Rethinking the Taxation of the Financial Sector*

Michael Keen

International Monetary Fund, Fiscal Affairs Department, Washington, DC 20431, USA.
e-mail: mkeen@imf.org

Abstract

The economic crisis that erupted in 2008 has prompted many countries to rethink, and several already to reform, the taxation of financial institutions. The underlying analytical issues, however, have received almost no attention in the public finance literature. This article explores the possible purposes and broad design of distinctive tax measures for financial institutions, focusing especially on the potential role of corrective taxation, and its merits relative to traditional forms of regulation, in addressing the challenges posed by the potential failure of systemically important institutions. (JEL codes: G38, H21 and H23)

Keywords: Financial sector taxation, tax reform, regulatory reform

1 Introduction

Two lasting legacies of the financial crisis that erupted in 2008 already seem certain. One is a massive surge in public debt, projected to increase by an average of almost 40 points of GDP in advanced economies by 2015. The other, still being shaped, is fundamental reform of public policies toward the financial sector. This article is concerned with a key aspect of the latter (though the former, these days, is never entirely out of mind): the potential role of tax instruments in addressing the distinct challenges posed by financial activities.

This has been much to the fore in recent public and policy debates. It has also been much in our minds at the IMF, having been asked to prepare a report for the summit of G-20 leaders in June 2010. This article is not a defense of that report[1] (at least, not consciously), the mandate for which—to review options for the financial sector to make a 'fair and substantial contribution' to the costs of public intervention in its support—was in some respects quite narrow. It does draw on some of the thoughts underlying the analysis and proposals, but the purpose is to address the more basic question: What do we want the taxation of the financial sector to look like in the coming years?

This proves to be not only a largely neglected question but also a difficult one. One reason for this is that all three elements of the Musgravian triptych are to the fore:[2] Stabilization, because financial sector failures and

---

* *This is the text of the Richard Musgrave Lecture 2010, delivered in Munich on July 7, 2010.*
[1] IMF (2010a).
[2] Musgrave (1959).

crises can so evidently jeopardize macroeconomic performance; Allocation, because of the centrality of financial intermediation to the efficient marshalling of savings and investment; and Distribution, because of the possibility that very large transfers will be needed to avert the wider economic damage that the unmitigated failure of large financial institutions can do. Sadly, Musgravian clarity in cutting through the consequent complexities will not be found in what follows. The best we can hope for is some of the interest and enthusiasm he brought to our discipline.

The next section reviews what the existing public finance literature has to say on the tax treatment of financial institutions—which does not take very long. Section 3 considers the key challenges in the area, and how tax measures might be used to address them. Section 4 takes a closer look at corrective taxation as a response to the challenges posed by systemically important financial institutions, and Section 5 compares taxation and regulation as means to this end. Section 6 concludes.

2 Public finance wisdom—there isn't much

Countries have already taken, and continue to take, quite dramatic initiatives in the taxation[3] of financial institutions. Some are (or were) temporary, others, more interestingly, are permanent; some earmark proceeds to a fund, others do not. Box 1 summarizes the most prominent of measures adopted or officially proposed.[4]

One striking aspect of these policy developments and of the wider debate (and this is perhaps the main point of this article) is that they have been almost entirely unguided by the public finance literature on the topic—because there is hardly any. We have a well-developed workhorse model of the firm, moderating its investment decisions in light of the tax treatment of its financing decisions; but that firm, happily choosing its capital stock K and producing $F(K)$, is not recognizable as a financial intermediary. Similarly, much of our empirical knowledge is for non-financial companies: since financial companies are 'different' in some way that we have chosen not to think about very much, empirical work often starts by excluding them from the data set. So when we came to prepare our report for the G-20, there was almost nothing for us to draw on.

---

[3] The word 'tax' is used throughout the article to mean any compulsory contribution, avoiding the sensitive but incomprehensibly delicate shading of 'levy', 'contribution', 'fee', 'assessment', and 'charge.' Usage of the last term can be particularly confusing, since capital requirements are sometimes referred to as 'capital charges.'

[4] Appendix 2 of IMF (2010a) provides more detail on measures announced up to June 2010.

Box 1. New taxes on financial institutions[5]

- The United Kingdom will introduce a permanent bank tax on January 2011, the base being liabilities other than Tier 1 capital, insured deposits and some other items. The rate will initially be 0.04%, rising to 0.07%. The proceeds will go to general revenue.
- Germany has announced a bank tax that will also levied on the liabilities side, at a higher rate on larger institutions. Revenue will feed a dedicated resolution fund.
- France will implement a charge targeted at systemic risk in 2011, the expectation being that this will be levied on the assets side. Proceeds will go to general revenue.
- Sweden has implemented a 'stability fee' on banks' liabilities, the rate to rise to 0.036% and the revenue accumulating in a fund intended to amount, after 15 years, to around 2.5% of GDP.
- France and the United Kingdom adopted temporary taxes on bonuses in the financial sector; Italy has adopted a permanent one.
- The European Commission has proposed a network of resolution funds, financed by a tax on financial institutions. It has also supported consideration of a broad-based financial transactions tax at global level and of the Financial Activities Tax (discussed below) in the EU.

What is especially noticeable is that whereas public finance economists have made a powerful and largely successful case for tax and pricing measures to play a leading role in dealing with a whole range of externality problems—from climate change to the use of plastic bags—in the financial area the field has been left clear for supervisory provisions and a regulatory apparatus centered around capital requirements. But if the problem is that banks tend to hold less capital than is socially optimal, why not instead given them a tax incentive to hold more? This particular issue is taken up at length later. The general point for the moment is simply that when one looks around the intellectual battlefield on which the proper policy response to financial sector externalities is being debated, public

---

[5] In the USA, the Obama administration proposed a 'Financial Crisis Responsibility' fee (FCR) envisaged as a charge of 15 basis points on the liabilities of large financial institutions less Tier 1 capital and insured deposits. Though structurally similar to other proposals, this differed in that the rate was explicitly calibrated to ensure recovery of the fiscal support extended during the recent crisis. There were proposals too for a further charge linked to a resolution fund. In the event, however, the strategy in the financial reform package adopted in the USA was to recover the fiscal costs of any direct support to the financial sector after failure occurs rather than through an *ex ante* charge.

finance economists, with rare and recent exceptions,[6] have been largely absent without leave.[7]

Instead, public finance economists—in so far as they have focused on financial issues at all—have stressed neutrality as a guiding principle for tax policy, both between the financial sector and the rest of the economy and in choice of financing methods. This does, it should be stressed, lead to powerful insights.

If one had asked the typical tax economist, even after the onset of the crisis, what were the main tax issues of concern in relation to financial sector, I suspect they would have highlighted two:

- One is the tax incentive at corporate level (and, in some countries, for personal mortgages) to borrow rather than finance by equity. Though there is consensus that this in itself did not trigger the crisis,[8] it is hard to ignore this tax bias if one believes excess leveraging to have been a key problem. This may be so, it should be stressed, even for financial institutions, despite the direct restrictions on their capital ratios: even leaving aside the peculiarities of how these ratios are defined for these purposes, financial institutions commonly maintain some buffer over regulatory requirements, implying scope for taxation to affect decisions at the margin; and the use of hybrid instruments—counting as debt for tax purposes but equity for regulatory ones—suggests a keen eye for tax advantages. (Needless to say, however, we seem to have very little empirical knowledge of the extent of any such effects).
- The other is the imperfect treatment of financial services under the VAT, not least in the EU. While this rapidly becomes a very dry topic, the essence is that the provision of financial services paid for in the form of some margin rather than an explicit fee is commonly taxed only by charging VAT on the inputs used to produce them and not allowing any refund or credit. This means that business users of financial services are 'over-taxed' (in the sense that the normal crediting mechanism of the VAT would wipe out such input VAT, leaving no wedge between the net price paid and that received by the seller), whereas final consumers are 'under-taxed' (because the value added by the financial institutions is not taxed).[9] Whether that means the

---

[6] I have in mind Shackelford et al. (2010) and IMF (2010a).

[7] There is an exception in Sinn (2003, 2010), though he does not consider the potential use of tax instruments in dealing with financial failures and crises.

[8] Hemmelgarn and Nicodeme (2010), IMF (2009), Lloyd (2009), and Slemrod (2009) all reach much the same conclusion.

[9] The terminology of 'over/under-taxation' is expressive but imprecise: what is at issue is not the real incidence of these features of the VAT but their implications for price relativities.

financial sector as a whole is over- or under-taxed, and too large or too small, is theoretically ambiguous. There is debate too as to whether the consumption of financial services should be taxed at all, and if so whether there is a case for a reduced rate.[10] It is important, nevertheless, that such evidence as there is suggests that moving to a 'proper' VAT would increase revenue.[11] The likely implication, if one accepts as a benchmark a world in which financial services are subject to VAT at the same rate as the generality of goods and services, is that the financial sector is 'too large'. Of course this does not mean that any reform which decreases the size of the financial sector is welfare improving: doing so solely by further taxing business use, for instance, would likely be welfare worsening. What it does suggest, however, is that—externalities aside—there is reason to suppose that existing VAT imperfections may result in the financial sector becoming too large. The best response, of course, is to reform the VAT treatment of financial services. But if for some reason this cannot be done, there may be other ways of going some way toward correcting the inefficiencies that current VAT practices cause.

These insights coming from a focus on neutrality—the potential importance of addressing debt bias and improving the VAT—are important. Before looking for fancy new tax instruments, including some specifically designed to discourage some types of borrowing, we should look to address existing tax distortions. This crucial point has, unfortunately, had little impact on the policy debate—perhaps because it does not answer politicians' need for something more dramatic. That should not stop us from pressing it. But the deeper intellectual challenges arise in asking the question that the public finance literature has ignored: should one go further than neutrality and adopt measures specifically targeted at distinct problems posed by the financial sector? That is the focus in the rest of this article.

3 Financial failures and crises: challenges and tax instruments

3.1 A dilemma

The distress and potential failure of systemically important financial institutions during the crisis faced governments with a dilemma. One option—the Lehman strategy—was to let outright failure occur and live

---

[10] See for instance Boadway and Keen (2003).
[11] Genser and Winkler (1997) and Huizinga (2002).

with whatever the consequences might be. The alternative—as with AIG and in many other cases—was to use public funds to support the failing institution, or at least its creditors, acting as a circuit breaker to limit the damage to the wider economy.[12] The difficulty was that either choice was likely to prove extremely costly.

Take first the costs of intervening to support the financial sector, whether in the form of capital injections, asset purchases or guarantees. As of June 2010, the fiscal costs incurred for such direct interventions, net of amounts recovered, averaged about 3% of GDP in advanced G-20 countries, and substantially more in those most affected by the crisis.[13] These net fiscal costs may ultimately prove very modest, as outlays are recovered from asset sales and from charges for guarantees and the like. The fiscal exposures at the height of the crisis, however, were huge: including guarantees, amounts pledged averaged about 17% of GDP of the same countries. So not too much comfort should be taken if *ex post* fiscal costs prove negligible: maybe we just got lucky this time around.

Such fiscal costs are of course transfers from the generality of taxpayers to those associated with financial institutions, so are not pure waste: the corresponding output and welfare loss would depend on the deadweight and any other social costs associated with making them. These, however, may be very large. One reason for this is that the marginal distortionary cost of raising the public funds needed, or borrowing, is likely to be especially high in the crisis times when it is needed. Others, however, are even more fundamental. One is the equity aspect, with strong public resistance to transferring resources to a group that—rightly or wrongly—is seen as having 'caused' the problem and, in any case, so prosperous as not to merit support by common standards of vertical equity. Another, at the heart of much the current debate, is that bailout is liable to create an expectation of future bailouts that becomes a source of distortion in itself: the 'too-big-to fail' problem that arises when the possibility of a public subsidy to prevent the unmitigated failure of a systemically important institution enables it to borrow at a lower rate, and take riskier positions, than it otherwise would; which, in turn, makes future bailouts more likely.

If institutions are not bailed out, on the other hand, the output losses can be huge. The size of the contingent liabilities, just mentioned, that governments were willing to take on in the hope of avoiding or limiting them is in itself a sign of this. While it is difficult to disentangle cause from

---

[12] The desire to avoid large output losses may not be the only reason for bailouts: regulatory capture and political influence, though not examined here, can also have a role: see, for example, Shull (2010).

[13] The figures in this paragraph are from IMF (2010a).

effect in the relationship between banking and wider crises, Hoggarth and Saporta (2001) report that banking crises in advanced economies have been associated with cumulative output losses in the order of 15–25% of GDP; and IMF (2010a) put the cumulative output loss in advanced countries from the recent crisis at, already, around 25% of GDP.

Similar difficulties can arise, of course, in relation to non-financial sectors whose health is particularly important to that of the wider economy: automobiles, in some cases, come to mind. What is different about the financial sector is not the nature but the sheer scale and commonality of the dilemma: ultimately, a functioning banking and payments system is fundamental to the working of a modern economy in a sense that automobile production is not.

A prime focus of reform must thus be to ease this basic policy dilemma. That means making financial failures and crises both less likely to occur and less costly—including in the potential fiscal demands placed on the rest of the economy—when they do.

3.2 What role for tax measures?

Governments have a wide range of instruments that could be used to help achieve these ends. A large program of regulatory and supervisory reform, involving for instance tougher capital requirements, is indeed under way: the 'Basel III' agreement of September 2010 is a landmark first step. There is wide recognition too of the need to improve resolution mechanisms: systems, that is, for winding down failed institutions in a prompt and orderly fashion that limits damage to the wider economy. This means acting faster and differently than in conventional bankruptcy proceedings: acquiring assets and imposing haircuts on creditors over the weekend, for instance, so as to provide them some confidence and some cash, and then settling up for the difference later when those assets are finally sold. The question here is whether, within this wide range of possible instruments, tax measures may also have a constructive role to play.

A natural starting point is with the three potential roles that tax measures are traditionally seen as having.[14]

---

[14] Financial institutions often have a distinctive and important role in relation to the taxation of capital income beyond that arising in the financial sector itself, through withholding taxes on interest and other forms of such income. The issues this raises—most fundamentally, of course, that of whether capital income ought to be taxed at all—are, however, distinct from those relating to those of financial stability, the tax treatment of factor incomes arising in the sector, and (to a lesser extent) the tax treatment of intermediation services under the VAT that are the focus here. These issues would arise whether capital income is taxed or not.

3.2.1 *User fees*

These may be appropriate to pay for public services provided to financial institutions. The case for this is perhaps clearest in relation to resolution mechanisms. These are costly not only in the staffing and other needs of whatever authority is entrusted with implementation but also in the up-front resources needed for the interventions themselves; a back-up credit facility from government is also likely to be needed. The presumption must be that these should be charged to financial institutions, and so treated by them as a cost of doing business like any other. This does not mean that the proceeds should be paid into a fund dedicated to financing resolution: in terms of direct economic impact, they could just as well go into general revenues.[15] What is important is that the institutions perceive themselves (and are perceived by others) as paying for a service they receive.

Once this is accepted, a host of design issues arise concerning the rate and base of the charge, and the set of financial institutions to which it should apply. These are discussed in IMF (2010a), and will not be pursued here.

3.2.2 *Revenue-raising*

Equity concerns have been prominent in the public debate, with some feeling that the financial sector should not only pay for the direct costs of the support it enjoyed but also perhaps make a contribution to reflect the wider social costs that financial failures and crisis create.[16]

This sense is not always well-articulated. No doubt part has been a desire for retribution that, whether the motive is reprehensible or not, tax policy is not well-suited to deliver:[17] it cannot distinguish those with responsibility for the crisis (whatever that might mean, beyond the criminal) from those without; and, even if it could, many of the most important players, personal and corporate, have by now left the scene.

Beyond this, however, is the argument that the financial sector should help pay to clean up the fiscal and other costs of the mess its failings create. Revenue extraction in itself calls for deploying the most efficient tax instrument available, the ideal—leaving aside for the moment

---

[15] There may though be important differences in how these financial arrangements are perceived: IMF (2010a).

[16] In thinking about this it should be recognized that the financial sector has been a substantial contributor to tax receipts, paying 20–25% of all corporate tax revenue prior to the crisis: see Appendix 5 of IMF (2010a). The high corporate tax payments of the financial sector seems to have reflected very high profitability, since there are signs that average effective tax rates are lower than in most sectors (Markle and Shackelford 2010).

[17] Shackelford Shaviro and Slemrod (2010) make this point especially powerfully.

corrective motives and preexisting tax distortions—thus being to tax rents arising in the financial sector. This also answers the incidence question implicit in this fairness form of the 'polluter pays' argument: who exactly is 'the financial sector'? It is, in this context, the owners and—given evidence that they have earned substantial rents[18]—the managers of financial institutions.

These considerations suggest some form of tax on the sum of profits and wages in financial institutions: what IMF (2010a) calls a 'Financial Activities Tax' (FAT). Profits for this purpose would need to be defined somewhat differently than for those of the corporate income tax, the base of which includes a normal return to equity. There are several ways this could be done. One is by allowing a deduction not only for interest but also for a notional return on equity: an Allowance for Corporate Equity (ACE) system;[19] another is by taxing on the 'R+F' cash flow basis of the Meade report (1978), bringing all financial inflows into tax and allowing a deduction for all outflows.[20] Taxing only the super-normal element in remuneration is harder, and more arbitrary methods—taxing only the earnings of some top quantile of employees, for instance—would likely be needed. To the extent that it can be done, however, such a form of FAT—'FAT2' in the terminology of IMF (2010a)—would be a tax on rents, so that its real burden would fall on the owners and managers of the financial institutions liable to it (compliance issues aside, that is, and in so far as taxable rents cannot be shifted to lower tax jurisdictions abroad; big 'if's, of course, the latter being touched on below).

It should also be noted that, importantly, a case can also be made, on straight efficiency grounds, for including all remuneration in the base.[21] The FAT then becomes the combination of a neutral tax on profits and a tax at the same rate on all wages—which is essentially a tax on value added. In this form ('FAT1'), the tax could serve to correct some of the failings of current VATs noted above. As such, its purpose would not be to tax rents, and its effective incidence would be expected to fall to some degree on the users of financial services. (Put crudely, the incidence of FAT2 is intended to fall on the rents to owners and managers in the

---

[18] Philippon and Reshef (2008) estimate that in the USA, rents have in recent years accounted for 30–50% of the wage differential between the financial sector and the rest of the economy.

[19] There is a case for going further and allowing a deduction for interest only at the same notional rate, so eliminating the tax distinction between debt and equity: see Kleinbard (2007).

[20] While both are non-distorting, they lead to somewhat different revenue in present value: at an unchanging tax rate, an ACE is equivalent in present value to an R+F cash flow tax plus an allowance for initial capital.

[21] This is not an either/or: one could in principle conceive of applying, to different ends, both a FAT2 and the FAT1 now described.

financial sector; that of FAT1, like that of any element of the VAT, will depend on market responses and will fall wherever it may).

The potential revenue from a FAT of either kind is significant. The base of a FAT2 including only higher levels of remuneration might average about 2% of GDP in the OECD countries, and that of a FAT1 including it all about 4.7%.[22] There are of course many detailed design issues to be faced. FAT1 is not quite as clever a fix for the VAT problems noted above as it may seem, for instance, since it does not avoid the charging of tax on business use. How that weakness might be addressed, and other challenges in designing various forms of FAT, are considered in Keen et al. (2010).[23] Not the least of the merits of the FAT idea, however, is that as the taxation of the financial sector comes sharply into focus—and as many countries, facing the severe fiscal problems noted at the outset, intensify their search for reasonably efficient sources of additional revenue—it may reinvigorate languishing efforts, in the EU in particular, to reform the VAT treatment of financial services.

3.2.3 Pigovian taxation

The third potential role for taxation is the corrective: to alter prices so as to better align private decision-making with wider economic and social considerations. The case for and possible nature of such Pigovian taxation is the subject of the next section.

Before launching into that discussion, however, it is important to note that there is, in practice, substantial overlap between the corrective motive for taxation and the two others just mentioned. In particular:

- Though the purpose of corrective taxes is not to raise revenue, the fact is that, unless offsetting measures are taken, that is what they do. When looking for a 'fair and substantial contribution'—which presumably means that the tax remitted by the financial sector bear some acceptable relation to the costs of failure and crisis—it thus becomes important to ask what relation the revenue from any corrective tax would bear to those costs. Only if it is less, for instance, would the case for a FAT as an additional sector-specific source of revenue arise.
- A corrective tax looks very much like a user charge when the technical structure of the externality is such that marginal and average damage are the same: for then the revenue raised by the tax exactly covers the

---

[22] These figures, from IMF (2010a) are for a range of OECD countries for which suitable data are available.

[23] They also consider a further variant, 'FAT3': levied only on returns to labor and capital well above normal, this is intended primarily to discourage risk-taking by introducing a sufficient element of progressivity.

damage. Take deposit insurance, for example. The standard rationale for this is a way of preventing bank runs. But it can also be rationalized as a way to correct for the failure that results when bank owners, protected by limited liability and borrowing from retail depositors who ignore this possibility of bankruptcy, take on excessive risk. Offsetting this requires a charge that raises, at least in expected value, exactly the amount needed to restore depositors in the event of failure; and that looks very much like a deposit insurance premium.

- A user fee that is not actuarially fair—payments not being matched by expected benefits to the payer of exactly the same value—will induce changes in behavior intended to alter the balance between private payment and benefit. And, if that is the case, the structure of the fee should be designed so that those induced changes in behavior are, if at all possible, intrinsically desirable. This means, for instance, that a charge to finance a resolution mechanism of the type described above might reasonably not only reflect the systemicness of an institution—on the grounds that this shapes the cost of the service—but also seek to reduce it.

- Where might super-normal earnings in the financial sector, and referred to above as a prime target for revenue-raising, come from? One possibility, especially for systemically important institutions, is that they reflect the expectation of future bailouts. So while there may or may not be an equity case for soaking up some of these returns as tax revenue, there is likely to be a corrective case for taxing them in order to limit the adverse incentive effects of such expectations.

All this makes policy design messier than the traditional classification of motives might suggest. But it is helpful, nevertheless, to ask where a primarily corrective concern might ultimately lead one—and in the process return to some of these complexities, and the dilemma set out above.

4 Corrective taxation

The first step in thinking about corrective taxation is to decide exactly what it is one wants to correct. Since the very existence of the financial sector arises from incomplete markets and imperfect information, financial sector externalities and market failures that might rationalize corrective taxation abound. Some of these externalities may well be good: there is substantial evidence that a deep financial system enhances growth.[24]

---

[24] Levine (2005).

While these clearly need to be borne in mind, the focus of the policy debate, however, is on the possibility of bad ones.

An exhaustive listing of potential externalities and market failures of this kind would be tedious. Some seem of limited relevance to the recent crisis—this would include, for instance, the main corrective argument put forward for a financial transactions taxes: that excessive short-termism and technical trading, in particular, leads to excess volatility.[25] What has been central to the current debate are those associated with the failure and distress of systemically important institutions.

Nor will I attempt here a review of these systemic externalities.[26] Importantly, these operate both across financial institutions and between the financial sector and the rest of the economy. As an example of the former, the sale of assets by one troubled institution can so reduce asset prices as to weaken the liquidity and solvency of others—for instance, a 'firesale externality' that illustrates how the prevalence of collateral and other constraints (including from regulatory structures themselves) means that pecuniary externalities can have very real effects in financial markets. The obvious example of the latter—external effects on the real economy— is the tightening of credit constraints on non-financial firms. For each of these externalities, one can conceive of a corrective tax (or subsidy): to protect asset prices in the first case, to support the provision of credit in the latter. And indeed the crisis has seen many policy interventions along these lines, even if they are not commonly thought of as Pigovian taxes.

Here, though I want to concentrate on the big picture dilemma sketched above:[27] the choice between, on the one hand, allowing the failure of important institutions to go unmitigated—unleashing what I will call a 'failure externality'—and, on the other, as being perceived as willing to protect creditors, to some degree, and thereby unduly favoring risk-taking and expansion by such firms—which I will call the 'bailout externality'. To see what a corrective tax policy might look like, consider each of these externalities in turn, in the context—this being the simplest and most familiar case—of a systemically important bank, though broadly similar considerations will apply to other financial institutions.

Take first the failure externality. The expected cost of this depends on two things: the probability of the institution falling into distress or failure,

---

---

[25] Whether taxing transactions would indeed reduce volatility is far from clear: see for instance the review in Matheson (2010).

[26] Excellent accounts are in Bank of England (2009) and Wagner (2010).

[27] The discussion and numbers that follow draws on the formal analysis in Keen (2010).

and the wider economic costs that arise if the consequences of its doing so are unmitigated. Policy can act on both of these:

- The first component is the more straightforward. One obvious way to reduce the chances of failure is by encouraging higher capital ratios—or, equivalently, for a given equity base, by discouraging borrowing.[28] Others include reducing the riskiness of assets held or the maturity mismatch between assets and liabilities.[29]
- The second component is less well understood. A central issue here is to identify the determinants of the large output losses associated with financial crisis. One, no doubt, is the (in)effectiveness of resolution regimes stressed above; improvements in which are in effect aimed at reducing failure externalities. Beyond this, the extent of loss is likely to be greater for 'more systemic' institutions. Putting actionable flesh on the relevant notion of systemicness is far from easy, however, and remains an active area of enquiry.[30] One aspect often stressed is sheer size. This has some practical merit of simplicity, though there are those who doubt if simply splitting institutions into smaller clones really helps. Other attributes, such as interconnectedness or the contribution that the distress of an institution makes to the likely distress of the overall financial system, are more complex. They also depend on an institution's similarities with and linkages to other financial institutions in ways that may be beyond its sole control (and are dependent on the decisions of others that it cannot observe)—a more complex setting than is faced in correcting, for example, environmental externalities. Once we have better notions of systemicness, we will, no doubt, have better ideas on how we might tax it.

The bailout externality is somewhat simpler, at least conceptually. To the extent that creditors expect to be bailed out in the event of distress, this will be reflected in the interest rate at which they are willing to lend to the bank. Several studies try to quantify this, by looking at differences in credit ratings that are provided with and without public support, and at the impact of particular events (such as the EU summit commitment to support large financial institutions). Reviewing and extending these

---

[28] Throughout this discussion, it is borrowing from wholesale lenders that is in mind; issues arising from the myopia of retail depositors are assumed to be handled by deposit insurance.

[29] Perotti and Suarez (2009) argue for a tax on maturity mismatch.

[30] See for instance Acharya et al. (2010), Adrian and Brunnermeier (2009), and, less formally, IMF-FSB-BCBS (2009).

studies, IMF (2010a) estimates that this subsidy has been in the order of 10–50 basis points, averaging around 20 basis points.

While these considerations point to a number of attributes that a corrective tax policy might focus on, to fix ideas[31] it is helpful to focus on one of the key dimensions of behavior that they suggest is likely to be distorted as a consequence of the two externalities above. Both suggest that, absent intervention, banks are likely to choose capital ratios that are lower—equivalently, a level of borrowing that is higher, for any given level of equity—than is socially optimal. In the case of the failure externality, the bank tends to borrow too much because it does not internalize the wider benefit that a higher capital ratio conveys by making their failure, and hence the realization of aggregate output losses, less likely. In the case of the bailout externality, it tends to borrow too much because the increased probability of failure implied by higher borrowing is not fully reflected in higher borrowing costs.

The optimal tax on borrowing would equate the private marginal cost of borrowing to the social marginal cost that these two externalities imply. Simple calibrations give a very broad sense of how large these charges might be. For the failure externality, taking an institution whose unmitigated failure would cause an output loss of 2% of GDP, for example, the corrective tax associated with the failure externality might plausibly be in the order of 40 basis points. For the bailout externality, the corrective tax will typically exceed the interest subsidy noted above. This is because what matters for the corrective tax is not the average cost of the externality, but the marginal; and the latter will reflect not only the cost of extending the subsidy to another euro of bank borrowing but also the marginal impact of additional borrowing in increasing the benchmark 'no intervention' interest rate relative to which it applies, hence increasing the subsidy.[32] Taking account of both components, it is not difficult to arrive at a corrective tax on wholesale borrowing in the order of 50 basis points.

These are of course highly speculative and preliminary figures. It is noticeable, however, that one quite readily arrives at rates noticeably higher than those of the bank charges that have been adopted or proposed. The rate initially proposed for the FCR in the USA for example, was 15 basis points; those proposed and adopted in the UK and Sweden are in the range of four to eight basis points. The difference of magnitude,

---

[31] Several papers have argued for the corrective taxation of financial institutions. Perhaps closest to the discussion that follows are the informal arguments of Kocherlakota (2010), Shin (2010), Weder di Mauro (2010), and the more formal treatment in Acharya et al. (2010). Somewhat different optimal tax arguments are in Huang and Ratnovski (2009), Korinek (2009), and Jeanne and Korinek (2010).

[32] This reflects an assumption that creditors take no haircut in the event of bailout—which is not a bad approximation for many recent events.

no doubt, reflects the rather differing motivation of these taxes: the proposed FCR and the Swedish charge, in particular, aim primarily at recovering the costs of past and future interventions rather than correcting behavior.

Of interest too, as noted earlier, is how the revenue that such taxes would raise compares with the cost of the externalities to which they are addressed. In a strict sense, of course, the answer is not well-defined, since corrective considerations tie down only the marginal rate of tax, not the average rate. In a more pragmatic spirit, however, one can simply imagine the corrective tax to be imposed as a proportional tax on wholesale deposits, so that the average and marginal rate coincide. Two points then emerge.

First, the component of the optimal tax related to the bailout subsidy more than covers the expected cost of bail out. It is thus not equivalent to actuarially fair insurance, raising more revenue than this would imply.[33] The reason is as above: this part of the tax reflects not only the direct increase in the cost of the subsidy as a bank increases its borrowing—expanding the base to which the subsidy is applied—but also the indirect increase through the increase in the effective rate of subsidy as creditors are insulated from the increased likelihood of bailout being needed that it implies.

Second, the part related to the failure externality seems, on the other hand, unlikely to cover the full costs of the associated output loss. This is so even leaving aside the possibility that the output losses are so large that banks could not pay even their expectation and remain solvent (as stressed by Haldane 2009). It arises because the corrective tax reflects the impact of borrowing on the probability of failure at the margin, not the overall probability; and the most plausible assumptions on the pattern of asset returns suggests that this leads to less than full recovery of the costs. The interest of this is that it suggests that the optimal corrective tax may not be enough to provide what some might think a fair and substantial contribution—creating a role for an additional tax to that end, such as the FAT.

---

[33] As noted earlier, the standard rationale for deposit insurance is not to correct externalities but to prevent runs. Stressing that the crisis largely took the form of a run of wholesale deposits, some have argued on these grounds for extending insurance schemes to such funds. Obstacles to doing so include the sheer magnitude of the amounts that would need to be made available in the event of crisis—recall the huge contingent liabilities at the height of the crisis mentioned earlier—and the difficulty of properly risk-adjusting premia.

5 Taxation or regulation?

All this supposes that taxation is the policy instrument chosen to address these externalities. But should it be? The alternative in the context above would be to impose directly on the institution of concern a requirement that it hold at least some minimum amount of capital. This indeed has been the dominant approach in dealing with financial stability, with risk-adjusted capital requirements a key pillar of the Basel agreements. It is also at the heart of Basel III, with higher capital requirements, tightening of restrictions on what may be regarded as equity for regulatory purposes, and the adoption of liquidity and (un-risk adjusted) leverage ratio requirements.

In the simplest world, of course—with perfect information, flexibility, and certainty—the choice between tax and regulation is of no real consequence. Leaving aside second order conditions and the associated issue of implementability—though this may be important if one sees financial markets as inherently unstable—anything that can be achieved by one can be achieved by the other. But once these conditions fail, as they surely do in practice, the choice between the two instruments becomes a substantive one.

One point before turning to some of the considerations that then arise in comparing the two approaches. Given the dominance of the regulatory approach, and the huge institutional machinery and knowledge that has been built up to implement it, it may seem that, whatever the conceptual merits of corrective taxation might be, there is no realistic prospect of its acquiring a central role in practical policy. But things are not quite so cut and dried. The focus of regulatory regimes continues to be microprudential—on, that is, the failure of individual institutions. What the crisis has exposed is the need for effective macroprudential policies—focused on risks to the overall financial system. And in one aspect of this the choice between tax and regulation arises very sharply: is it better to impose an additional capital requirement on systemically important institutions,[34] as has been suggested, or to subject them to some additional tax if they choose unduly low capital ratios? Here, even after Basel III, policy makers have a cleaner sheet of paper to work on.

Many considerations will shape the proper balance between tax and regulatory measures in this setting. Here are some of them.[35]

---

[34] As examined, for instance, in Bank of England (2009) and IMF (2010b).
[35] This discussion also draws on Appendix 3 of IMF (2010a).

5.1 Income effects—public and private buffers

In thinking about corrective taxation, it is usual to abstract from the income effect of the tax, if need be by adopting the convenient fiction that the revenue raised is returned to the payer as some magical lump sum. One could imagine something similar in the present context, with the income effect of a corrective tax offset—given the difficulty of doing this in truly lump sum fashion—by, say, reducing the corporate tax rate on financial institutions to which it applies.[36] That though would of course create its own practical difficulties, as indeed would other compensating measures. And public sensitivities may in any event resist compensation, explicit at least.

Supposing then that no such offsetting takes place, taxation will differ fundamentally from capital regulation in its impact on private and public finances. For any given capital ratio supported by policy, taxation (at least of a simple proportional form) will reduce the net surplus of the institution by more than does regulation—which is presumably why the financial sector generally prefers regulation. Conversely, of course, taxation does more to bolster the public finances.

In this sense, taxation tends to strengthen public 'buffers' to deal with failure and crisis, whereas regulation is more conducive to private buffers. Whether buffers are best placed in the public or private sectors depends, in particular, on the nature of the shocks they are intended to protect against. When shocks are not strongly (or are negatively) correlated across institutions, public buffers can have a useful risk-pooling role: taxation can then in effect economize on the reserves need to deal with institutional failures. This benefit disappears, however, when shocks are strongly positively correlated across institutions. What this suggests, in very broad terms, is that, in this respect, taxation has the advantage in dealing with microprudential risks while regulation, leaving institutions better placed to weather and respond quickly to systemic crises, may enable a more robust response to macroprudential concerns.

5.2 Uncertainty

Taxation and regulation will lead to different outcomes when policy has to be set before the environment to which the bank will react is known, and this can lead to a systematic preference for one over the other—a general point stressed by Weitzman (1974).

---

[36] An alternative and perhaps more attractive form of broad offsetting might be by providing some allowance for a notional return on Tier 1 capital, in the spirit of the ACE above.
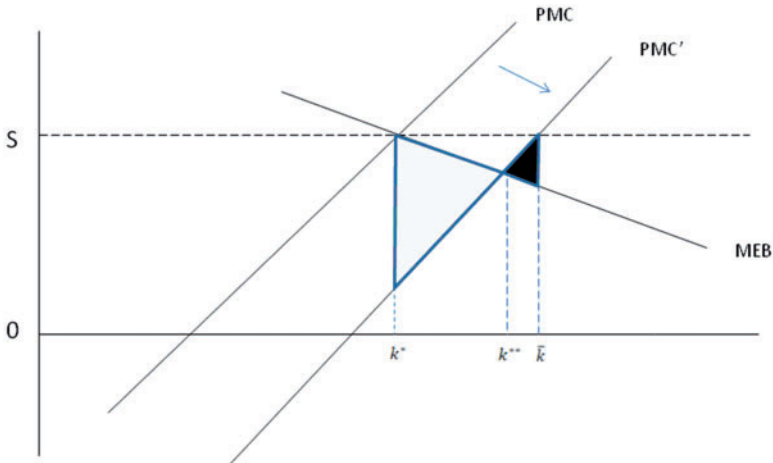
Figure 1 Taxing and regulating a bank under uncertainty.

Figure 1 illustrates what this might mean. Here, PMC is the private marginal cost of increasing the capital ratio k; upward sloping because the higher is the initial capital ratio, the less a further increase does to reduce the chance of failure (and failure is assumed to impose some private cost—perhaps literal bankruptcy cost, loss of ego-rent or reputation—on bank owners); MEB is the marginal external benefit from increasing the capital ratio, reflecting the failure and bailout externalities above. In the absence of any intervention, the bank would choose the capital ratio at which PMC = 0; the social optimum, however, is where PMC = MEB. *Ex ante*, the optimum is thus at k^*. This can be implemented either by a subsidy to the capital ratio at the rate S (equivalent, for a given level of bank equity, to a tax on either borrowing or loans) or simply by imposing k^* as a minimum capital requirement.

Suppose, however, that prospects turn out worse than expected, so that *PMC* shifts down. With the subsidy in place, the bank now moves to the higher capital ratio, at $\bar{k}$. Under regulation, however, it does nothing: even though it is free to increase its capital ratio, it will choose not to, because the private marginal cost of doing so is positive.[37]

Taxation in this case encourages a degree of prudence that may seem welcome. It is also the case, however, that it leads to an over-shooting of the capital ratio, the new optimum being at the lower level k^{**}. In general, neither taxation nor capital regulation achieves full *ex post* efficiency.

---

[37] Unless, of course, the shock is big enough to turn PMC (k^*) negative.

What matters in standard welfare terms is which comes closer, as indicated by the relative size of the two triangles of inefficiency shown in the figure: gray for regulation, black for taxation. As drawn, taxation wins. But this need not be the case.

As the classic treatment in Weitzman (1974) demonstrates, the comparison between the two instruments in this context turns (for uncorrelated additive shocks to each), on whether PMC is steeper than MEB or vice versa. The determinants of this in terms of the underlying model turn out to be complex. Clearly, if the externalities are small enough, taxation will dominate (the MEB curve then being horizontal, at zero); and conversely if they are 'large' enough. The notion of magnitude here, however, is somewhat subtle, since it is the impact not on the level of costs or benefits that matters, but on the slope. If the sole concern is the failure externality—as would be the case if the government were credibly committed not to bailout—then it turns out (albeit reflecting the simplicity of the underlying model) that it is sufficient for regulation to be preferred that the external costs of failure exceed the private costs—which one might plausibly suppose to be the case for the kind of institutions at issue. Matters are more open, it seems, in relation to the bailout externality.

The unresponsiveness of instruments implicit in this comparison is no doubt restrictive. Tax and regulatory instruments could both be conditioned, for instance, on the changing risk outlook. To the extent that this is imperfectly done, however, elements of the considerations above will remain.

5.3 Asymmetric information

Financial institutions will differ in ways that are relevant to the externalities that policy seeks to address—such as the riskiness of their positions, the quality of their management—but which are better known to themselves than to policy makers. Effective policy design needs to reconcile the benefits of the differential treatment this calls for with the need to achieve overall financial stability objectives.

This likely calls for a more subtle approach than either the linear tax or simple capital requirement assumed so far. Suppose, for example, that banks differ in their privately known but publicly unobserved ability to manage risk. Optimal policy in this case might involve a minimum capital requirement, to limit the social risks from less able banks, tempered by allowing a bank to hold less capital than this if some additional tax is paid—the tax in effect serving to screen out the more able banks. This in turn could be implemented as a nonlinear tax, with an increasing marginal rate on the bank's borrowing. Importantly, proportional taxation and

a single capital requirement are both, in such circumstances, very blunt tools.[38]

5.4 Institutional issues

Practical considerations loom large in the comparison of the two approaches and may ultimately be decisive.

The most clear-cut of these arise in relation to international cooperation, some degree of which, given the sophistication and mobility of financial institutions and their operations, is clearly helpful if policy is not to be undermined by arbitrage and avoidance. Here, there is much greater precedent and political support for effective coordinated action on financial regulation than on taxation. While there is important international cooperation on tax matters—in the structure of double tax agreements, for instance, and to some extent in relation to recent actions on tax havens—there is simply none on fundamental business tax policy issues that is comparable to the adoption of Basel by over 100 countries. This does not mean that unilateral tax innovations are undesirable or ineffective: the distortions from substantial cross-country differences in corporate tax rates likely swamp those from new taxes of the kind under discussion here. But they are clearly likely to be less ambitious the weaker is international cooperation.

Other aspects are more debatable. Regulation may offer more scope for the use of established specialist knowledge and 'soft' supervisory information. Even if that is so however—and the taxation of complex financial institutions may not be as mechanical and judgment-free as is sometimes supposed—it is not clear that this is necessarily an advantage. Perhaps tax administrators, with their differing priorities and career plans, would be less vulnerable to capture.

6 Concluding remarks

Much of what is said above is speculative and will, no doubt, prove overly simplistic. That, to a large extent, is the point.

The rethinking of policies toward the financial sector prompted by the crisis raises public finance issues, centered around the relative merits of taxation and regulation, which have been barely recognized, let alone addressed. The purpose here has certainly not been to suggest that the regulatory apparatus be thrown away and replaced by tax measures. Far from it. There are very good reasons indeed not to do so, not only

---

[38] This is a reminder too that nonlinear taxation generally dominates either proportional taxation or quantity restriction in the Weitzman context: Roberts and Spence (1976).

practical—international cooperation is likely easiest to achieve with this approach, for example—but also conceptual, for example, in protecting against the most catastrophic outcomes. But taxation may have a useful adjunct role, for instance in addressing both efficiency and equity concerns raised by any perception that creditors will be bailed out in the event of an institution's failure, and/or in honing policy to deal with asymmetries of information. The mantra of neutrality that has underpinned such thought as has been given to financial sector taxation remains important, since current tax systems deviate from this in ways that run counter to financial stability—notably in the pervasive biases toward the use of debt finance. Beyond that, however, the possibility of a constructive role for a distinct tax treatment of the financial sector, as a supplement to regulation, needs to be considered more seriously than it usually has been. Not the least of the reasons for this is that politicians are already acting. Richard Musgrave, I suspect, would feel we should be doing a rather better job of helping them.

Acknowledgements

References

Acharya, V., L. H. Pedersn, T. Philippon and M. Richardson (2010), "Measuring Systemic Risk", Mimeo, New York University.

Adrian, T. and M. Brunnermeier (2009), "CoVaR", Federal Reserve Bank of New York Staff Reports, No. 348.

Bank of England (2009), "The Role of Macroprudential Policy", Discussion Paper 21.

Boadway, R. and M. Keen (2003), "Theoretical Perspectives on the Taxation of Capital Income and Financial Services", in P. Honohan, ed. *Taxation of Financial Intermediation*, World Bank and Oxford University Press, New York, pp. 31–80.

Genser, B. and P. Winker (1997), "Measuring the Fiscal Revenue Loss of VAT Exemption in Commercial Banking", *Finanzarchiv* **54**, 565–585.

Haldane, A. (2009), ''The $100 Billion Question'', *Mimeo* (Bank of England). www.signallake.com/innovation/BankingPollution033010 .pdf (last accessed 20 November 2010).

Hemmelgarn, T. and G. Nicodème (2010), ''The 2008 Financial Crisis and Tax Policy'', Working Paper 20, European Commission Directorate-General for Taxation and Customs Union.

Hoggarth, G. and V. Saporta (2001), ''Costs of Banking Systems Instability: Some Empirical Evidence'', *Financial Stability Review*, Bank of England, June, pp.148–165.

Huang, R. and L. Ratnovski (2009), ''The Dark Side of Bank Wholesale Funding'', Mimeo, International Monetary Fund, Washington.

Huizinga, H. (2002), ''Financial Services VAT'', *Economic Policy* **17**, 499–534.

International Monetary Fund (2009), ''Debt Bias and Other Distortions: Crisis-Related Issues in Tax Policy'', http://www.imf.org/np/pp/ eng/2009/06/061209.pdf (last accessed 20 November 2010).

International Monetary Fund (2010a), *A Fair and Substantial Contribution by the Financial Sector: Final Report for the G-20*, www.imf.org/external/ np/g20/pdf/062710b.pdf (last accessed 20 November 2007).

International Monetary Fund (2010b), 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.

IMF, Financial Stability Board and Basel Committee of Bank Supervisors, 2009, ''Guidance to Assess the Systemic Importance of Financial Institutions, Markets, and Instruments: Initial Considerations''. www.imf.org/external/np/g20/pdf/100109.pdf (last accessed 20 November 2010).

Jeanne, O. and A. Korinek (2010), ''Managing Credit Booms and Busts: A Pigovian Taxation Approach'', Mimeo, Johns Hopkins University.

Keen, M. (2010), ''Taxing and Regulating Banks'', Mimeo, International Monetary Fund, Washington.

Keen, M., R. Krelove and J. Norregaard (2010), ''The Financial Activities Tax'', IMF Working Paper (forthcoming).

Kleinbard, E. (2007), ''Designing an Income Tax on Capital'', in H. J. Aaron, L. Burman and E. Steuerle, eds. *Taxing Capital Income*, Urban Institute Press, Washington, DC, pp. 165–210.

Korinek, A. (2009), "Systemic Risk-Taking: Amplification Effects, Externalities, and Regulatory Responses", Mimeo, University of Maryland.

Kocherlakota, N. (2010), "Taxing Risk and the Optimal Regulation of Financial Institutions", Economic Policy Paper. Federal Reserve Bank of Minneapolis.

Levine, R. (2005), "Finance and Growth: Theory and Evidence", Mimeo, University of Minnesota.

Lloyd, G. (2009), "Moving Beyond the Crisis: Using Tax Policy to Support Financial Stability", Mimeo, Organization for Economic Cooperation and Development.

Lockwood, B. (2010), "How Should Financial Intermediation Services be Taxed?", Mimeo, University of Warwick.

Markle, K. S. and D. A. Shackelford (2010), "Cross-Country Comparisons of Effective Tax Rates", Working Paper. University of North Carolina.

Matheson, T. (2010), "Taxing Financial Transactions: Issues and Evidence", IMF Working Paper (forthcoming).

Meade, J. E. (1978), *The Structure and Reform of Direct Taxation*, Report of a committee chaired by J.E. Meade, George Allen, and Unwin.

Musgrave, R. (1959), *The Theory of Public Finance*, McGraw-Hill Kogakusha, Tokyo.

Perotti, E. and J. Suarez (2009), "Liquidity Risk Charges as a Macro-Prudential Tool", CEPR Policy Insight No. 40, November.

Philippon, T. and A. Reshef (2008), "Wages and Human Capital in the U.S. Financial Industry: 1909–2006", Mimeo, New York University.

Roberts, M. J. and M. Spence (1976), "Effluent Charges and Licenses under Uncertainty", *Journal of Public Economics* **5**, 193–208.

Shackelford, D., D. Shaviro and J. Slemrod (2010), "Taxation and the Financial Sector", Mimeo, University of North Carolina.

Shin, H. S. (2010), "Non-Core Liabilities Tax as a Prudential Tool", Policy Memo. http://www.princeton.edu/~hsshin/www/NonCore LiabilitiesTax.pdf (last accessed 20 November 2010).

Shull, B. (2010), "Too Big to Fail in a Financial Crisis", Working Paper No. 601. Hunter College, CUNY, New York.

Sinn, H.-W. (2003), "Risk-Taking, Limited Liability, and the Competition of Bank Regulators", *Finanzarchiv* **59**, 305–329.

Sinn, H.-W. (2010), *Casino Capitalism*, Oxford University Press, Oxford.

Slemrod, J. (2009), "Lessons for Tax Policy in the Great Recession", *National Tax Journal*, LXII, 387–397.

Wagner, W. (2010), "In the Quest of Systemic Externalities: A Review of the Literature", *CESifo Economic Studies* **56**, 96–111.

Weder di Mauro, B. (2010), "Taxing Systemic Risk: Proposal for a Systemic Risk Charge and a Systemic Risk Fund", Mimeo, University of Mainz.

Weitzman, M. (1974), "Prices Versus Quantities", *Review of Economic Studies* **41**, 477–491.