‘Too-big-to-fail’ financial institutions: risks and remedies

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Abstract: Too-big-to-fail (TBTF) institutions pose a systemic threat to financial stability, as they exploit the implicit guarantee offered by the State to further increase their businesses as well as the risks they raise for taxpayers. Although TBTF problems have been widely debated in the literature, practical solutions are still lacking in all advanced economies around the world. This paper puts forward a structural reform of banks’ bookkeeping, with the aim of refining the latter in order to make it fully transparent, to gain the competitive advantage that results from a financial industry that is more resilient to systemic risks and crises.

Keywords: financial stability; systemic crises; ‘too-big-to-fail’ companies.


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1 Introduction

“Size, we are told, is not a crime. But size may, at least, become noxious by reason of the means through which it was attained or the uses to which it is put.”

Brandeis (1914, p.163)

Brandeis (1914) foresaw nearly one century ago the propensity of some companies to grow bigger and bigger over time, a phenomenon that he described as a ‘curse of bigness’. A hundred years later, we notice how this curse fundamentally reflects the evolution of institutions within the financial sector starting from the late 1970s to date – or rather, until the financial crisis of 2007, which seems to have partially reversed this trend. Today, we commonly refer to these Large, Complex Financial Institutions (LCFIs) with the label ‘Too Big to Fail’ (TBTF), so as to describe those institutions whose failure would prove to be disastrous, either because of the significant economic spillovers thereby imposed to other institutions (by virtue of their large counterparty exposures), or because of potential destabilising effects on the whole financial system. To the extent that TBTF institutions represent a serious threat to financial stability for a country, it is crucial that domestic policy makers fully understand the problems lying behind them, thus implementing those solutions that enhance market discipline, promote long-term resilient financial systems and avoid what Bair (2010, p.31) considers to be “a wasteful socialisation of banking risk”. The 2007–2009 financial crisis makes these issues even more urgent since nearly half of the largest 20 global banks around the world received direct government aids, placing thereby a heavy burden on the public finances of the countries involved. In its Financial Stability Report, the Bank of England (2009) estimates that the total value of actual and contingent government support in Europe and North America was more than 14 trillion US dollars, which is equivalent to about 50% of annual Gross Domestic Product (GDP) in these economies.

The purpose of this paper is to explain the origin and evolution of TBTF problems, so as to provide the analytical foundations for a structural reform of banks’ bookkeeping that aims at enhancing the competitive advantage of a country’s financial sector through its increased resilience to systemic risks and crises. Section 2 surveys the literature on TBTF institutions in light of the 2007–2009 financial crisis, pointing out the change in its perception and the extent of those problems that need to be solved before the next crisis occurs. Section 3 elaborates on this analysis, considering TBTF issues in a country, Switzerland, where the banking industry is both crucial and very concentrated. Section 4 puts forward the institutional lines along which a structural reform of banks’ bookkeeping ought to be carried out in order to reduce systemic risk and failure. Section 5 concludes briefly, summarising the original arguments of this paper.

2 ‘TBTF’: origin, evolution, and problems

In the 1970s, the activities of the world’s largest commercial banks were essentially restrained at providing financial intermediation services, that is, taking short-term deposits and lending at a longer maturity. At that time, the banking sector experienced troublesome trends in profitability, both because of interest rate restrictions (on both the assets and liabilities side of banks’ balance sheets) and because of geographical limits on
banks’ operations (Strahan, 2003). Starting in the 1970s, and increasingly in the 1980s and 1990s, a number of capitalist economies benefited from an unprecedented wave of financial liberalisation and deregulation, allowing the local banking sector to expand its activities beyond domestic borders and to increase its profitability. The deregulation of banking activities, culminating with the repeal of the Glass-Steagall Act in 1999 – an Act that prohibited commercial banks from undertaking investment banking activities – was accompanied by a frenzy process of Mergers and Acquisitions (M&As) within the banking industry. A study initiated by Rhoades (1996), and later on developed by Shull (2010b), notes that between 1980 and 2009, the number of commercial banks in the USA declined from 12,000 to nearly 6000, while, in the same period, the percentage of deposits held by the five largest commercial banks in the USA skyrocketed from 12% to 43%. According to Shull (2010b), and Shull and Hanweck (2001), this bank merger policy, largely accommodated by a quite lax attitude of both the Federal Reserve Board and antitrust regulators towards M&As, encouraged a rapid expansion of banks’ balance sheets, thus contributing to an increase in the concentration of the US banking sector.

The main argument that is often put forward in the literature to justify an increase in the size of banks is closely related to the efficiency gains arising from the existence of both economies of scale and economies of scope. Nevertheless, earlier and more recent work on this subject shows that economies of scale in the banking sector are worn out well below the size of currently large banks, while empirical evidence for economies of scope deriving from a strategy of portfolio diversification is rather difficult to find (see Saunders, 1996; Berger and Mester, 1997; Amel et al., 2004; Haldane, 2010; Shull, 2010b). Shull (2010b), therefore, considers that the main problem associated with laxity on bank merger policy since the mid-1970s was not the increased size of banks per se, but rather the fact that among the criteria US regulators used to assess M&As, the TBTF issue has never been taken into account actually.

Before the 2007–2009 financial crisis, policy makers used to label TBTF an institution that, owing to both its large size and its diversified portfolio of activities, would be able to withstand a negative demand or supply-side shock. Although some authors maintain that this is a much older practice (see, for instance, Benton, 1998), the TBTF doctrine can be traced back to 1984: following the liquidity crisis that resulted from massive bank runs faced by Continental Illinois National Bank – at that time publicly labelled as TBTF by US regulators – the Federal Deposit Insurance Corporation rescued this bank by infusing billions of US dollars of fresh capital. This bailout was justified by a fear that a failure of the bank – besides threatening the viability of other banks in the USA – could cause widespread trouble and instability across the whole financial system. As Davison (1997) points out, the rescue package accorded to Continental Illinois forced regulators to recognise that LCFIs could also fail. Above all, as the economic and social costs of LCFIs’ failure could be very high, regulators became aware that it was very important to elaborate clear strategies to prevent (or to handle with) such failures. Policy makers around the world, thus, realised that LCFIs could not be treated in the same way as smaller institutions, owing to the systemic risk that the former institutions pose to the whole economic system.

Until the financial shock hit the USA in mid-2007, when the real-estate bubble burst, the TBTF issue had been a long-debated topic in the literature. Nonetheless, little had been done, in practice, to implement any corrective measures in order to damp the potential negative effects arising from government’s intervention in favour of any TBTF institutions. In light of the 2007–2009 financial crisis, policy makers began to recognise,
at least implicitly, their previous underestimation of those problems that arise from TBTF. In fact, TBTF issues rest at the top of the mountain of financial ills policy makers must address yet (Stern and Feldman, 2004). The 2007–2009 financial crisis, however, changed the connotation of the TBTF label, reflecting the situation of an institution that, because of its systemic importance, cannot be left to fail without imposing high macroeconomic costs to the whole economic system. In the USA, for example, starting with the acquisition of Bear Stearns by JPMorgan Chase in March 2008, other large systemically important institutions faced a liquidity crisis that led either to their conservatorship or to forced acquisitions. In this framework, the decision by US authorities not to bail out Lehman Brothers was interpreted “as an implicit shock to the market’s belief that large banks would not be allowed to fail” (Afonso et al., 2010, p.2).

As shown by the 2007–2009 crisis, the largest global banks and financial institutions were highly leveraged and were sharing similar exposures to risks arising from the subprime mortgage market – in other words, they posed a systemic risk to the financial system, and were extremely vulnerable to a market loss of confidence. Using the expression of Reinhart and Rogoff (2009), in the run-up to the crisis banks were commonly sharing the ‘this time is different’ syndrome: they thought that financial crises belonged to the past, that old rules of valuation no longer applied and shared the widely held belief that securitisation was an efficient process allowing them to disperse credit risks through the financial system. When the crisis spread throughout a number of advanced economies, many of these global banks were unable to raise enough new capital on private markets, and national governments around the world had thus to provide exceptional assistance to avert these banks’ failure. Bernanke (2010) argues that many of those vulnerabilities that amplified the 2007–2009 financial crisis have been closely related to the problems of TBTF institutions. He also admits that, in the midst of the crisis, providing support to a TBTF business (by facilitating a merger, providing credit or injecting public capital) represented ‘the best of bad alternatives’, and he urges for a resolution of the TBTF problem (Bernanke, 2010, p.20). The 2010 Dodd-Frank financial reform goes indeed in this direction, as among its main purposes the explicit desires to mitigate systemic risk and to abandon any TBTF policies feature prominently.

In this framework, Shull (2010a) analyses the toxicity of TBTF policies in two distinct but closely related aspects: a crisis face and a prosperity face. According to Shull, the crisis face, which manifested itself repeatedly since the 1970s, is characterised by the failure of one or more systemically important LCFIs and by the policy makers’ concern in balancing financial and moral-hazard costs against the benefits of a public sector’s bailout. Tille and Wyplosz (2010) list three of the most important actions implemented by national governments during the 2007–2009 financial crisis in order for them to rescue the local financial sector, and point out the inconveniences associated with each action.

- First, in order to bound bank losses and to resume their role in financing economic activity, national governments removed toxic assets from banks’ balance sheets, and quarantined them in a separate structure (a sort of ‘bad bank’). Yet, this transfer of assets could prove to be problematic. Indeed, if the purchase price exceeds the long-term value of these assets, the ad hoc-created structure would face substantial losses, which are often reported to taxpayers, who will finance that structure eventually. By contrast, if the transfer of assets is carried out at a lower price, the bank is forced to bear heavy losses, lowering its equity and raising serious doubts about its solvency.
The second measure consisted in injecting equity by national governments, aimed at recapitalising the major TBTF institutions and averting the danger of an insolvency crisis. Public capital injections were sometimes so massive that they culminated in a de facto nationalisation of the troubled institutions. (This was the case of insurance giant American International Group and of the two US government-sponsored enterprises Fannie Mae and Freddie Mac.) French et al. (2010) point out that during the 2007–2009 financial crisis, several banks that were insolvent (or close to insolvency) seemed reluctant to recapitalise themselves by raising new capital because of the ‘debt overhang’ problem and because of a strong conflict of interest between the bank’s creditors and its shareholders.4 In any case, the governments’ intervention in favour of floundering TBTF institutions, justified by the systemic importance of the latter, could give rise to a dangerous misconception that ‘profits are privatised and losses socialised’, thus creating moral-hazard problems and encouraging the pursuit of a more aggressive strategy of risk-taking. (We will come back to this point later.)

The third measure included a government guarantee on bank deposits and loans. Its main goal was to staunch the drop in private investors’ confidence in banks and to avoid the self-fulfilling prophecy of bank runs. For example, in response to the deepening of the 2007 financial crisis, the Swiss parliament decided in the months following the bankruptcy of Lehman Brothers to increase the amount of insured bank deposits from 30,000 to 100,000 Swiss francs. Nonetheless, to be effective, this strategy needs to be credible for market participants: if a given national government announces its decision to ensure a significantly larger amount of bank deposits with respect to its fiscal capacity, scepticism would prevail among bank depositors, and this could even further accelerate bank runs rather than stopping or preventing them.

The other side of the TBTF issue, namely, the prosperity face, manifests itself in periods of economic growth. In this environment, the implicit government guarantee, offered to LCFIs because of their national (and global) systemic importance, generates perverse incentives and negative externalities.

Figure 1, which relates the scale of activity of an institution (measured for example by its balance sheet total, on the horizontal axis) with respect to its cost of funds (vertical axis) both in a TBTF sector (left panel) and in a not-TBTF sector (right panel), plots a negatively sloped marginal opportunities curve. This negative slope reflects the fact that the larger the size of an institution, the lower will be its funding cost. Suppose now that a firm’s equilibrium is located at point A and that this business knows that, in case of any financial troubles, it will be rescued by the government. The implicit government guarantee, acting as a protection premium, allows the firm to reduce its cost of financing (confering to this firm a competitive advantage with respect to its competitors), giving it at the same time a perverse incentive to increase its size beyond the optimal level. The new equilibrium (at point B) encourages the TBTF firm to pursue a more aggressive strategy of risk-taking and to lessen market discipline, raising its scale of failure. The shift towards the new equilibrium, from A to B, engenders a misallocation of resources and welfare losses (illustrated by the dashed triangle representing the ‘deadweight loss’ arising from rent-seeking opportunities). The drop in the funding cost could even seem paradoxical, given that the increased firm size should theoretically be associated with a higher risk – rational creditors would charge the firm with a higher price for funds lent. Nonetheless, as Stern and Feldman (2004) put forward, if creditors
are 100% sure of receiving 100% government protection, they would even lend funds to the riskiest TBTF institution, handling it as if it were safe. To be sure, insofar as uninsured creditors of systemically important LCFIs expect to be protected, their incentive to monitor these institutions’ activities vanishes, the latter finding fertile ground to take on too much risk and to waste resources. The underlying origin of the TBTF problem is thereby rooted in the lack of credibility: policy makers will have to reform their policies in order to make creditors of TBTF institutions at credible risk of loss.

Figure 1  The traditional cost of ‘TBTF’ policies

![Diagram showing the traditional cost of TBTF policies.](source.png)

Excessive risk-taking, as a consequence of resource misallocation, occurs in two ways. First, a firm could be spurred to buy risky financial assets implying a high probability of default (recall for example mortgage-backed securities), without undermining investors’ perception of the firm’s attitude toward risk. In order to enhance its return on assets, the firm could even resort to excessive leverage. While leverage allows businesses to boost profits in good times, this technique could be a potential source of systemic risk in bad times, as lenders ask for more collateral, borrowers could be forced to fire-sell their leveraged positions in order to repay their loans (and/or to satisfy capital requirements), magnifying thereby the drop in asset prices and forcing other (basically solvent) institutions to liquidate their positions as well. Secondly, risk-taking could occur through an unsuitable supply of credit, to the degree that risky loans are granted either to not-creditworthy borrowers (as was the case for subprime loans) or to firms whose projects have a limited potential to enhance economic growth (see Stern and Feldman, 2004). Analysing misallocation of bank credit in Japan, Peek and Rosengren (2002, 2005) observed notably that, owing to government bailout policies, troubled businesses were more likely to receive additional credit than healthy firms, even if the former continued to perform poorly after receiving more credit by banks.

Further, the government’s implicit promise of bailout offered to systemically important (TBTF) institutions is responsible for distorting competition within the markets. In the banking industry, therefore, large banks have a truly competitive advantage with respect to not-TBTF small banks (compare equilibrium point B with C in Figure 1). Indeed, the higher cost of funding borne by the latter banks, owing to the absence of a government guarantee for them, could force these banks to abandon several profitable projects that would be realised if their cost of financing would have been
lower. In order to increase their profitability, and to cover the gap with their large competitors, small banks could thereby lose their incentive to stay efficient and pursue riskier activities – becoming, for example, more closely interconnected with other banks – thus exacerbating the intrinsic fragility of the financial system as a whole. Small banks may be more inclined to follow such a strategy, insofar as this allows them to move under the TBTF umbrella.

3 An empirical analysis of TBTF problems in Switzerland

The previous section provides a general overview of the evolution and problems that are associated with the TBTF status. Let us now extend our analysis to the Swiss economy. An analysis of TBTF issues in Switzerland is of particular importance for three reasons. First, the Swiss financial sector is a central pillar for the whole Swiss economy, being a major contributor to value creation and employment. Secondly, the Swiss financial sector is deeply integrated and interconnected with many advanced economies around the world. Thirdly, the Swiss banking sector is highly concentrated and, as revealed by the 2007–2009 global financial crisis, the potential failure of some crucial TBTF institutions could pose widespread systemic risks to the entire financial system. As this has been the case for several other developed economies, the Swiss financial sector could not avoid a series of disastrous consequences originated by the subprime shock in the USA, especially after Lehman Brothers’ failure on 15 September, 2008. Since then, a growing literature has been focusing on TBTF concerns in Switzerland. Different authors raise important issues about what could be done in order to contain risks posed by the Swiss large financial institutions and strengthen the national financial system (Birchler et al., 2010a, 2010b; Kunz, 2010a; Tille and Wyplosz, 2010; Zürcher, 2010).

According to the Swiss National Bank (2005, p.15), a stable financial system can be defined as a “system where the various components fulfill their functions and are able to withstand shocks to which they are exposed”. A smoothly functioning financial system, which allocates savings to the most profitable investment opportunities and facilitates the settlement of payments, is an essential precondition for an ongoing and sustainable economic growth. Nevertheless, during the escalation of the financial crisis in 2008, the Swiss financial system partially stopped executing these crucial functions, exhibiting its intrinsic fragile nature. Indeed, contrary to any other economic activity, a distinguishing feature of the financial system is the potential for healthy flexibility to swiftly develop into troublesome instability and, in extreme circumstances, into crisis (Crockett, 1997). In turn, owing to the strong linkages with saving and investment decisions, the financial system’s instability spreads procyclically to the whole economy, amplifying swings in a number of macroeconomic variables.10 Hence, insofar as strains arising from troubled TBTF institutions could jeopardise a well-functioning financial system, a major issue is to strengthen the financial sector’s resilience to crisis so as to preserve the integrity of the financial industry as a whole.

As the Swiss financial system (including the banking and insurance sectors) is relatively large in international comparison, finding effective solutions to deal with systemically important institutions is equally (if not more) pressing in Switzerland than in other main advanced countries. A number of stylised facts help assess this statement better. The value added by the Swiss financial sector to the overall economy rose steadily over the period from 1990 to 2007, increasing from less than 7% in 1990 to 12.9% in
From 1990 to 2007, this strong growth was mainly driven by the banking sector, whose contribution to Swiss GDP has more than doubled. The value added by the Swiss insurance sector also grew by nearly 25% over the same period. According to the Swiss Federal Council (2009), the financial sector’s high contribution to Swiss GDP is due to its strong international orientation, which allows its banks and insurance companies to offer a cornucopia of financial services across the world. Nonetheless, the importance of the Swiss financial sector in the overall economy is particularly strong when compared to countries devoid of an internationally oriented financial market. In fact, compared to some other prominent financial centres (such as the UK or Singapore), the Swiss financial sector’s added value is rather similar with respect to GDP (Swiss Federal Council, 2009). Another particularity of the Swiss financial sector, however, is the high percentage of workforce it employs: nearly 200,000 workers were employed in 2009, representing 6% of overall employment in Switzerland.

If we restrict our analysis of the Swiss financial sector to the banking sector only (as we will show later, this is the only sector considered TBTF in Switzerland), we notice two striking features. On the one hand, despite the 325 banks existing in 2009, the degree of concentration of the Swiss banking sector is relatively high. Actually, the Swiss banking market is composed of two large global banks (UBS and Credit Suisse), and many other small cantonal, regional and Raiffeisen banks. In 2009, the two global banks accounted for more than 30% of the Swiss credit and deposits market (Table 1). Further, as is shown in the fourth column of Table 1, total assets held by the two global banks in 2009 represented more than 65% of assets held by the whole banking sector in Switzerland. On the other hand, and perhaps more surprisingly, the ratio of total assets held by the whole Swiss banking sector (and by the two Swiss global banks) with respect to GDP is the highest among major developed economies, both in 2008 and in 2009 (see Table 1). This ratio, commonly known as ‘assets-to-GDP ratio’, represents one of the best indicators of financial depth for mature economies. Although the 2007–2009 financial crisis significantly reduced the size of the two global banks (measured as total assets held), Table 1 shows that in 2009, the assets-to-GDP ratio in Switzerland was still at an exceptionally high level, the Swiss global banks’ assets representing more than four times the Swiss GDP.

In its Economic Survey of Switzerland, the Organisation for Economic Cooperation and Development (2009) explicitly recognises that the 2007–2009 financial crisis underscored the considerable risks for the Swiss economy posed by the extraordinary large size of its two major banks. According to Kunz (2010a), the extraordinary large size of both banks means that they are not only TBTF, but also potentially ‘too big to be rescued’ insofar as their bailout would by far exceed the fiscal capacity of the Swiss government. Indeed, UBS and Credit Suisse have grown so large over time that they became systemically important: an abrupt failure of one bank may seriously impair the Swiss economic system as a whole, eliciting unbearable macroeconomic costs in the country, as well as beyond it. In this respect, Hoggarth and Saporta (2001) and Boyd et al. (2005) point out that the failure of a bank of comparable size to UBS would entail short-term macroeconomic costs up to 150 billion Swiss francs (i.e., 30% of Swiss GDP), while the long-term costs could reach 1500 billion Swiss francs (that is, three times the Swiss GDP).
The interim report on the TBTF problem presented by a Committee of Experts (2010) in Switzerland highlights the main criteria that a Swiss business has to fulfil in order to be considered TBTF. The analysis of systemic risks posed by a business rests subsequently on the overlapping of the following three ‘criteria of systemic importance’.\(^\text{12}\) The first criterion includes a measure of the firm’s size and the degree of market concentration. The second criterion concerns the degree of interdependence of a business with either its customers or its investors at national and international level. The third criterion is closely related to the degree of short-term substitutability of performed activities. If essential business activities cannot be taken on by another firm within a relatively short period of time because the firm has a dominant position and/or owing to important barriers to entry in the market, the firm is considered as being systemically important. Now, despite the existence of other crucial economic sectors for the Swiss economy (for example, the insurance or the infrastructure sectors), the Committee of Experts (2010) argues that the TBTF problem in Switzerland concerns exclusively the banking sector, and particularly the two global banks (that is, the only two banks really meeting the three criteria summarised above).\(^\text{13}\) Among the most important functions carried out by UBS and Credit Suisse within the Swiss economy (those functions that are irreplaceable at short notice), it is worth recalling their central role in supplying credit to households, non-financial businesses and other (smaller) banks, providing financial intermediation services, and their responsibility in ensuring the smooth functioning of domestic payment and settlement systems. Yet, the implicit government guarantee granted to both UBS and Credit Suisse because of their systemic importance has been estimated to be worth between 4 and 5 billion Swiss francs per year, that is nearly 1% of Swiss GDP (see Birchler et al., 2010b; Kunz, 2010b). Häfeli and Jüttner (2010) maintain in this regard that in the second half of 2008, the protection premium publicly offered to the two

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**Table 1** Total assets held by the national banking sector and by the two largest banks as a percentage of GDP in 2009

<table>
<thead>
<tr>
<th>Country</th>
<th>National banking sector (total assets as a % of GDP) (1) (%)</th>
<th>Two largest national banks (total assets as a % of GDP) (2) (%)</th>
<th>Domestic market share of the two largest banks in the country (2)/(1) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland (in 2008)</td>
<td>820</td>
<td>620</td>
<td>75.6</td>
</tr>
<tr>
<td>Switzerland (in 2009)</td>
<td>670</td>
<td>440</td>
<td>65.6</td>
</tr>
<tr>
<td>UK</td>
<td>630</td>
<td>230</td>
<td>36.5</td>
</tr>
<tr>
<td>France</td>
<td>560</td>
<td>200</td>
<td>35.7</td>
</tr>
<tr>
<td>Belgium</td>
<td>520</td>
<td>310</td>
<td>59.6</td>
</tr>
<tr>
<td>Netherlands</td>
<td>480</td>
<td>320</td>
<td>66.6</td>
</tr>
<tr>
<td>Germany</td>
<td>460</td>
<td>100</td>
<td>21.7</td>
</tr>
<tr>
<td>Sweden</td>
<td>440</td>
<td>260</td>
<td>59.1</td>
</tr>
<tr>
<td>Japan</td>
<td>300</td>
<td>80</td>
<td>26.6</td>
</tr>
<tr>
<td>Canada</td>
<td>240</td>
<td>80</td>
<td>33.3</td>
</tr>
<tr>
<td>Italy</td>
<td>220</td>
<td>110</td>
<td>50.0</td>
</tr>
<tr>
<td>USA</td>
<td>170</td>
<td>30</td>
<td>17.6</td>
</tr>
</tbody>
</table>

**Source:** Authors’ elaboration based on Swiss National Bank (2010, p.18)
Swiss global banks amounted to 15 and 27 billion Swiss francs respectively, that is, about 2.8% and 5.0% of Swiss GDP in 2008.

To be sure, since the 1990s the implicit guarantee against their failure allowed UBS and Credit Suisse to develop a risky business model, which would not have been possible if the two banks had to internalise completely the social costs of their decisions. Owing to perverse incentives provided by TBTF policy, both banks strongly encouraged the use of foreign capital (debt) as their main source of funding. As noted above, leverage is in fact a profitable strategy in good times but a very risky strategy during economic downturns. In the same way, from 1990 to 2007, equity dropped from 7% to nearly 3% of the two Swiss global banks’ total balance sheets, while the latter quadrupled over the same period of time. According to Zürcher (2010), the main problem lies in the fact that the risky business model followed by the two Swiss global banks has not been matched by stronger capital and liquidity requirements. Starting from the mid-1990s, the focus on investment-banking activities further exacerbated banks’ risk appetite. While, on the one hand, these activities allowed banks to record massive profits year after year, on the other hand they exposed banks to huge liquidity risks, as they forced banks to be able to raise short-term funds continuously.

Liquidity risk became clearly evident in October 2008, when interbank lending froze up. While Credit Suisse was able to undertake a recapitalisation in the heart of the crisis, avoiding thereby government assistance, the situation of UBS was somewhat more problematic. Losses suffered by UBS as a result of its excessive exposure to the US subprime mortgage market were so huge that the two previously undertaken private recapitalisations (in December 2007 and April 2008) proved to be insufficient. For the years 2007–2008, Tille and Wyposz (2010) quantify losses suffered by Swiss global banks in 48.6 billion Swiss francs for UBS, and 13.7 billion Swiss francs for Credit Suisse (in that period, both banks could only raise new capital amounting to 32.1 and 11.7 billion Swiss francs, respectively). Despite these banks’ losses were not exceptional in absolute terms, they were very large with respect to their capital base and the overall size of the Swiss economy (Organisation for Economic Cooperation and Development, 2009).

After a failed attempt to undertake a third private recapitalisation, and suffering funds outflows totalling 127.6 billion Swiss francs in 2008 Q2 and Q3, UBS had to receive massive public aids. While the Swiss government helped UBS to raise new capital for an amount of 6 billion Swiss francs (in the form of mandatory convertible notes), the Swiss National Bank created a stabilisation fund (‘StabFund’) in order for it to acquire seriously impaired illiquid structured assets up to 60 billion US dollars. Although these measures helped mitigate the spillovers of the crisis to the whole economy (the financial crisis in Switzerland was by far less acute than in all other major developed economies), the two Swiss global banks still remain much vulnerable to further shocks at the time of writing. As the Organisation for Economic Cooperation and Development (2009) notes, while financial-market conditions in Switzerland have improved noticeably since 2008, further steps need to be taken in order to lessen systemic risks posed by the banking sector and to set up adequate prudential standards for large global banks. These reforms need to be carried out as soon as possible and before another financial crisis occurs.
4 Setting the stage for a structural reform of banking activities

In light of the financial crisis that hit the USA in 1907, Brandeis (1914, pp.5, 6) pointed out that the ‘four distinct functions’ of banks (that is, commercial banking, trust and insurance, corporate underwriting, and brokering) hinder market competition, when the same institution carries them out, as in that case “the same man is on both sides of a trade” (p.11). As Brandeis put it, in such a case

“[t]he investment banker, through his controlling influence on the Board of Directors, decides that the corporation shall issue and sell the securities, decides the price at which it shall sell them, and decides that it shall sell the securities to himself.” (Brandeis, 1914, p.11)

Hence, while a large firm size may not be problematic per se, the bank’s multifunctionality impinges on financial stability negatively, owing to the blurring of separate functions in the bank’s books. If so, then disposing of the TBTF problem by the introduction of size limitations for banks (and for non-bank financial firms), as measured by assets-to-GDP ratios, would miss the point, insofar as the issues raised by multifunctional banking are left unaddressed. To be sure, this argument echoes the Ricardo (1824/1951) Plan for the Establishment of a National Bank, which inspired the 1844 Peel Act to reform the bookkeeping structure at the Bank of England, separating it into an issue department and a banking department (see Rossi, 2010). Clearly, any bank carries out two separate functions: it issues money in payments it executes either for its clients or for its own sake, and it grants loans to any customer it deems creditworthy. Observing that these two operations have no necessary connection, Ricardo (1824/1951, p.276) argued that they can be carried out by two separate bodies, “without the slightest loss of advantage, either to the country, or to the merchants who receive accommodation from such loans”.

If so, then banks’ books could be split into two functionally distinct parts (departments) in order to avoid financing a financial-market operation with a sum of money issued ex nihilo by a bank, which would create extra money to which no new output corresponds. Indeed, only production associates money and output without destabilising the money–output relationship, as it generates both bank deposits and the object of their purchasing power simultaneously (Rossi, 2007, Ch. 2). Consider for instance the following example in stylised form.

Let us assume that a bank loan to firm F has enabled the latter to pay the current wage bill, so that the relevant wage earners W obtain a deposit in the same bank. Suppose that before wage earners dispose of their bank deposits on either the goods or assets markets, the bank aims at ‘circulating’ them on the financial market for its own sake. After all, a bank has to remunerate depositors so that it seeks any profitable businesses on the asset side of its balance sheet. To date, nothing prevents such a bank to increase the available amount of deposits, exploiting for its own proprietary trading the capacity it has to issue money in any kind of payments it carries out. The bank is, thus, in a position where it can record the result of any payment for a financial-market transaction independently of the income it has at its disposal. Double-entry bookkeeping enables this as a matter of fact because it is sufficient for the bank to record the relevant amount of money on both the asset and liability sides of its balance sheet, debiting and crediting the agents involved in this transaction with any given number of money units. This is so much so when all banks “move forward in step” (Keynes, 1930, p.23), that is, when each of them exploits
its money-creating capacity on financial markets so that, at the end of the day, no settlement problems on the interbank market occur as no bank has a deficit position to pay finally with central-bank money.

In a refined bookkeeping structure for banks’ payments, any bank wishing to dispose of more deposits it has in order for it to carry out any kind of financial-market transactions will have to borrow the necessary amount rather than merely creating it through a stroke of the keyboard. In particular, separating the issue and banking departments in banks’ accounting would enable banks (as well as their supervisory authorities) to know, at any point of time, the amount of income that every bank can lend without creating financial instability risks either in its own balance sheets or in the financial system as a whole. As a matter of fact, to date, owing to interbank operations, banks may open bilateral credit lines among themselves by which their reciprocal payments increase total money supply without increasing produced output equivalently, as the newly created money units are spent on the financial market rather than on the factor market. In a book-entry structure that separates money emission and financial intermediation by banks, if a bank were to lend or to dispose for financial-market transactions of a greater amount of money than it has in deposit, it would have to record this transaction through its two departments, that is, create \textit{ex nihilo} in its issue department the number of money units that it adds to the money-income available in its banking department, thereby breaking the related bookkeeping rules in a transparent manner. This would lead to immediate sanction from both supervisors and market participants, providing thus the right incentive for any bank to abide by these rules in every financial-market transaction it carries out for its clients’ or for its own sake.

In order for supervisory authorities to strengthen the incentives for both bank managers and shareholders, not to put financial stability at stake, the former might impose to the latter a three-pillar structure for corporate governance to be subsumed under a holding: in the first pillar, commercial-bank activities will be carried out according to strict rules and regulations that limit risk-taking in exchange for both tax advantages and an official guarantee for bank deposits; in the second pillar, investment-bank activities will have to contribute to innovation and economic growth (rather than just increasing turnovers on financial markets \textit{per se}), with an appropriate leverage ratio to avoid procyclical effects, which amplify boom-and-bust cycles on both assets and goods markets; the third pillar, where highly speculative activities will have to be recorded rather than put off-balance-sheets, will have to require 100% funding through equity rather than debt, and to impose regulations similar to those applying to bookmakers, in order to avoid fraud and predatory lending on global financial markets (Figure 2).

Provided that all large banks are chartered as a holding group whose different activities will be separated explicitly, as Figure 2 shows, they will enhance security in commercial banking, wealth in investment banking and freedom in highly speculative transactions. Commercial banking, that is, deposit taking and the payment traffic, will thus have to be strictly regulated and supervised by banking authorities, and an explicit guarantee for all depositors might be offered by the State, arguing that it will be very rarely if ever put to practical use in that framework. Investment banking will continue to be possible and the appropriate leverage ratios fixed by public policy taking into account procyclical effects (see International Monetary Fund et al., 2009) in order to enhance wealth and economic growth. Highly speculative transactions will still have to be possible but in a framework that is fully funded by equity rather than debt, and abiding by
a series of regulations that mimic those for bookmakers, in order to blend individual freedom and responsibility, so as not to generate systemic instability across the banking and financial industry at large.

Figure 2  Different regulations for different banking activities

Source: Authors’ elaboration

5 Conclusion

Hundred years before the 2007 financial crisis burst, the US banking sector was stuck in a crisis whose structural origin can be ascribed to banks’ multifunctionality, as Brandeis (1914) cogently noted. A century later, despite several structural and institutional changes that occurred in the meantime, global banks can be characterised by the same set of distinct functions, which they carry out within or without their own books, thus blurring many functional separations across the whole financial industry. This paper has shown that the so-called TBTF issues are not merely a matter of size, as banks, to date, do not separate, in their bookkeeping, income-generating from income-transferring operations: they can, in fact, open a credit line on the asset side of their balance sheet to finance any speculative transactions for which no available income exists yet, as this automatically creates a deposit on the liability side of their consolidated balance sheet (this is so much so when no interbank debt has to be settled at the end of the day, since all banks have moved forward in step). To dispose of the systemic risk that TBTF financial institutions pose, a structural reform of banks’ bookkeeping is necessary. The analysis presented in this paper leads to a refinement of the banks’ double-entry system of accounts, making it possible to tell apart what is different essentially. Money, income and capital being three separate objects, it is but natural to make sure that banking activities respect their different nature through a threefold separation in banks’ books, which will thus become more transparent, also in a regulatory and supervisory attempt to boost agents’ security (in commercial banking), wealth (in investment banking) and personal freedom (in any purely speculative activities) – without putting the whole financial system at stake and requiring, sooner or later, government intervention and taxpayers’ contribution willingly or not.
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Too-big-to-fail financial institutions: risks and remedies


Notes

1 According to Berger and Mester (1997), economies of scale operate at banks with assets less than 10 billion US dollars. Haldane (2010) puts an assets’ threshold of 100 billion US dollars (or even less), beyond which economies of scale are not at work anymore.

2 At this stage of our analysis, it must be stressed that with the term ‘large’ we do not refer strictly to the size of a financial institution, measured for example by total assets held, since we also take into account other factors such as the degree of interconnection with other institutions or the degree of complexity of those activities that the firm carries out.

3 In its Annual Report 2004, the European Central Bank (2005, p.226) describes systemic risk as “the risk that the inability of one institution to meet its obligations when due will cause other institutions to be unable to meet their obligations when due”.

4 Raising new capital or reducing risks by selling distressed securities, when a bank is incurring losses, would force shareholders to bear some of the losses that would have been otherwise borne by creditors, strengthening therefore the position of the latter to the detriment of the shareholders’ position.

5 We refer to an ‘implicit’ government guarantee because the latter is neither formally anchored in any legislation nor explicitly granted by the State. Nevertheless, systemically important LCFIs know that they will be rescued if they were close to bankruptcy.
"Too-big-to-fail" financial institutions: risks and remedies

Quantifying the value of government protection provided by TBTF policies, Baker and McArthur (2009) show that, from 2000 Q1 to 2007 Q4, the spread between the average cost of funds for smaller and large banks (with assets in excess of 100 billion US dollars) averaged 0.29 percentage points. This gap widened to 0.78 percentage points in the period from 2008 Q4 to 2009 Q2, when government bailouts largely established TBTF as an explicit public policy.

According to Haldane and Alessandri (2009), in such a situation the protection of depositors is felt to be a public good (losses, instead of risk, being borne by the government).

The Squam Lake Report identifies two main forms of systemic risk: counterparty risk and fire-sale risk (see French et al., 2010).

According to the definition of financial stability proposed by Crockett (1997), these ‘various components’ are key institutions and key markets.

For a thorough analysis of linkages between the financial sector and the whole economic system, see Borio et al. (2001).

For comparison, the value added by the financial sector in European countries was less than 5% in 2008, whereas in Japan it averaged 6% (Zürcher, 2010).

The definition and criteria of ‘systemic importance’ have been widely debated in the literature, without reaching a clear agreement on them. Thomson (2009) presents four factors other than size that make an institution systemically important (these factors are dubbed the ‘four Cs’, namely, contagion, correlation, concentration and context). Buiter (2009) and Tarashev et al. (2009) believe instead that size is the real issue; other factors are not taken into account unless the institution is large.

Kunz (2010b) believes, however, that it could be dangerous to confine the TBTF problem solely within the financial system, as potential TBTF situations could also arise from other economic sectors (such as the infrastructure sector). Yet, owing to the relatively high degree of short-term substitutability of those activities that are performed in the infrastructure sector, the third criterion of systemic importance is not fulfilled, and this sector falls therefore outside of the TBTF domain.

Total losses suffered by UBS and Credit Suisse in the years 2007–2008 amount to 62 billion Swiss francs, or nearly 12% of Swiss GDP in 2008. In the same period, losses borne by US financial institutions represented 3.3% of US GDP in 2008 (Tille and Wyplosz, 2010).

In this perspective, those requirements aiming to increase both liquidity and regulatory capital in banks’ balance sheets – as epitomised by the higher global minimum capital standards that the Basel Committee on Banking Supervision proposed in September 2010 – cannot dispose of the systemic risk resulting from banks’ multifunctionality. See Basel Committee on Banking Supervision (2010), and Rossi (2010).