataset for E.U. countries which are readily available, the amount collected with a 10 bp FSC would accumulate over ten years to, on average, 2 percent of GDP. There are large differences in the rates of accumulation across countries, however, reflecting the different sizes of the domestic banking sectors relative to GDP and different deposits to assets ratio. Among the large European economies, Germany, France and the U.K. display the highest accumulations, having very sizable banking sectors relative to their economies and relatively low deposits to assets. Spain and Italy, on the other hand, have low accumulation given their smaller, deposit-rich banking sectors.

Pass-through and Incidence of a Financial Sector Tax

Any assessment of the quantitative impact of a tax must distinguish between tax revenue and tax incidence. The latter concerns which groups will ultimately bear the tax burden. The tax incidence, or tax burden, does not depend on who is legally liable for the tax, but on the price elasticities of demand and supply, and wider competitive conditions, in the different markets in which the tax subject operates. This, in turn, will depend on the circumstances the institution faces in different markets for equity, debt, deposits or loans and fees. Moreover, these elasticities will depend on how widespread the adoption of the tax is. However, the relevant elasticities are not readily observable and mostly not available for G-20 countries' banking systems. Instead, we provide a range of possible impacts of an FSC using different calibrations and assumptions on the adjustment margins of a stylized bank.⁵⁵

A simple framework is used to explore this. We study a lending decision in which the private benefits of making the loan have to be at least equal to the cost of making it. The benefits of the loan include the effective interest rate on the loan (including annualized effects of fees) plus any additional pecuniary benefits that the bank can reap from making the loan. For instance, the relationship with a customer on the credit market can have a positive value, which exceeds the value of the loan if the bank is able to cross-sell its investment banking products. The costs of making loans include the cost of funds, any expected credit losses, and administrative expenses, where we allow the cost of deposits to differ from that of other forms of debt and equity. The cost of deposit funding includes all cost incurred in collecting deposits, e.g., the deposit insurance premium and costs of running a branch network.

Similarly to the previous section, the FSC is assumed to be charged on non-deposit debt liabilities and to be tax deductible. Alternatively, it could be modeled as a tax on total liabilities with a tax credit for the amount of deposit insurance premiums already paid. Using alternative assumptions about the pass-through from the FSC, ranging from one extreme in which the entire burden is carried by borrowers of the bank, to the other, in which the full burden is carried by bank profits, we can arrive at lower and upper bound estimates of the impact of a FSC on loan rates. Based on these calibrations, with full pass-through, an FSC of about 20 bp on liabilities would increase loan rates by about 10bp. On the other hand, with the full impact of higher costs absorbed by profits, a 20 bp FSC would reduce the return on equity by about 2 percent. In a more intermediate case, where banks pass on part of the burden to borrowers to limit the drop in bank profits, an FSC of 20 bp would increase loan rates by about 5 bp.

⁵⁵ The stylized model of a lending decision is based on Elliot (2009) and Doluca et al (2010).

Impact of Financial Sector Taxation on Lending and Real Activity

An increase in bank taxation is likely to have a negative impact on bank asset growth, since a reduction of after-tax returns discourages expansion. In addition, reduced after-tax earnings make rates of return lower as retaining earnings are less, adversely affecting capital formation, which in turn discourages asset growth. A reduction in (after-tax) profitability can also have a negative impact on financial stability by increasing bank risk.

The potential impact of financial sector taxation on lending activity, real activity, and financial stability is likely to be negative but small. Estimates based on panel data regressions using historical data on U.S. banks, as well as data from other banking systems, indicate that a lower return on assets due to an increase in bank taxation has a direct negative effect on capital formation. In addition, a higher effective tax rate discourages asset growth and lowers future earnings, while it increases the probability of default.⁵⁶

The quantitative impact of different configurations of an FSC and FAT can be assessed using the estimated parameters, including its distribution across different types of banks, such as large versus small banks.⁵⁷ The impact of an FSC of 20 bp on total debt on banks' asset growth is estimated to be limited: on average, about 0.05 percentage points. A Financial Activities Tax (FAT) of about 2 percent on pretax profits would not significantly alter this. However, for some banks the negative impact of these taxes on asset growth can be severe, in particular for large banks. The negative impact of an FSC of 20 bp and a FAT of 2 percent on the probability of default is also small, with the increase across banks not exceeding 0.1 percent. The impact of such an FSC and FAT on GDP growth is also limited on average, though more severe for countries with more systemic (large) banks.⁵⁸

The potential real effects of an FSC have been also evaluated using a Dynamic Stochastic General Equilibrium (DSGE) model. In this model, the FSC is imposed on intermediaries' liabilities, and thus raises their financing costs, but this is partially passed through into higher lending rates. An output loss results as lending rates increase and credit volumes decrease, leading to lower investment. Two scenarios are performed. In one, the

⁵⁶ A quantitative estimate of the impact of a given increase in corporate taxation on bank asset growth, bank risk, and real activity is obtained in two steps. First, forecasting models of equity formation, bank asset growth and the probability of bank default are estimated using a large panel of U.S. banks. Second, the impact on real activity is gauged estimating the elasticity of GDP growth on asset growth for a large panel of countries, and projecting the implied change in GDP growth deriving from predictions of changes in bank asset growth.

⁵⁷ In this scenario analysis, we consider an FSC at rates of 10, 50 and 100 bp applied to either total debt or total liabilities net of equity capital, and the profit component of a FAT applied at 200 bp of profits before taxes.

⁵⁸ To estimate the impact of these taxes on real activity, we first estimated the elasticity of GDP growth to bank asset growth, based on a large panel of 48 developed and emerging market countries during 1980–2007. We estimate this elasticity to be about 0.07 percent. This elasticity is obtained by taking the correlation between the log of GDP growth and the log of the growth rate of bank credit to GDP, and assuming the latter ratio is approximately the same as the log growth rate of total bank assets to GDP, and rescaling.

FSC remains at a rate of about 20 basis points per annum. In the other, reflecting the expectation of lower risks and costs of failures due to improved regulatory, supervisory and resolution regimes, the FSC is reduced to zero after 10 years.

Under two scenarios, the real impact of the FSC is quantitatively modest. In the scenario with a sustained FSC, the level of real output is about 0.3 percent permanently lower because of the decline in investment (due to higher costs and lower volume of credit). In addition, by increasing the cost of debt for banks, the FSC leads to some substitution of bank deposits with bank equity, making the systems more stable. For the temporary FSC, output drops by less than 0.3 percent at its trough (within the fourth year), mainly because of a decline in investment due to the high interest rate for risky lending, with the cumulative output loss to be about 1.5 percent. As the FSC is reduced to zero, economic activity returns to normal within about four years.

Appendix 5. Current Taxation of the Financial Sector

Overview

Financial companies are subject not only to taxes of general applicability (such as income tax and social contributions) but also, in many G-20 members, to sector-specific taxes. Leaving aside taxes introduced in the wake of the crisis (Appendix 2),⁵⁹ countries levy a number of taxes on financial transactions and incomes, but many of these raise only small amounts of revenue. Among the larger relative revenue raisers is the stamp duty on trades in shares of locally-registered firms in the U.K., the bank debit tax in Argentina, the banking and insurance transactions tax in Turkey, and several transactions taxes in Brazil.

Prior to the crisis, the financial sector accounted for a substantial share of all corporate income tax (CIT) revenues (Table A5.1):⁶⁰ about one-quarter in Canada, Italy, and Turkey; about a fifth in Australia, France, U.K. and U.S. It emerges from the crisis, however, with extensive tax losses—many tens of billions of dollars in the most affected countries—with the potential to substantially reduce CIT payments for some years to come.

Table A5.1. G-20. Corporate Taxes Paid by the Financial Sector
(In percent)

	Period	Share of Corporate Taxes	Share of Total Tax Revenue
Argentina	2006 – 2008	6.0	1.0
Australia	FY 2007	15.0	2.8
Brazil	2006 – 2008	15.4	1.8
Canada	2006 – 2007	23.5	2.6
China			
France	2006 – 2008	18.0	1.9
Germany			
India			
Indonesia			
Italy	2006 – 2008	26.3	1.7
Japan			
Mexico 1/	2006 – 2008	11.2	3.1
Russia			
Saudi Arabia			
South Africa	FY 2007 – 2008	13.7	3.5
South Korea	2006 – 2008	17.7	3.0
Turkey	2006 – 2008	23.6	2.1
United Kingdom	FY 2006 – 2008	20.9	1.9
United States	FY 2006 – 2007	18.2	1.9
Unweighted Average		17.5	2.3

Source: IMF Staff estimates based on G-20 survey.

1/ Shares of nonoil CIT revenue and total nonoil tax revenue.

⁵⁹ The focus here is also on explicit taxes; a fuller account would recognize such implicit taxes as unremunerated reserves.

⁶⁰ The data in this appendix are from the survey responses of G-20 members.

Other Significant Taxes on the Financial Sector in the G-20 include:

Argentina: Credits and debits on current accounts have been taxed since 2001. This raises significantly more than CIT on financial institutions, and over the period 2006–2008 raised about half as much as the CIT on all sectors.

Brazil: Until the end of 2007, Brazil levied a bank debit tax (the Provisional Contribution on Financial Transactions), that raised about three times the amount raised by the CIT on financial companies. This was replaced by a higher rate for financial firms (the Social Contribution on New Corporate Profits), of 15 percent, rather than the standard rate of 9 percent, and an increase in the tax on financial operations (IOF). For 2008, these two taxes raised about three times the revenue raised by CIT on financial institutions.

Turkey: The Banking and Insurance transactions tax falls on all transactions of banks and insurance companies. It raises about as much revenue as CIT on financial companies, and about 2 percent of total tax revenue.⁶¹

U.K.: The stamp duty on secondary sales of shares and trusts holding shares raised over the three years on average about 40 percent as much as the CIT on financial institutions.

Several countries reported significant VAT revenue from the financial sector. This accounted for about 12 percent of VAT revenue in Australia, 6 ½ percent in Canada and about 7 percent in Mexico. This revenue reflects both any VAT charged on fee-based financial services and VAT paid on inputs that—due to the exemption of the sector discussed in the next further—is not recovered.

Issues

Though generally agreed not to have triggered the crisis,⁶² deep-rooted tax biases in most G-20 tax systems may run counter to financial stability concerns. They may result in financial firms taking on too much risk, including by being over-leveraged, and, perhaps, in the sector being too large.

⁶¹ In addition, there is levied on financial companies a Resource Utilization Support Fund (classified as nontax revenue), that raises about ¾ as much as the CIT on financial companies.

⁶² Hemmelgarn and Nicodeme (2010), IMF (2009), Lloyd (2009), Slemrod (2009) and McDonald and Johnson (2010).

Debt bias

The deductibility against corporate income tax (CIT) of interest on debt, but not the return to equity, creates a tax preference for debt over equity finance.⁶³ There is strong evidence that this leads to noticeably higher leverage for non-financial companies.⁶⁴ While there is no comparable body of analysis for financial institutions, there is also little reason to suppose the effect to be any less: even regulated institutions commonly hold a buffer of capital beyond regulatory requirements, leaving scope for tax effects. The proliferation prior to the crisis of hybrid instruments⁶⁵ attracting interest deduction yet allowable (subject to limits) as regulatory capital, strongly suggests tax incentives at work, conflicting with regulatory objectives.

There are several ways in which current CIT favoring leverage could be reduced or eliminated.⁶⁶

- *Thin capitalization rules*, which deny interest deduction once debt ratios or interest payments exceed some threshold, are becoming more widespread (in terms of both the countries deploying them and the circumstances to which they apply). They can reduce the bias towards debt, albeit with the weakness that they make little if any allowance for enterprises' distinct circumstances.
- A *Comprehensive Business Income Tax* (CBIT) would deny interest deductibility for CIT altogether. Symmetrically, it would exempt interest received (to avoid multiple taxation within the corporate sector). The transitional problems in moving to a CBIT would be significant (in relation to debt issued in full expectation of deductibility, for instance). The CBIT would also result in financial institutions paying little or no CIT (having no tax due on interest received, but non-interest deductible costs), though in aggregate this might be more than offset by increased payments by other companies.
- An *Allowance for Corporate Equity* (ACE) would retain interest deductibility but also provide a deduction for a notional return on equity. There is experience with such schemes: Brazil has had a CIT with these features for many years, Belgium has recently adopted one, and Austria, Croatia and Italy have all had CITs with elements of an ACE. There is some evidence that such schemes have indeed reduced leverage.⁶⁷ While the

⁶³ This could in principle be offset by taxes at personal level (relatively light taxation of capital gains favors equity, for instance). In practice, however, the importance of tax-exempt and non-resident investors, the prevalence of avoidance schemes focused on creating interest deductions, and the common discourse of market participants suggest that debt is often strongly tax-favored.

⁶⁴ Weichenrieder and Klautke (2008).

⁶⁵ Such as Trust Preferred Securities: Engel, Erickson and Maydew (1999).

⁶⁶ There are possibilities beyond those listed here, such as movement to 'cash-flow' forms of CIT.

⁶⁷ Staderini (2001) and Pricen (2010). Wider experience with the ACE is reviewed by Klemm (2007); overviews of design issues are in OECD (2007) and IMF (2009b).

adoption of an ACE would mean a revenue loss, this can be limited by transitional provisions. (The gain would also be less for financial firms than others, since they tend to be much more highly geared). It can be further limited by applying the same notional return (which strong arguments suggest should approximate some risk-free return) to equity as well as debt,⁶⁸ which would have the further advantage of eliminating any distinction between debt and equity for tax purposes.

Fundamental CIT reform, needed to address the fundamental tax bias to excess leverage, could be an important part of a package for better taxation of the financial sector. The reforms just sketched would need to be far-reaching to be useful. Application only to financial institutions might seem tempting, but would create tax arbitrage problems (providing ACE treatment only for financial firms, for instance, would require anti-avoidance rules to prevent non-financial business being held by financial firms). Accompanying changes to individual taxation may also be needed. These would be difficult reforms, but the payoff to reducing a fundamental bias to excess leverage could be substantial.

The indirect taxation of financial services

It is common practice to ‘exempt’ financial services (other, to varying degrees, than those charged for as an explicit fee) under the VAT, meaning that that tax is not charged to the purchaser but tax paid on related inputs is not recovered. Financial services are in this sense ‘input-taxed.’⁶⁹ The reason for the widespread use of exemption lies in the conceptual difficulty that arises when payment for service is implicit in a spread (between borrowing and lending rates of interest, for instance): taxing the overall spread may be easy, but proper operation of the VAT requires some way of allocating that tax between the two sides of the transaction so as to ensure that registered businesses receive a credit but final consumers do not.

Exemption means that business use of financial services tends to be over-taxed, while use by final consumers is under-taxed. The prices charged by financial institutions will likely reflect the unrecovered VAT charged on their inputs, so that business users will pay more than they would have in the absence of the VAT. Normally, the credit mechanism of the VAT ensures that prices paid by registered businesses on their purchases are not affected by the VAT; exemption means that this is not so either for financial institutions themselves, or their customers (or, through further cascading, the customers of their customers). This runs counter to the principle, underlying the VAT, that transactions between businesses should not be taxed unless doing so addresses some clear market failure. For final consumers, on the other hand, exemption likely means under-taxation, since the price they pay does not reflect the full value added by financial service providers, but only their use of taxable inputs. Views

⁶⁸ As proposed by Kleinbard (2007).

⁶⁹ Insurance premiums are commonly subject to additional excises, so that the arguments which follow do not apply with the same force.

differ, however, as to whether or not a low rate on the use of financial services by financial consumers. Some argue for taxation of financial services at a relatively low rate, because, for instance, their use frees time for paid work, so that favorable treatment helps counteract the general tendency of taxation to discourage work effort.

The net impact of exemption is likely to be less tax revenue and a larger financial sector. The differing impacts on business and final use make the impact of exemption on the overall level of VAT revenue, and the extent of financial activity, ambiguous. Such evidence as there is, however, suggests that revenue would be increased by taxing (only) final use of financial services at the standard VAT rate (Huizinga (2002), Genser and Winkler (1997)). The effect on the size of the sector depends on relative price sensitivities of business and final use, but the same evidence creates some presumption that the exemption of many financial services under current VATs result in the financial sector being larger than it would be under a perfectly functioning, single-rate VAT.

It is now understood how, in principle, to dispense with exemption—but no country does so. Treating all inflows to financial institutions (including of principal) as taxable sales and all outflows as taxable receipts achieves this.⁷⁰ Understanding of this remains relatively new, however, and such approaches are untried in practice. And reforms of VATs have proved difficult in general, as the slow progress in improving the VAT treatment of financial services in the E.U. indicates. As noted in the text, some countries have found more *ad hoc* responses to the distortions created by exemption to be appropriate.

⁷⁰ For example, the government then receives positive tax, in present value, from a consumer depositing funds in a bank to the extent that the interest rate on that deposit is below the governments' discount rate. For any transaction with a VAT-registered business, there is an offsetting credit for every liability, so that implementation can be simplified by excluding such transactions from tax ('zero-rating' them): see Poddar and English (1997), and Huizinga (2002).

Appendix 6. The Financial Activities Tax: Design Issues and Revenue Potential

This appendix elaborates on some of the key issues in designing the three forms of FAT described in the text, and provides a rough indication of their revenue potential.⁷¹

A. Design Issues

The FAT as an improvement to the taxation of financial services—‘FAT1’

This form of FAT would be an addition method VAT applied to financial services.

Definition of the profit component. Leaving international trade aside (for the moment), the standard consumption-type VAT, being a tax on sales of real goods and services less purchases of non-labor inputs, is implicitly a tax on the sum of wages and ‘profits’ defined in cash flow terms (that is, with full expensing of investment and no deduction for financial costs). A key feature of this form of profit taxation is that it is neutral with respect to marginal financing and investment decisions, and it would be appropriate to build this property into a FAT1. Leading candidates for doing so are: (1) an ‘R+F’ definition of the profit component, taxing and deducting both real and financial transactions (including principal amounts); (2) an ACE definition. These are very similar in their neutrality properties and in the present value of the revenue they yield, though they would not yield the same revenue in every period. The former would be closer to the cash flow form implicit in current VATs (and would require adjusting the standard corporate tax base to disallow interest and depreciation but allow full expensing of investment), the latter would be closer to current corporate tax arrangements (simply adding a deduction for a notional return on equity, and perhaps restricting that on interest to the same rate).

Interaction with the invoice-credit VAT. A VAT can be implemented coherently by applying either the credit-invoice or the addition method to all sectors. Difficulties arise, however, in trying to combine the two. These are most evident in relation to crediting arrangements, two questions arising:

- Should payment of uncreditable ‘normal’ input VAT by financial institutions be allowed as a credit against FAT? There is a strong case against this, since that input VAT captures value added at previous stages, with the FAT itself capturing that added by the financial institution. The absence of such a credit also preserves an incentive to self-supply implied by exemption that mitigates the tendency to outsourcing which would otherwise be created by taxing wages and profits at a higher rate in the financial sector than elsewhere in the economy.

⁷¹ Fuller discussion is provided in a forthcoming staff working paper.

- Should a credit be provided to purchasers of financial services? This is a more substantive issue. Some credit would be needed to avoid cascading and production inefficiencies. But it cannot be done with precision, since the FAT would not identify tax paid by transaction. While some form of rough ‘flat rate’ credit could be devised,⁷² a simple pragmatic approach would be to provide no credit but charge the FAT at lower than the generally prevailing VAT rate in order to limit the damage.

Border adjustment. To serve as a tax on final consumption of financial services, FAT1 would ideally be levied, like the VAT, on a destination basis: tax would ultimately be charged, that is, according to where such services are finally consumed, not where they are produced. The standard way to implement this under the VAT is by taking exports out of tax (including with refund of input tax) and bringing imports into tax. This ‘zero-rating’ could be mimicked under the FAT (with either type of profit component), but the difficulty arises that exports to nonfinancial companies would then go untaxed (those to financial companies, on the other hand, being appropriately taxed under the FAT applied abroad). The consequent distortion and dilution of revenue could in principle be mitigated by applying the VAT to exported services but sharing revenue across countries in line with the destination principle.

Perimeter. The intention being to subject all financial services to indirect taxation, all enterprises conducting more than de minimis financial activities should be liable to FAT1.

Clearly FAT1 cannot be a fully satisfactory substitute for perfecting the treatment of financial services within current credit-invoice VATs. But it may in some cases usefully help offset current imperfections, and spur more determined efforts to reform existing VATs.

The FAT as a tax on rents—‘FAT2’

This form of FAT is intended as a tax on any returns to capital and labor in the financial sector above the minimum their providers require. As such, FAT2 (and FAT3 below) are akin to direct rather than (as FAT1) indirect taxes.

Scope. Reflecting this orientation, there is no reason to consider border adjustment of the kind discussed above. Instead, the jurisdictional application of FAT2 would be by either the source of the rents or the residence of the recipient, and in this would presumably follow the established practice of each country applying the tax.

Surplus earnings. The profit component of FAT2 could be any of the variants mentioned above as being neutral at the margin (with perhaps some preference for the ACE form as closer to current income tax practices). The wage component is much more problematic, since there is no similar mechanism for taxing ‘rents’ earned by labor. Identifying that part of

⁷² Kerrigan (2010).

any individual's earnings due to effort or skill is extremely difficult in practice, so that a pragmatic approach would need to be adopted. This might be done, for instance, by comparing the earnings of top earners in the financial sector with those of top earners in other sectors.

Perimeter. There is again no reason to exclude other than de minimis financial activities.

The FAT as a tax on risk-taking—‘FAT3’

This form of FAT is intended to change behavior, discouraging risk-taking by taxing high returns more heavily than low.

Identifying ‘excess’ returns. The base of FAT3 would be the return in excess of some threshold rate set some way above a normal return. The key consideration in setting the threshold rate is that it bring into tax the upside return to unduly risky activities but not the downside (so introducing the element of progressivity over the relevant range needed to affect risk-taking). This is of course essentially a matter of judgment, and the danger of taxing high returns due to skill or effort is unavoidable.

Structuring the tax. Such a tax would likely be most readily implemented by combining an ACE-type profit tax with imputed return set equal to the threshold rate and a tax on the remuneration component of the same broad type as FAT2 (perhaps with greater exclusion, to catch only the upper tail of surplus earnings). Two questions arise. The first is whether the base should be excess returns to equity or to assets. Investors' ease of shifting between debt and equity suggests the latter. Applying the tax only to equity returns would have the merit, however, of tending to offset the bias to debt finance under existing corporate taxes. The second is whether returns for this purpose should be cumulated over some period. This though would blunt the edge of the tax in reaching unusual returns; and companies will likely in any event have some ability to self-average by shifting receipts and spending between taxable periods.

Statutory rate. To have a marked impact on risk-taking, the rate would likely need to be set so high as to make some degree of international cooperation necessary if significant profit-shifting and distortion is to be avoided.

B. Revenue Potential

The revenue potential of the various forms of FAT will differ across countries, depending on the relative size, profitability and wage structures of their financial sectors, and may be constrained by the need to apply low rates where the impact on competitiveness or the risk of avoidance are of concern. By way of illustration, Table A1.6 uses (aggregate) national account data for the financial sectors of OECD countries—readily available, and internationally comparable—to suggest the magnitude of the potential base under each form

of FAT. Revenue (absent any behavioral response) can then be inferred by multiplying these figures by the statutory rate. All these estimates—which are for the pre-crisis year 2006—are to be interpreted, however, as no more than indicating broad orders of magnitude.

The estimated FAT1 base is reported in Column 4. This is calculated as the sum of a profit component that broadly matches the R+F base (being gross operating profits (column 1) less gross fixed capital outlays (column 2)) and total wage costs (column 3). Averaging around 4.7 percent of GDP (excluding Luxembourg), the base is clearly sizable in many countries, and the corresponding revenue non-negligible. A FAT1 at 5 percent, for instance, is estimated to raise about 0.14 percent of GDP in Norway, and 0.31 percent of GDP in the United Kingdom. The extremely high base in Luxembourg points to the importance for many countries of the border adjustment issue discussed above,⁷³ though there are no comparable and readily available data on exports of financial services in OECD countries with which to pursue this.

The FAT2 base estimates in column 6 use the same profit component as FAT1⁷⁴ but (in the absence of complete and comparable data on sectoral wage distributions) the wage component (column 5) simply assumes 12 percent of wage costs to be ‘surplus.’ (This is calculated as 40 percent of the wage differential,⁷⁵ in the U.K., between the top 25 percent of earners in the financial sector and the top 25 percent in the wider economy). Though not to be taken as having any precision, the estimates point to a substantial reduction (by more than half, on average) of the base.

The FAT3 estimates in column 8 use the same wage component as in FAT2 but calculate the profit-related part (column 7) as the excess of after-tax net income in the banking sector over benchmark return on equity (ROE) of 15 percent.⁷⁶ The aggregate for each country is calculated as the sum of this additional return multiplied by equity.⁷⁷ The simple average base for FAT3 is about 1.2 percent of GDP, and in some countries the base is sizable.

⁷³ One implication is that if FAT1 were to be border adjusted then its base might be narrower than under the alternative forms.

⁷⁴ While an ACE-type base might be preferred for FAT2 and FAT3.

⁷⁵ Reflecting the estimate of Philippon and Reshef (2008) for the U.S. that 30-50 percent of the wage differential between financial and nonfinancial sectors is rent.

⁷⁶ This corresponds to a much higher pre-tax return.

⁷⁷ The ROE and equity series are derived from the BankScope database. This reports data both at consolidated and unconsolidated levels; following others in the literature, we identify unique banks by using a static variable that ranks banks within a country by total assets. As the ranking is available only for the most recent year but ROE in excess of the threshold is calculated for 2006s, this identification method is conservative in that it likely understates the FAT3 tax base.

Table A6. 1. Financial Activity Taxes—Potential Tax Base
(In percent of GDP, unless otherwise indicated)

Country	FAT1				FAT2		FAT3	
	Profits [1]	Capital formation [2]	Wages [3]	Tax Base [4]=[1-2+3]	'Surplus' wages [5]	Tax Base [6]= [1- 2+5]	Profit in excess of 15 percent ROE [7]	Tax Base [8]=[5+7]
Australia	3.2	0.7	3.8	6.4	0.5	3.0	0.4	0.9
Austria	2.1	0.8	2.7	4.0	0.3	1.7	1.5	1.8
Belgium	2.2	0.8	2.8	4.2	0.3	1.8	1.1	1.5
Canada	3.0	1.3	3.9	5.6	0.5	2.2	0.3	0.8
Denmark	1.8	0.4	2.5	4.0	0.3	1.8	0.4	0.7
Finland	1.1	0.3	1.2	1.9	0.2	0.9	0.0	0.2
France	1.4	0.8	2.7	3.3	0.3	0.9	0.5	0.8
Germany	1.5	0.3	2.3	3.6	0.3	1.5	0.2	0.5
Hungary	2.1	0.3	1.9	3.6	0.2	2.0	0.6	0.9
Iceland	3.2	0.9	4.2	6.5	0.5	2.8	3.3	3.8
Ireland	5.9	0.6	3.2	8.4	0.4	5.7	1.4	1.8
Italy	1.7	0.4	2.3	3.6	0.3	1.6	0.1	0.4
Japan	4.6	...	2.2	6.8	0.3	4.9	0.1	0.4
Korea, Republic of	4.5	0.6	2.5	6.4	0.3	4.2	0.2	0.5
Luxembourg	14.9	0.7	9.0	23.2	1.1	15.3	4.6	5.7
Netherlands	2.7	1.1	3.3	4.9	0.4	2.0	0.2	0.6
Norway	1.8	0.4	1.4	2.7	0.2	1.5	0.2	0.3
Portugal	3.8	1.6	2.6	4.8	0.3	2.6	0.2	0.5
Spain	2.1	0.7	2.1	3.5	0.3	1.7	0.7	0.9
Sweden	1.2	0.6	1.9	2.5	0.2	0.9	0.4	0.7
United Kingdom	2.8	0.7	3.9	6.1	0.5	2.7	0.6	1.1
United States	3.2	0.9	4.4	6.6	0.5	2.8	0.2	0.7

Source: OECD - STAN Indicators Database, WEO, BankScope, IMF staff estimates.

Note: The FAT1 and FAT2 tax base for Japan may be overestimated because fixed capital formation is not reported in OECD STAN and thus is not deducted from the base. Data for Canada reflects year 2005; for all other countries year 2006 is used.

Columns:

[1] Gross operating surplus and mixed income in the financial intermediation sector as a share of GDP.

Due to lack of data availability, profit for Canada is calculated as gross value added at basic prices minus labor costs (equivalent to gross operating surplus and mixed income plus other taxes net of subsidies on production).

[2] Gross fixed capital formation in the financial intermediation sector as a share of GDP.

[3] Labor costs in the financial intermediation sector as a share of GDP.

[5] The wage differential is calculated by applying an adjustment factor of 12 percent to the wage in the sector, as described in the paper.

REFERENCES

- Acharya, Viral, Lasse Pedersen, Thomas Philippon, and Matthew Richardson, 2009, "Regulating Systemic Risk," in Viral Acharya and Matthew Richardson (eds.), *Restoring Financial Stability: How to Repair a Failed System*, Wiley, March.
- Adrian, Tobias, and Markus Brunnermeier, 2009, "CoVaR," Federal Reserve Bank of New York Staff Reports, No. 348.
- Arbeláez, María, Leonard Burman, and Sandra Zuluaga, 2005, "The Bank Debit Tax In Colombia," in Richard M. Bird, James M. Poterba and Joel Slemrod (eds.), *Fiscal Reform in Colombia* (Cambridge: MIT Press).
- Bailey, A., 2010, "The U.K. Bank Resolution Regime" at www.bis.org/review/r091207e.pdf.
- Baker, Dean, and Travis McArthur, 2009, "The Value of the "Too Big to Fail" Big Bank Subsidy," Center for Economic and Policy Research (Washington) Issue Brief (September).
- Bank of England, 2009, "The Role of Macro-prudential Policy," Discussion Paper.
- Basel Committee, 2009, "Consultative Proposals to Strengthen the Resilience of the Banking Sector," at <http://www.bis.org/press/p091217.htm>.
- Brierley, Peter, 2009, "The U.K. Special Insolvency Regime for failing Banks in and International Context," Financial Stability Paper No. 5. (Bank of England).
- Doluca, Hasan, Ulrich Klueh, Marco Wagner and Beatrice Weder di Mauro, 2010, "Reducing Systemic Relevance: A Proposal," Discussion paper of the German Council of Economic Experts, GCEE.
- European Commission, 2010, "Innovative Financing at a Global Level," Commission Staff Working Document SEC (2010) 409 final.
- Financial Stability Board, 2009, "FSB Principles for Sound Compensation Practices."
- Genser, Bernd, and P. Winker, 1997, "Measuring the Fiscal Revenue Loss of VAT Exemption in Commercial Banking," *Finanzarchiv*, Vol. 54, pp. 565–85.
- Haldane, Andrew, 2009. "Banking on the State," presented at the 12th Annual Federal Reserve of Chicago International Banking Conference, September 25, 2009. www.bankofengland.co.uk/publications/speeches/2009/speech409.pdf.

- Hellman, Thomas, Kevin Murdock, and Joseph Stiglitz, 2000, "Liberalization, Moral Hazard in Banking and Prudential Regulation: Are Capital Requirements Enough?" *American Economic Review*, Vol. 90, No. 1, pp. 147–65.
- Hemmelgarn, Thomas and Gaëtan Nicodème, 2010, "The 2008 Financial Crisis and Tax Policy," Working Paper 20, European Commission Directorate-General for Taxation and Customs Union.
- Huizinga, Harry, 2002, "Financial Services VAT," *Economic Policy*, Vol. 17, pp. 499–534.
- Huang, Rocco, and Lev Ratnovski, 2008, "The Dark Side of Bank Wholesale Funding," mimeo, International Monetary Fund.
- John, Kose, Teresa John and Lemma Senbet, 1991, "Risk-shifting Incentives of Depository Institutions: A New Perspective on Federal Deposit Insurance Reform," *Journal of Banking and Finance*, Vol. 15, pp. 895–915.
- International Monetary Fund, 2009, "Debt Bias and Other Distortions: Crisis-related Issues in Tax Policy," available at <http://www.imf.org>.
- , FSB, and BCBS, 2009, Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations.
- , 2010, Global Financial Stability Report, *Meeting New Challenges To Stability and Building a Safer System*, April, Chapter 2, Systemic Risk and the Redesign of Financial Regulation. April.
- Kerrigan, Arthur, 2010, "The Elusiveness of Neutrality – Why is it so Difficult to Apply VAT to Financial Services?" *International VAT Monitor*, March-April 2010, pp. 103 – 112.
- Kleinbard, Edward, 2007, "Designing an Income Tax on Capital," in Henry J. Aaron, Leonard Burman and Eugene Steuerle (eds), *Taxing Capital Income*, pp.165–210 (Washington, D.C: Urban Institute Press).
- Klemm, Alexander, 2007, "Allowances for Corporate Equity in Practice," *CESifo Economic Studies*, Vol. 53, pp.229–62.
- Laeven, Luc and Fabian Valencia, 2010, "Systemic Banking Crises: The New and the Old, the Good and the Ugly," forthcoming, IMF Working Paper.
- Landier, Augustin and Kenichi Ueda.2009, "The Economics of Bank Restructuring: Understanding the Options," IMF Staff Position Note, SPN/09/12, International Monetary Fund (Washington).

- Lepetit, Jean-François, 2010, "Rapport sur le risque systémique."
- Levine, Ross, 2005, "Finance and Growth: Theory and Evidence," mimeo (University of Minnesota).
- Lloyd, Geoffrey, 2009, "Moving Beyond the Crisis: Using Tax Policy to Support Financial Stability," mimeo, OECD.
- Markle, Kevin S. and Douglas A. Shackelford, 2010, "Cross-country Comparisons of Effective Tax Rates," Working Paper (University of North Carolina).
- McDonald, Jason and Shane Johnson, 2010, "Tax Policies to Improve the Stability of Financial Markets," mimeo, Department of the Treasury, Australia.
- Organisation for Economic Cooperation and Development, 2007, *Fundamental Reform of Corporate Income Tax* (Paris: OECD).
- Perotti, Enrico, and Javier Suarez, 2009a, "Liquidity Insurance for Systemic Crises," *CEPR Policy Insight* No. 31, February.
- Perotti, Enrico, and Javier Suarez, 2009b, "Liquidity Risk Charges as a Macro-prudential Tool," *CEPR Policy Insight* No. 40, November.
- Philippon, Thomas, and Ariell Reshef, 2008, "Wages and Human Capital in the U.S. Financial Industry: 1909–2006," mimeo (New York University).
- Poddar, Satya, and Morley English, 1997, "Taxation of Financial Services Under a Value-Added Tax: Applying the Cash-flow Method," *National Tax Journal*, Vol. 50, pp. 89–111.
- Pricen, Savina, 2010, "How Does a Tax Allowance for Corporate Equity Affect Capital Structure: An Empirical Evaluation," mimeo (Louvain School of Management).
- Rime, Bertrand, 2005, "Do 'Too Big to Fail' Expectations Boost Large Banks Issuer Ratings?" Manuscript, Swiss National Bank
- Schmidt, Rodney, 2007, "The Currency Transaction Tax: Rate and Revenue Estimates" (North-South Institute, Ottawa).
- Schulmeister, Stephan, 2010, "Boom-bust Cycles and Trading Practices in Asset Markets, the Real Economy and the Effects of a Financial Transactions Tax," Working Paper 364/2010 (Österreichisches Institut für Wirtschaftsforschung, Vienna).

- Schulmeister, Stephan, Margit Schratzenstaller, and Oliver Picek, 2008, "A General Financial Transaction Tax: Motives, Revenues, Feasibility and Effects" (Österreichisches Institut für Wirtschaftsforschung, Vienna).
- Schwert, G.W., and P. Seguin, 1993, "Securities Transaction Taxes: An Overview of Costs, Benefits and Unresolved Questions," *Financial Analysts Journal*, pp. 27–35.
- Shin, Hyun Song, 2010a, "Financial Intermediation and the Post-Crisis Financial System" BIS working paper, no. 304
- Shin, Hyun Song, 2010b, "Non-Core Liabilities Tax as a Prudential Tool" policy memo, <http://www.princeton.edu/~hsshin/www/NonCoreLiabilitiesTax.pdf>
- Slemrod, Joel, 2009, "Lessons for Tax Policy in the Great Recession," *National Tax Journal*, Vol. LXII, pp. 387–97.
- Soussa, Farouk, 2000, "Too Big to Fail: Moral Hazard and Unfair Competition?" Chapter 1 in collective volume, *Financial Stability and Central Banks: Selected Issues for financial Safety Nets and Market Discipline*, Bank of England (London).
- Spratt, S., 2006, "A Sterling Solution: Implementing a Stamp Duty on Sterling to Finance International Development" (London: Stamp Out Poverty).
- Staderini, A., 2001, "Tax Reforms to Influence Corporate Financial Policy: The Case of the Italian Business Tax Reform of 1997-98," Banca d'Italia Working Paper No. 423.
- U.K. Treasury, 2009, *Risk, Reward and Responsibility: The Financial Sector and Society*.
- Weder di Mauro, Beatrice, 2010, "Taxing Systemic Risk: Proposal for a Systemic Risk Charge and a Systemic Risk Fund," mimeo (University of Mainz).
- Weichenrieder, Alfons, and Tina Klautke, 2008, "Taxes and the Efficiency Costs of Capital Distortions," CESifo Working Paper, No. 2431.
- Weitzman, Martin, 1974, "Prices Versus Quantities," *Review of Economic Studies*, Vol. 61, pp. 477–91.