

Too big to fail: a thorn in the side of free markets

Kersten Kellermann

© Springer Science+Business Media, LLC. 2011

Abstract This paper examines the essential features of too big to fail (TBTF) regimes. These regimes justify themselves on the basis of the high and socially unacceptable costs associated with their exit from the market. At the same time, a TBTF regime affects the foundations of an orderly market economy by undermining the market function of natural selection. The implicit state guarantee linked with TBTF for large and systemically important financial institutions produces negative welfare effects and creates incentives for these establishments to grow beyond their optimal size. However, the state guarantee cannot explain the existence of ‘mega-banks’.

Keywords Too big to fail · Financial sector · Implicit state guarantee · Size of firms · Economies of scale · Economies of scope · Too big to rescue · Switzerland

JEL classification G18 · G28 · L51

One of the most important challenges for the global banking regulation and supervision is how to cope with too big to fail systemically important banks.
Adair Turner, (2009a).

1 TBTF at the heart of the financial crisis

When the investment bank Lehman Brothers filed for bankruptcy on 15th September 2008, the global financial crisis reached a pinnacle. In a joint paper

K. Kellermann (✉)
Liechtenstein Economic Institute (KOFL), University of Liechtenstein, Vaduz, Liechtenstein
e-mail: kerstenkellermann@bluewin.ch

composed in the autumn of 2009, the IMF, BIS and FSB (2009b) described Lehman Brothers as a systemically important big bank; its collapse triggered outright panic on the financial markets and came close to causing the meltdown of the international financial system. So was Lehman Brothers ‘too big to fail’ (TBTF)?¹ The massive impact of the contagion unleashed on the global financial system by the Lehman Brothers debacle soon affected Switzerland, another country seriously affected by the TBTF problem (FINMA 2009). Even before the outbreak of the crisis, it was apparent that the two major banks UBS and Credit Suisse posed a considerable risk to the Swiss economy.² In the past, the Swiss National Bank (SNB) had addressed the problem with a political strategy of ‘constructive ambiguity’ whereby ex-ante, the two banks would be kept guessing as to whether they would be bailed out by the state in the face of potential insolvency or allowed to fail (Zürcher and Held 2009).³ In November 2008, however, the Federal Council and SNB found themselves forced to provide support to the major global bank UBS (SNB 2009).

At present, the potential systemic risks associated with big banks are becoming increasingly firmly established in the political consciousness (Expertenkommission des Bundes 2010). According to Stern and Feldman (2009), the ‘crisis of the century’ put a final end to the policy of official denial associated with TBTF. The experience of the past 3 years has shown that now is the time to develop an offensive strategy for dealing with the TBTF issue—and this raises questions as regards the economic background to the TBTF phenomenon. The intention of this paper is to discuss these questions. It will aim to set out and correlate the various economic aspects of the problem and evaluate these aspects according to their significance in terms of regulatory and prudential policy. The paper is divided into seven sections. Section 2 sets out the main features of a TBTF regime according to Stern and Feldman (2004, 2009). The TBTF policy is ultimately justified on the basis of the high, socially unacceptable costs associated with the exit from the market of large and systemically important financial institutions. Such costs derive from the interlinked nature of the financial system, which is discussed in Sect. 3. Given that the market exit of these institutions is politically precluded, a TBTF regime has an impact on the foundations of an orderly market economy; this aspect is dealt with in Sect. 4.

¹ The term TBTF was coined in the USA in the 1980s; at first it was mainly applied to institutions in the financial sector, but later extended to companies in the real economy and jurisdictions. The term TBTF was used by American Congressman McKinney at a hearing in connection with the Continental Illinois crisis (COP 2009). From this original deployment of the term, TBTF could be interpreted as meaning: too important to the stability of the financial system on account of its size for the institution to be allowed to fall into insolvency by the government.

² In an interpellation on 20th January 1998, Samuel Schmidt, a member of the Swiss Federal Council, posed the question, “What preventive measures will the Federal Council take to minimise the risks of the de facto state guarantee?” The answer given by the Federal Council on 13th May 1998 was as follows: “In principle, no bank can be said to be too big to fail, no matter how strong its competitive position... The Federal Council therefore takes the view that no additional measures are necessary at the present time.” (<http://www.parlament.ch>).

³ The aim had been the containment of moral hazard, a scenario underlying the problem of political time inconsistency, as is well established (Stern and Feldman 2004).

Irrespective of the problems associated with TBTF, the policy ensures the state remains a critical player—a status that is jeopardised if the financial problems of a failing financial institution were to exceed the bailout capacity of the public authorities and central banks. Iceland is a prime example of this: in the specific case documented in 2007/2008, its banks proved ‘too big to rescue’ for the state (TBTR; this term is also examined in Sect. 4). Section 5, meanwhile, analyses the negative welfare effects of the TBTF regime. Most seriously, the implicit state guarantee for major financial institutions can lead to moral hazard behaviour in the financial sector; other adverse welfare effects stem from the incentive to financial institutions to expand beyond their optimal operational dimensions. However, state guarantees alone cannot explain the major discrepancy between the desirable size of a bank in business terms and the economically viable magnitude of such an establishment. Section 6 considers economic and political approaches to the TBTF dilemma; a summary is provided in Sect. 7.

2 Attributes of a TBTF regime

The nature of TBTF in relation to financial market institutions is directly linked to a corresponding political regime. In this regard, Stern and Feldman (2004, p. 13) state that, “A TBTF regime is a policy environment in which uninsured creditors expect the government to protect them from prospective losses from failure of a big bank.” A TBTF regime is thus characterised by three attributes:

- Firstly, by the institution at risk of illiquidity⁴ and insolvency⁵ which is assessed as TBTF. These institutions will generally be banks; however, the insurance corporation American International Group (AIG), the automobile manufacturers General Motors and Chrysler and the life insurance companies The Hartford Financial Services Group, Inc. and Lincoln National Corporation also benefited from state support during the crisis of 2007/2009 (SIGTARP 2010, p. 17).
- Secondly, by the state protection measures from which this institution benefits and which, in extreme cases, can prevent the collapse of the institution. To a considerable degree, state measures implemented over the past 3 years with a view to stabilising financial systems have been attributable to a TBTF policy in the strict sense (US Department of the Treasury 2010).
- Thirdly, by the parties that benefit directly from state protection measures. These parties are aware of their privileged position and exploit their protected status wherever possible. In particular, beneficiary parties include creditors of the financial institutions in question not covered by explicit deposit insurance (and

⁴ According to the SFBC (2008a, p. 12), a serious liquidity problem arises where a bank is no longer in a position to meet its payment obligations; existing liquidity no longer covers obligations that are payable (or will soon be payable) and the bank is unable to procure liquid assets under market conditions. A bank may be solvent yet still be illiquid.

⁵ A financial institute is solvent where it meets the applicable capital adequacy requirements. A serious problem of insolvency arises when a valuation of assets at liquidation values casts doubt on the coverage of creditor claims (SFBC 2008a, p. 12). Heller and Kuhn (2009, p. 438) point out that in a crisis situation, it is often difficult to distinguish between solvency and liquidity problems.

specifically mentioned in the definition of Stern and Feldman 2004); however, the owners and shareholders of TBTF institutions, their employees and management boards may also benefit under certain circumstances.

2.1 State support measures

According to Stern and Feldman (2004), state protection measures are the central feature of a TBTF policy. But what does state protection actually comprise? In the financial crisis of 2007/2009, it became apparent that governments and central banks make up an international safety net of public instruments to stabilise financial systems, and that this network can be accessed in case of emergency. An emergency duly arose in the autumn of 2007, when markets and financial institutions came under pressure around the world (IMF 2009a).

We may distinguish three categories of state protection measure:

- The provision by central banks of liquidity to financial intermediaries, thereby safeguarding financial institutions against liquidity shortages and consolidating confidence in the banking system. During the crisis period, according to Jordan (2009a), the SNB responded consistently to friction on the national and international money market for francs and, where necessary, made substantial liquidity available to the banking system over various terms to a virtually unlimited extent. This massively relieved monetary restrictiveness, not just in Switzerland but around the world.
- Support measures for individual banks provided by governments or central banks either through the buying-up of so-called toxic securities, loans or recapitalisation in connection with the acquisition of shares. In certain cases, these solvency-boosting measures are the direct result of a TBTF policy, and this is especially true of the package of measures aimed at strengthening the Swiss financial system unveiled on 5th November 2008 (SNB 2009; Jordan 2009b). Various banks were recapitalised in many other countries around the world: in the USA, for example, the Capital Purchase Program (CPP) and the Targeted Investment Program (TIP) were launched to prop up systemically significant financial institutions (COP 2009; US Department of the Treasury 2010). According to the calculations of the IMF (2009b), total solvency assistance in the USA amounted to 4.6 percent of gross domestic product (GDP); the proportion was between 3.5 and 5.5 percent in Austria, Belgium, Ireland and the Netherlands. By contrast, some G20 countries such as Australia and Spain refrained from such measures.
- Guarantees for bank deposits, interbank loans and some corporate bonds. Measured in terms of GDP, the largest guarantees were given in Ireland, the Netherlands, Sweden, the United Kingdom and the USA (IMF 2009b). In 2008, deposit insurance was modified in some countries (including Switzerland).⁶

⁶ In accordance with the measures agreed by legislators to increase depositor protection, preferential status has, since 20th December 2008, been extended to include deposits of up to CHF 100,000 per depositor. The maximum amount that the Swiss deposit insurance are required to contribute is limited to CHF6 billion.

2.2 Size as an attribute of a TBTF regime

Within the context of TBTF policy, state protection measures for a particular financial institution are justified on the basis of that institution's size and importance. After state support measures, therefore, the size of a financial institution constitutes the second characteristic attribute of a TBTF regime. Size is gauged on the basis of a range of indicators, including total assets, level of deposits, market share, number of financial transactions and the level of assets under management. However, these size indicators are of only limited significance; more meaningful from the standpoint of a particular economy are relative values such as the ratio of a bank's total assets to GDP in its home country or the proportion of a bank's total assets to the total assets for the domestic banking sector. As the case of Iceland has shown, a bank may remain insignificant on a global scale yet assume dangerous proportions for its national economy (OECD 2009).

In Switzerland, total assets for the country's banking sector exceeded 4,700 billion Swiss francs at the end of 2007. Of this, the five biggest banks accounted for 76 percent (Fig. 1). The total assets of the two big banks UBS and Credit Suisse alone comprised 70 percent of overall total assets (Fig. 2). Switzerland is therefore affected more than most by the TBTF issue (Hildebrand 2009a). Unlike the Icelandic banks, however, UBS and Credit Suisse are big banks on the world stage as well. For this reason, the OECD (2009, p. 20) contrasts the situation of Switzerland against that of Iceland in specific terms: "Switzerland is ... a different case, because its banks are so big globally that they are systemically important in other countries, raising the possibility that there would be a global response if the banks were about to fail." The relative importance of a bank within a particular market is also a key indicator of size (Scherer 2010). On the domestic credit market

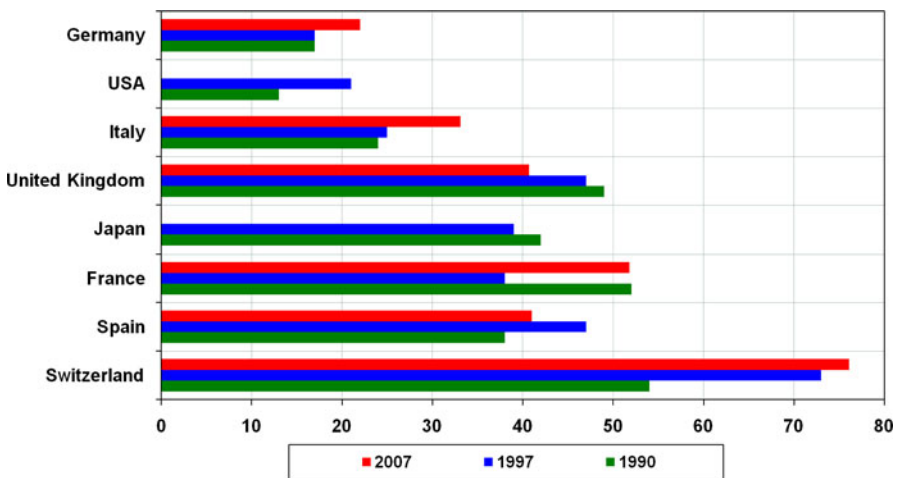


Fig. 1 Concentration ratio for banks in an international context. Share of the five biggest banks in total assets (CR5). *Source:* For 1990 and 1997: Bank for international settlements (BIS), 74th annual report, 2004. For 2007: ECB (2010) and SNB

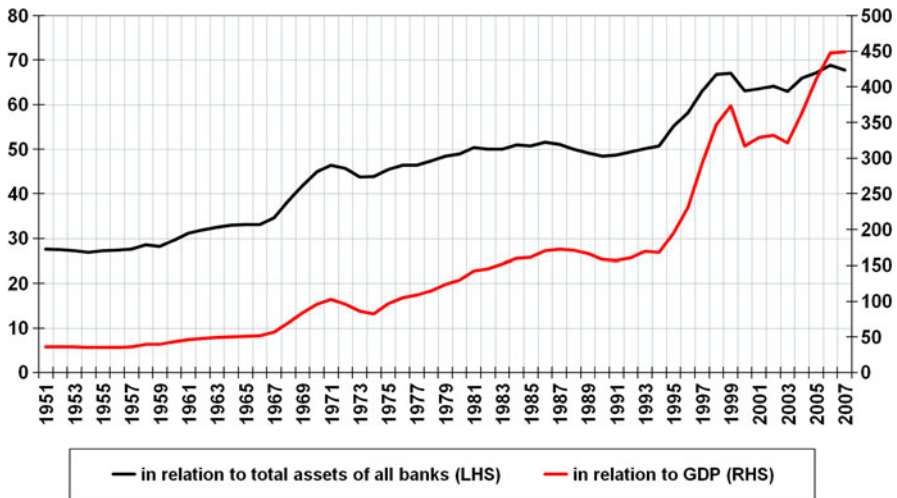


Fig. 2 Total assets of the big banks in Switzerland. In relation to total assets of all banks and to GDP, as a percentage. *Source:* SNB

and in terms of deposits, the two big Swiss banks each have market share of around 35 percent. In addition, UBS alone accounted for one-third of liabilities on the domestic interbank market in 2007 (Swiss Federal Council 2008).

2.2.1 TBTF as a specific form of systemic relevance

According to ‘financial fragility hypotheses’, the financial sector is inherently unstable (Goodhart et al. 2006); it is especially vulnerable to systemic risks on account of its actual structure. The size of a financial institution is thus regarded as an indicator of its systemic relevance. In their attempts to define viable criteria by which to gauge the systemic relevance of particular elements of the financial system, the IMF, BIS and FSB (2009a) also listed size as the number one factor. The nature of TBTF is to combine the attribute of systemic relevance with the size of financial institutions (and especially banks). A TBTF regime is also distinct, therefore, from the sort of industrial policy measures aimed at supporting big businesses that are utilised in the non-financial sector of an economy, where size is often regarded as linked to the employment intensity of regional enterprises or their importance to the value chain (Fig. 3, top right).⁷

⁷ “There are fundamental differences between our largest financial firms and commercial or industrial companies” (Krimminger, 2009). Support measures in the real economy must be assessed much more critically than the TBTF policy under discussion here because ultimately they are motivated by industrial policy (SVR 2009; Sinn 2009). However, in terms of distribution policy, there is no reason why employees of Opel in Germany or General Motors in the USA should have less right to their jobs being rescued than the employees of UBS or the Bank of America; the same applies to support measures benefiting shareholders and creditors.

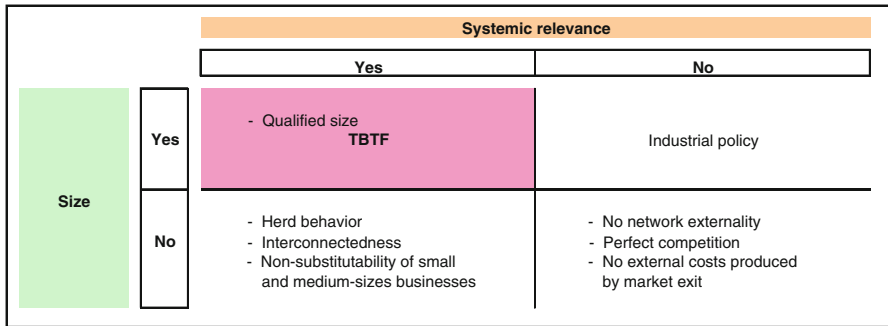


Fig. 3 Size and systemic relevance as a feature of TBTF. *Source:* Own diagram

At the same time, it would be wrong to assume the terms TBTF and systemic relevance are interchangeable. TBTF only covers one partial aspect of systemic relevance, albeit an important one. Moreover, not every large financial institution per se necessarily meets the TBTF criterion; in fact, the precondition for this is a kind of ‘qualified’ size associated with high functional significance, strong interconnectedness and appropriate exposure to risk on the part of the institution. Therefore, although size is a necessary criterion for TBTF, it is not sufficient in itself (Fig. 3, top left).

We must also bear in mind that large financial institutions are not the only source of systemic risk in the financial sector. The IMF, BIS and FSB (2009a) cite two reasons for this in their report: firstly, the financial system comprises financial markets, financial instruments and the financial market infrastructure as well as financial intermediaries, and all these elements of the system are of potential systemic importance. The resultant challenges in terms of the macro-prudential supervision of financial markets go beyond the TBTF problem (Bank of England 2009). Secondly, size is only one of three criteria by which systemic relevance is measured (alongside interconnectedness and the quality of non-substitutability). According to Raaflaub (2010, p. 50), the herd mentality in particular is a challenge for governments and supervisory authorities that must not be underestimated. As long as small financial institutions are acting alone, they pose no major risk to the financial system but where small and medium-sized financial institutions act collectively, they can pose a threat to the entire system. In this regard, Thomsen (2009) raises the correlation problem of ‘too many to fail’⁸ (Fig. 3, bottom left).

2.2.2 A viable definition of systemic relevance

If we assume that size can only justify a TBTF regime where combined with systemic relevance, we must ask ourselves what systemic relevance actually means. The communication of 5th November 2008 by the Swiss Federal Council contains

⁸ “The too many to fail problem ... requires that a group or subset of institutions be classified as jointly systemic” (Thomsen 2009, p. 4). Added to this are regimes described as ‘too interconnected to fail’ (Bernanke 2009) or ‘too systemic to fail’ (Rajan 2009).

an implicit and politically viable definition of the term. In it, a big bank is defined as systemically important where its collapse would destabilise a financial system for the long term and, at the same time, have an impact on the real economy.⁹ To that extent, the Swiss Federal Council definition accords with that of the IMF, BIS and FSB (2009a): "... this paper defines systemic event broadly. In particular, it is the disruption to the flow of financial services that is (1) caused by an impairment of all or parts of the financial system; and (2) has the potential to have serious negative consequences for the real economy."

3 The financial system as a network

There is no doubt that a viable definition of systemic relevance founded on specific criteria is highly important as regards the implementation of political measures. Realisation of the term in respect of policy should, however, be based on a theoretical analysis of the causes of systemic risks. Various theoretical explanations for the emergence of systemic risks may be found in the literature.¹⁰ De Brandt and Hartmann (2000) appraise the term 'systemic risk' from the angle of a systemic event triggered by a shock: at first, this initial shock may affect only one element in the system before spreading to other institutions or markets by a process of contagion or a domino effect. In the field of network economics, this is referred to as network externality or spillover (IMF 2009a; Haldane 2009).

The three most significant contagion channels in the context of the TBTF problem are as follows:

- Processes of contagion explained by the specific structure of bank balance sheets or quasi-banking financial institutions. Banks finance long-term investment and loans by means of short-term deposits; the conversion process is known as maturity transformation. This leads to 'rollover risks', which to a degree are bank-specific. By contrast, the insurance business in itself is traditionally regarded as less susceptible to liquidity crises: insurance liabilities are long-term, so the problem of maturity transformation has less of an impact (ECB 2009, p. 160ff.).
- 'Fire sales' represent a means of contagion in the financial sector, albeit one that is initiated through the asset side of a balance sheet (Brunnermeier et al. 2009). Where market players are pressurised into selling securities in sufficient quantities to cause a deterioration in prices, the problems of individual banks can transfer to other financial institutions (market liquidity). This contagion channel can leave institutions with solvency problems through no fault of their own¹¹; and given their size, insurance companies and banks can pose certain risks to the

⁹ Spillover within the financial system is described as horizontal contagion; consequences for the real economy are classed as vertical contagion.

¹⁰ In general, two sources of systemic risk are distinguished: (1) risks arising from the aggregation of individual risks and (2) network risks (Bank of England 2009, p. 1).

¹¹ The problem is exacerbated by the anticyclical effects of certain financial reporting standards (fair value); this also applies to the insurance sector (ECB 2009).

stability of a system. Insurance companies in particular hold large quantities of government and corporate bonds.¹²

- In addition, big banks perform systemically important tasks in the area of payment transactions and contribute to the functioning of the financial market infrastructure (Weber et al. 2004; Swiss Federal Council 2008, p. 16). Where big banks find themselves unable to fulfil these tasks, this will impact on the financial system and the real economy.

State support measures are justified where the collapse of a bank could potentially have a seriously adverse effect on the stability of the wider financial system. In complex systems, however, contagion and domino effects cannot clearly be identified or quantified in empirical terms. For this reason, it is almost impossible to predict which financial institutions will meet the criterion of systemic relevance before the event.¹³ As the Lehman Brothers case shows, contagion is something that can be underestimated; many people also voiced doubts as to the systemic relevance of another financial institution, AIG. The application of a TBTF policy by the American state in the autumn of 2008 must then be seen as a failure of policy. This is not particularly surprising: policy failures are a familiar problem, especially where linked to the influence of the financial lobby (Johnson 2009; Johnson and Kwak 2010). There is no reason to suppose that when the functioning of certain markets turns out to be less crisis-resistant than originally assumed, the familiar danger of government failure should decrease accordingly as if to compensate.

4 TBTF and the costs of market exit

TBTF policy is aimed at preventing the exit of banks from the market by means of state support. Behind this aim is a political intention to avoid incurring economic loss as a consequence of a large financial institution collapsing. However, this does not alter the fact that a TBTF regime fundamentally contradicts the notion of a competitive market. The idea of competition is founded on the basic requirement of free exit from a market, whereby enterprises may withdraw from the market without being confronted by legal restrictions or, in particular, external costs as a result. In this way, competition can act as a form of natural selection, ejecting uneconomic companies from the market. Any policy that aims to prevent certain organisations exiting the market thus strikes at the heart of an orderly market economy. Hildebrand (2009a) expresses the dilemma as follows: “If we are committed to a market-based system, the financial system of the future must expose financial institutions of all sizes and structures to the ultimate test of the market place. The very definition of a market economy is that it must allow for failure as a sanction of excessive risk taking or managerial incompetence. In the event that large, systemically relevant financial firms face the threat of failure in a next crisis, the financial system of the future must allow for their orderly resolution. Such a system

¹² Credit default swaps constitute another link between insurance companies and banks (ECB 2009).

¹³ Various empirical measures for quantifying systemic risk are discussed by the IMF (2009a), Bank of England (2009) and Zhou (2009).

needs to ensure that failure of a large bank does not have serious negative consequences for the provision of financial services to the real economy.”

4.1 Qualified size and the potential damage of market exit

In the context of TBTF policy, there is an assumption that economic damage caused by the collapse of a financial institution tends to increase according to the size of that institution. The correlation is illustrated in Fig. 4 part a, in which the curving broken line represents the potential damage caused by a collapse in relation to the size an institution. The damage may be interpreted as the present value of all consequential damage of insolvency at a particular time. Size is taken to be ‘qualified size’, and thus a measure of systemic relevance. As the graph shows, the insolvency of a single small bank in isolation affects only the owners, creditors and (at most) deposit insurance, so the potential damage is relatively limited. As the size of a financial institution increases, so does the risk that the failure thereof could initiate a systemic event of appropriate magnitude to impact on the real economy.

The negative consequences of market exit are difficult to quantify empirically. They comprise (1) the losses from the bankruptcy directly borne by the owners and non-insured creditors of the bank, and (2) the external costs. These external costs include:

- All costs to the financial system caused by the collapse of the bank and the associated losses of assets. To these must be added payments linked to deposit protection which, as the case of Iceland shows, can amount to a considerable burden for a national economy: at the present time, Iceland is facing liabilities from guaranteed depositor protection of almost €40 billion (€12,000 per inhabitant);
- The impact of destabilisation of the financial system on the real economy, both nationally and globally. The effects of a credit crunch on growth and employment are a particular focus of discussion; functional disruption to payment transactions as outlined above can also have a severe effect on the real economy. These costs may be quantified as reduced turnover, productivity or growth (Swiss Federal Council 2008);
- Fiscal budgetary costs, i.e. the repercussions of the bank insolvency on the public budget. These fiscal costs are mainly the product of the growing need for state expenditure on socio-political measures to stabilise the economy. Moreover, where the withdrawal from the market of a big bank were to be approved and not prevented, state support measures would be necessary to ensure proper functioning of the financial market infrastructure and the markets; this would have to be added to the budgetary costs of market exit.
- The case of Iceland clearly illustrates that in extreme cases, the insolvency of a systemically relevant bank can also jeopardise fiscal autonomy and a country’s currency. Iceland was the first industrialised western country in 36 years to approach the International Monetary Fund (IMF) for financial assistance; the Icelandic government subsequently implemented realignment measures under the terms of a standby arrangement with the IMF (2008). Referring to the

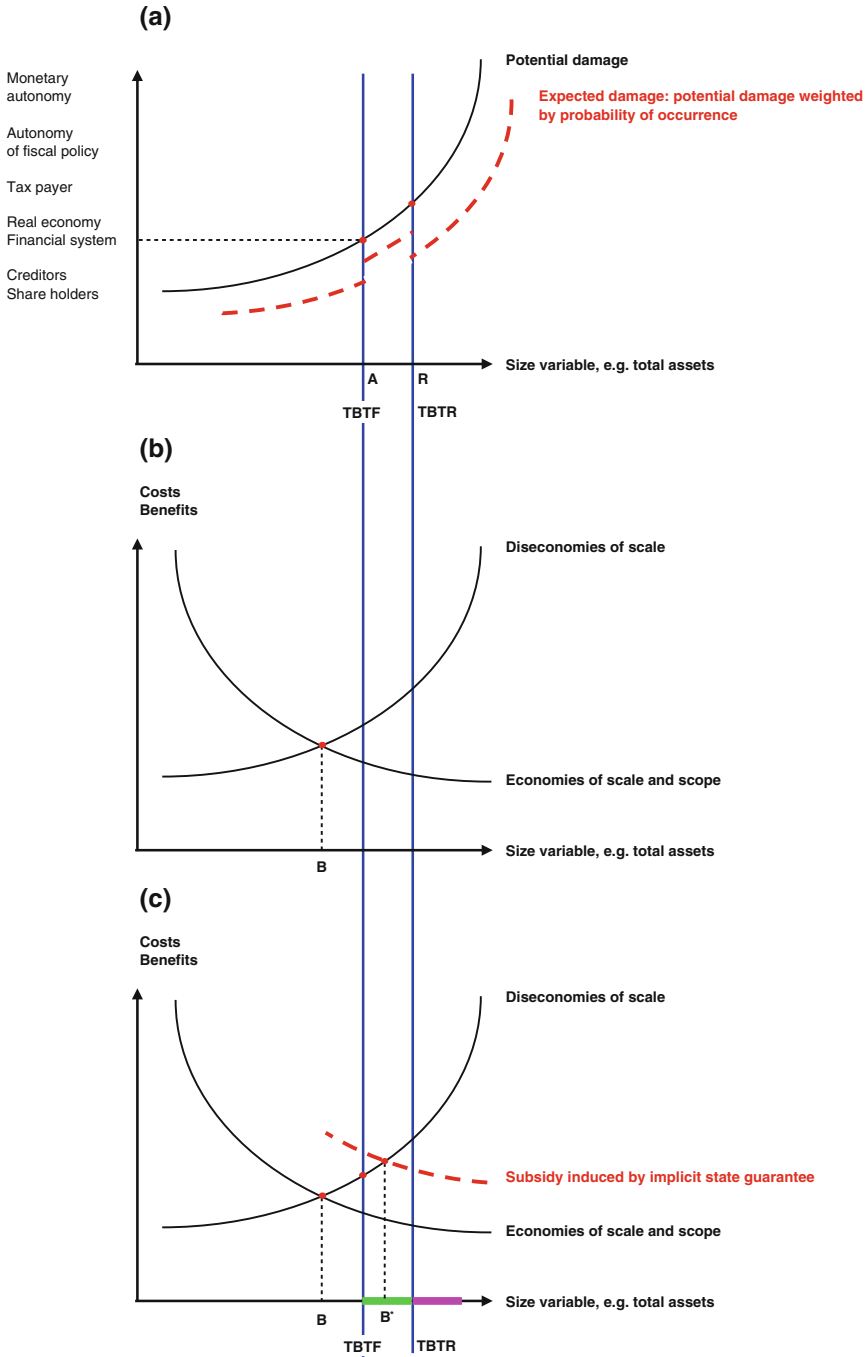


Fig. 4 The TBTF problem. **a** Damages resulting from the failure of a financial firm. **b** Financial firm with a certain business model. **c** Impact of the state guarantee for the growth of the financial firm. *Source:* Own diagram

possible EU accession of Iceland, the OECD (2009, p. 20) expressed the following recommendation in September 2009: “If it were to become an EU member, Iceland would be advised to seek entry into the euro area as soon as possible, so as to reap the economic benefits.... By joining the euro area, Iceland would share the benefits of the ECB’s credibility, including lower risk premiums.”

4.2 The critical sizes: TBTF and TBTR

Ultimately, the size of a banking institution whose collapse would potentially cause socially unacceptable levels of damage and thus attract state rescue measures is a political judgment.¹⁴ The costs and benefits of a TBTF policy must be weighed against each other in the political decision as to whether a bank meets the TBTF criterion. The benefits of a bailout, which lie in circumventing potential macroeconomic damage as a result of an insolvency, must be balanced against various costs, including:

- the fiscal costs and risks associated with a bailout; these are determined by the losses of the financial institution.
- the redistributive effects associated with a fiscal commitment. The reason for this is clear: state bailouts are paid for by the taxpayer whilst solvency assistance, by contrast, is largely to the benefit of creditors and possibly even the owners of a rescued bank. Redistributive effects are discounted if state solvency assistance is rendered whenever the macroeconomic damage of market exit exceeds the costs of a government bailout.
- medium-term and long-term losses to welfare and efficiency that can occur as a by-product of a TBTF regime. These losses are linked to behavioural changes on the part of creditors, owners and decision-makers within the banks (e.g. moral hazard).

In Fig. 4 part a, the critical size at which a bank becomes TBTF is indicated as A. Where a financial institution larger than this is threatened with insolvency, the state will intervene with capital injections or guarantees. Brewer and Jagtiani (2009) pinpoint this critical threshold at total assets of US\$100 billion for the American market. Indeed, with year-end 2008 the US government required all bank holding companies (BHC) with assets exceeding US\$100 billion to participate in the Supervisory Capital Assessment Program (SCAP) as part of the ongoing supervisory process. This affected a total of 19 US banks, with JPMorgan Chase & Co topping the list with total assets of US\$2,175 billion; the smallest BHC affected was KeyCorp, with total assets of US\$105 billion. By selecting these banks, the federal regulators have publicly revealed that they will help supply more capital to any of them if necessary. This has been widely interpreted as meaning that, “... those 19 banks essentially have been labeled TBTF” (Pozen 2010, p. 209).

¹⁴ A FINMA strategy document (2009, p. 7) states that, the damage potential of large, complex institutions must be restricted to a level deemed economically and fiscally appropriate from a political perspective.

As painful as rescue measures such as these may have been for many governments in 2007 and 2008, those administrations were in a relatively exclusive position. For as long as national states have the financial means to bail out their banks, fiscal Armageddon cannot break out; but where these means are exhausted, the situation has the potential to cause tremendous problems. As mentioned earlier, the banks in Iceland had expanded to a size that made it impossible for the state to recapitalise or otherwise support them (Flannery 2010). The OECD (2009) summed up the circumstances as follows: “By the end, the size of the banks far exceeded the limited capacity of the Icelandic authorities to rescue them.” In Fig. 4 part a, the TBTR threshold is labelled R. In empirical terms, however, it is not clear where to draw this line for a national economy. Buitert (2009) expresses the concern that on the international stage, the fiscal scope for rescue measures has declined substantially following the crisis of 2007/2009.

5 Welfare losses arising from TBTF policy

5.1 Moral hazard

The aim of a TBTF regime is to keep a financial system operating and ensure financial stability. The benefits of TBTF policy are not aimed at any particular group of society; potentially, given that all economic players rely directly or indirectly on a fully functioning financial system, all of them stand to gain from its stability. TBTF policy is applied by the state to uphold a commonly utilised public good. Despite this, state support measures linked to a TBTF policy do directly favour specific economic entities such as non-insured creditors, shareholders and, in certain circumstances, employees and management boards. The benefits that these groups derive from TBTF policy are tantamount to an implicit state guarantee against high private losses (Hildebrand 2009b, p. 3).

An implicit state guarantee, which is hard to justify in terms of distribution policy, can also give rise to welfare losses. A company not required to face the consequences of inefficient activity will be under less pressure to do business in a cost-efficient manner; implicit state guarantees thus encourage the wasteful use of resources within that company. Moreover, they create the risk of moral hazard behaviour amongst beneficiaries: creditors in particular have no incentive to perform their monitoring function in respect of a bank. This aspect is highlighted by Bair (2009) in connection with the present crisis: “Investors and creditors have lacked strong incentives to perform due diligence because of the perception that these institutions are so large and complex that the government would have to bail them out.” As Sinn (2003) points out, bank shareholders already have the incentive to take excessive risks because of their limited liability. Depositors and creditors are meant to pressurise banks to adopt a conservative policy on capital and liquidity,¹⁵

¹⁵ In addition, even the most vigilant creditors who display no moral hazard behaviour or do not benefit from an implicit state guarantee will not consider the network externalities (systemic risk components) described above in their risk assessment.

but since the state guarantee takes away any such incentive from creditors, decision makers at the banks can act more freely—and use that freedom to expand the bank’s risk profile. An implicit state guarantee thus makes it more likely that a bank will actually fail.¹⁶ For De Brandt and Hartmann (2000), the expected damage caused by a bank failure is the product of potential damage and its probability of occurrence (depicted by the broken line in Fig. 4 part a). Given that financial institutions whose size falls between the A and R thresholds are provided with a state guarantee, there is a risk that damage is more likely to occur in this band; the effect is illustrated by the upward shift of the broken line in Fig. 4 part a.

The empirical importance of the moral hazard effect is disputed. One statistical survey carried out by Barclays Capital, recently quoted in the press but so far unpublished, challenges the connection between the size of a bank and its likelihood of failure. Referring to the events of 2007 and 2008, the study says, “... there was hardly a detectable size-related pattern to the banks that ‘failed’ in this crisis” (Alloway 2010). Paul Krugman (2009) also contends that the moral hazard problem is not central to TBTF: “History says that financial players will overreach even if they don’t expect a bailout—in general, I believe that the dangers of moral hazard are overrated”.

5.2 Suboptimal size of firms

Even if an implicit state guarantee has no major influence on the likelihood that a financial institution will fail, it is still conceivable that institutions could change their behaviour in other ways. The implicit state guarantee may be regarded as a subsidy to an affected bank expressed in the form of lower costs of refinancing. Rime (2005) shows that this has an effect on the share prices of big banks; Mishkin (2005) contends that economies of scale are thereby created which in turn generate inducements for individual banks to expand beyond their optimal operational dimensions. Figure 4 part b portrays the example of a bank whose optimal size—determined in all cases by the business model of the establishment in question—is pinpointed at B, the point at which the curve representing marginal economies of scale intersects with the line showing marginal diseconomies of scale (Calomiris 2009). Since the implicit state guarantee provides an additional economy of scale that becomes effective between A and R, the relevant curve shifts upwards and to the right in Fig. 4 part c (shown as a dotted line). This gives us a new optimal size labelled B’. Although in this example the bank has an incentive to expand into the protected area, the size of establishment indicated at B’ is less than optimal from a macroeconomic standpoint. Geithner (2009) also holds that a state guarantee provides an incentive for banks to grow: “There were many causes for the growth of these large, leveraged, and interconnected financial firms over the past few decades but important among them was the assumption on the part of investors and others that these firms would receive government assistance if they ran into trouble.”

¹⁶ For Stern and Feldman (2004), this connection raises a policy dilemma: by aiming to prevent crises of contagion in a financial system through protection measures, TBTF policy increases the risk of a systemically important institution failing. This in turn puts the stability of the system at greater risk.

Brewer and Jagtiani (2009) found in an empirical study that banks are prepared to accept considerable costs in order to reach a size that will enable them to benefit from implicit state guarantees. The study looks at the US banking system in the years 1991–2004, a period in which an explosion in mergers was seen in the USA, with banks consenting to significant expenses in order to enter into mergers that would enable them to assume critical TBTF dimensions. Nonetheless, the implicit state guarantee in itself cannot explain the emergence of these so-called mega-banks. By the end of 2007, the total assets of Citigroup stood at US\$2,188 billion; those of Bank of America amounted to US\$1,721 billion and those for JP Morgan Chase & Co totalled US\$1,562 billion; in the same year, the assets of Swiss mega-bank UBS were CHF2,275 billion and those of Credit Suisse stood at CHF1,361 billion. These figures are many times the potential TBTF threshold, and the fact that the banks in Iceland had expanded far in excess of the TBTR limit leads to the same conclusion. We must therefore ask ourselves what is driving the growth of mega-banks, especially as empirical studies can scarcely account for the economies of scale or scope in those banks (Rime and Stiroh 2003; Feng and Serletis 2010). Citing the state guarantee as an explanation for the existence of big banks is unsatisfactory and distorts causation. Mega-banks render de facto state guarantees inevitable; however, their vast scale cannot be solely attributed to the state guarantee.

5.3 Social appetite for risk

Ultimately, the issue of the optimal size of a firm is more than a business problem; the size of banks can also produce external advantages and disadvantages. In particular, economies benefit from the big banks where those institutions deliver a contribution to the integration of global financial markets (Turner 2009b). The Financial Stability Board (FSB 2010) reiterates that regulatory measures aimed at dealing with the TBTF problem must not jeopardise the global integration of financial markets. For many years, moreover, there was a prevailing view that big banks were generally more secure, that is to say less susceptible to market risks and thus able to stabilise the financial system. The fact that large banking institutions regularly swallowed up smaller competitors threatened with closure in the past was viewed as another economic advantage of scale. Big financial institutions, it was argued, promote innovation and macroeconomic growth.

However, it is also deeply problematical to focus solely on the economic net benefits and yield deriving from the existence of big banks. On the contrary, society needs to take account of the volatility of this yield in its political considerations—especially when defining the rules on size limits. The best way to allow for the volatility of social returns depends on social risk aversion, or society's appetite for risk in an economy. Where a society is sufficiently averse to risk, the danger of an economic catastrophe resulting from the collapse of a mega-bank at some future point can render the existence of mega-banks socially unacceptable. This is the case even where the net economic benefits of size are likely to be positive.

6 TBTF: a challenge to policy and regulation

It is clear from the theoretical deliberations of the preceding paragraphs that in policy terms, the TBTF problem can be addressed by two categories of measures (King 2009). The first category assumes a fundamental acceptance in political and regulatory circles that certain institutions are TBTF. In such cases, the regulatory effort must be aimed at minimising the likelihood of imminent insolvency for these institutions. The main instruments of regulation to achieve this are stricter capital and liquidity requirements (BCBS 2009; SFBC 2008b). Measures of this kind seek to counteract the externalising of risk by the banks; other measures aim to improve the transparency of financial markets in order to consolidate market discipline (Kellermann 2010). Efforts to achieve tighter, internationally coordinated financial market supervision pursue the same objective (Viñals and Fiechter 2010).

The second category of measures is essentially focused on preventing financial institutions from qualifying as TBTF, underlining the message that “too big to fail is too big to exist”. In practical terms, this either means that big banks must be limited to a size that enables them to withdraw from the market without state intervention being triggered, or that the regulators develop procedures that allow for an orderly resolution for big banks without thereby generating high external costs to society (BCBS 2009; Expertenkommission des Bundes 2010). The Federal Deposit Insurance Corporation (FDIC) stresses that, “... we must have a resolution mechanism designed to deal with a small, but critical, subset of complex financial firms” (Krimminger 2009). This category includes the instrument of ‘living wills’ for financial institutions (FSA 2009).

As far as the size restriction on banks is concerned, a distinction may be drawn between direct and indirect measures (Hoenig et al. 2009). Indirect measures are aimed at creating disincentives for firm growth by exacerbating business-related diseconomies of scale in such a way that size becomes an expensive luxury to financial institutions. This may be achieved by means of progressive, size-related capital and liquidity requirements, although special bailout taxes for big banks are also an option (as in the ‘financial crisis responsibility fee’ proposed by the Obama administration). Also under discussion are constraints to the universal banking model and retraction of the liability limitations of bank owners and managers. Direct size restrictions are already being applied under competition law. Whilst size restrictions are legitimised by the ‘allocation function’ of government, it is difficult to see why securing financial stability does not justify similar state intervention (Kellermann 2011). Irrespective of the value of the various reform proposals, the important point is to develop a set of regulatory tools that reinforce the disciplinary power of competition and thus help markets achieve their potential.

7 Closing remarks

One of the main lessons of the financial crisis of 2007/2009 is that TBTF is irreconcilable with the principles of a free enterprise economy. In times of crisis, a TBTF regime defends itself with the high, unpredictable and socially unacceptable

costs associated with the failure of large and systemically important financial institutions. At the same time, however, this policy affects the foundations of an orderly market economy. Where large institutions are shielded against insolvency by state support measures, the market foregoes its disciplinary purpose. There is also a social risk that the financial problems of failing big banks will exceed the bailout capacity of public authorities and central banks. It is evident that globally active banks in particular are expanding to dimensions that are scarcely sustainable for their home countries. Whether such a size is operationally optimal or a distortion linked to the subsidy of a state guarantee, is not important; what matters is that in political terms, the collapse of a big bank can threaten the stability and autonomy of an entire economy.

References

- Alloway T (2010) BarCap calculates the cost of ‘Too Big Too Fail’. <http://ftalphaville.ft.com/blog/2010/01/05/119876/barcap-calculates-the-cost-of-%E2%80%98too-big-too-fail/>
- Bair C (2009) “Too big to fail” must go, remarks by FDIC chairman Sheila Bair to the economic club of New York, 27 April 2009
- Bank of England (2009) The role of Macroprudential Policy, Bank of England, discussion paper, Nov 2009
- BCBS—Basel Committee on Banking Supervision (2009) Consultative proposals to strengthen the resilience of the banking sector announced by the Basel Committee, 17 Dec 2009, Basel
- Bernanke B (2009) Financial reform to address systemic risk, speech at the council on foreign relations, 10 March 2009
- BIS—Bank for International Settlements (2004) 74th. Annual report, Basel
- Brewer E, Jagtiani J (2009) How much did banks pay to become too-big-to-fail and to become systemically important? Federal Reserve Bank of Philadelphia, working papers No. 09-34
- Brunnermeier M, Crockett A, Goodhart C, Persaud AD, Shin H (2009) The Fundamental principles of financial regulation, Geneva reports on the world economy 11
- Buiter W (2009) Too big to fail is too big, Finanzsysteme zwischen Krise und Zukunft, 1. Wegelin Strukturierte Produkte Konferenz
- Calomiris C (2009) In the World of Banks, Bigger Can Be Better: We can solve the Too-Big-To-Fail Problem without losing the benefits of a global financial system. Wall Street J, 19 Oct 2009. <http://online.wsj.com/article/SB10001424052748704500604574483222678425130.html>
- COP—Congressional Oversight Panel (2009) Assessing Treasury’s strategy: six months of TARP, April oversight report, 7 Apr 2009
- De Brandt O, Hartmann P (2000) Systemic risk: a survey, European Central Bank, ECB working paper No. 35
- ECB—European Central Bank (2009) Financial stability review, December 2009
- ECB—European Central Bank (2010) Structural indicators for the EU banking sector, Jan 2010
- Expertenkommission des Bundes (2010) Schlussbericht der Expertenkommission zur Limitierung von volkswirtschaftlichen Risiken durch Grossunternehmen, 3 Oct 2010, Bern
- Feng G, Serletis A (2010) Efficiency, technical change, and returns to scale in large US banks: Panel data evidence from an output distance function satisfying theoretical regularity. *J Bank Finance* 34:127–138
- FINMA—Swiss Financial Market Supervisory Authority (2009) Finanzmarktkrise und Finanzmarktaufsicht, Bern, Sept 2009
- Flannery MJ (2010) Iceland’s failed banks: a post-mortem, report of the special investigation commission (SIC), Appendix 3. 12 Apr 2010
- FSA—Financial Services Authority (2009) A regulatory response to the global banking crisis: systemically important banks and assessing the cumulative impact. Turner review conference discussion paper 09/04, September

- FSB—Financial Stability Board (2010) FSB welcomes US proposals for reducing moral hazard risky, Press release, 22 Jan 2010. http://www.financialstabilityboard.org/press/pr_100122.pdf
- Geithner T (2009) Written testimony, house financial services committee, financial regulatory reform, 23 Sept 2009
- Goodhart CAE, Sunirand P, Tsomocos DP (2006) A model to analyse financial fragility. *Economic Theory* 27:107–142
- Haldane AG (2009) Rethinking the financial network, speech delivered at the financial student association, Amsterdam, April 2009
- Heller D, Kuhn H (2009) Die Nationalbank als Lender of Last Resort, Schweizer Nationalbank (ed) Die Schweizerische Nationalbank 1907–2007, S. 433–439, Verlag Neue Zürcher Zeitung, Zürich
- Hildebrand PM (2009a) Policy implications of the financial crisis, Swiss National Bank, speech on the conference ‘from fragility to stability’, University of Geneva, 18 Nov 2009
- Hildebrand PM (2009b) Einleitende Bemerkungen beim Jahresend-Mediengespräch der Schweizerischen Nationalbank, 10 Dec 2009, Zürich
- Hoening TM, Morris CS, Spong K (2009) Resolution for Financial Companies that pose Systemic Risk to the Financial System and overall economy, Federal Reserve Bank of Kansas City, revised version, Dec 2009. <http://www.kc.frb.org/speechbio/resolutionprocess.09.03.09.pdf>
- IMF—International Monetary Fund (2008) Executive board approves US \$ 2.1 Billion Stand-By Arrangement for Iceland, Press Release No.08/296. 19 Nov 2008
- IMF—International Monetary Fund (2009a) Global financial stability report: Oct 2009, Washington
- IMF—International Monetary Fund (2009b) Fiscal implications of the global economic and financial crisis, IMF staff position note SPN/09/13, June 2009, Washington
- IMF, BIS and FSB (2009a) Report to G20 Finance Ministers and Governors: Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations, Prepared by Staff of the International Monetary Fund and the Bank for International Settlements, and the Secretariat of the Financial Stability Board, Oct 2009
- IMF, BIS and FSB (2009b) Report to G20 Finance Ministers and Governors: Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations—Background Paper, Prepared by Staff of the International Monetary Fund and the Bank for International Settlements, and the Secretariat of the Financial Stability Board, Oct 2009
- Johnson S (2009) The quiz coup, the Atlantic online, May 2009
- Johnson S, Kwak J (2010) 13 Banks—the wall street takeover and the next financial meltdown. Pantheon Books, New York
- Jordan T (2009a) Die Geldpolitik der Schweizerischen Nationalbank in stürmischen Zeiten, Referat Geldmarkt-Apéro, Zürich, 19 March 2009
- Jordan T (2009b) Geldpolitik in stürmischen Zeiten am Beispiel der Schweizerischen Nationalbank, Die Volkswirtschaft: Das Magazin für Wirtschaftspolitik 7/8, S. 23–26, Bern
- Kellermann K (2010) Strategie für eine optimale Finanzmarktaufsicht, Die Volkswirtschaft, Magazin für Wirtschaftspolitik, Eidgenössisches Volkswirtschaftsdepartement und Staatssekretariat für Wirtschaft (ed) Nr. 4, 8–11, Bern
- Kellermann K (2011) Wie zähmt man einen Drachen? Reformvorschläge zum Umgang mit Megabanken, erscheint in: Perspektiven der Wirtschaftspolitik
- King M (2009) Speech by Mervyn King, Governor of the Bank of England, to Scottish business organizations, Edinburgh, Tuesday, 20 Oct 2009
- Krimminger M (2009) Federal deposit insurance corporation on too big to fail: the role of Bankruptcy and Antitrust Law in financial regulation reform before the committee on the judiciary, subcommittee on commercial and administrative law, U.S. house of representatives, 22 Oct 2009
- Krugman P (2009) Banking on the Brink, The New York Times, 23 Feb 2009
- Mishkin FS (2005) How big a problem is too big to fail, NBER working paper No. 11814, Cambridge, MA
- OECD (2009) OECD Economic Surveys: Island, Sept 2009, Paris
- Pozen R (2010) Too big to save—how to fix the US financial system. Wiley, New Jersey
- Raaflaub P (2010) Regulierung und Aufsicht zur Stärkung der Marktkräfte. In: Baumann C, Pöhner R (eds) Neustart: 50 Ideen für einen starken Finanzplatz Schweiz. NZZ Libro, Zürich
- Rajan RG (2009) Too systemic to fail: consequences, causes and potential remedies, Written statement to the Senate Banking Committee Hearings, 6 May 2009
- Rime B (2005) Do “too big to fail” expectations boost lange banks issue ratings? Paper presented at the Workshop of the Research Task Force of the Basel Committee in Vienna on 20 Apr 2005

- Rime B, Stiroh KJ (2003) The performance of universal banks: evidence from Switzerland. *J Bank Finance* 27:2121–2150
- Scherer FM (2010) A Perplexed Economist Confronts Too Big to Fail, Harvard Kennedy School, Faculty Research Working Paper Series RWP10-07, Harvard University
- SFBC—Swiss Federal Banking Commission (2008a) Bankeninsolvenz. Situation in der Schweiz und auf internationaler Ebene, Jan 2008
- SFBC—Swiss Federal Banking Commission (2008a) EBK und Großbanken einigen sich auf höhere Eigenmittelziele und die Einführung einer Leverage Ratio, Medienmitteilung der Eidgenössischen Bankenkommission, 4. Dezember, Bern
- SIGTARP (2010) Office of the special inspector general for the trouble asset relief program, advancing economic stability through transparency, coordinated oversight and robust enforcement. Quarterly report to congress, January 30, 2010. http://www.sigtarp.gov/reports/congress/2010/January2010_Quarterly_Report_to_Congress.pdf
- Sinn H-W (2003) Risktaking, limited liability, and the competition of bank regulators. *FinanzArchiv* 59:305–329
- Sinn H-W (2009) Kasino-Kapitalismus: Wie es zur Finanzkrise kam, und was jetzt zu tun ist, Econ: Ullstein Buchverlage GmbH, Berlin
- SNB—Schweizer Nationalbank (2009) Geschäftsbericht 2008, Zürich
- Stern GH, Feldman RJ (2004) Too big to fail: the Hazards of Bank Bailouts. The Brookings Institution, Washington, DC
- Stern GH, Feldman RJ (2009) “Too big to fail” and the market turmoil of 2007 and 2008. In: Mayes D, Pringle R, Taylor M (eds) Towards a new framework for financial stability. Central Banking Publications, London, United Kingdom, pp 173–184
- SVR—Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung in Deutschland (2009) Die Zukunft nicht aufs Spiel setzen, Jahresgutachten 2009/10, Wiesbaden
- Swiss Federal Council (2008) Botschaft des Schweizer Bundesrates zu einem Massnahmenpaket zur Stärkung des schweizerischen Finanzsystems vom 5. Nov 2008
- Thomsen JB (2009) On Systemically Important Financial Institutions and Progressive Systemic Mitigation, Federal Reserve Bank of Cleveland, Policy Discussion Paper, 27 Aug 2009
- Turner A (2009a) “Too-big-too-fail” Banks and Cross Border Capital Flows, Schreiben von Adair Turner an das FSB Standing Committee on Supervision and Regulatory Cooperation vom 7. Sept 2009
- Turner A (2009b) Interview in der Wochenzeitung „Die Zeit“ vom 4. Juni 2009
- US Department of the Treasury (2010) Troubled asset relief program—two year retrospective, Office of Financial Stability, Oct 2010
- Viñals J, Fiechter J (2010) The making of good supervision: learning to say “No”, IMF staff position note SPN/10/08, 18 May 2010
- Weber W, Gisiger M, Bruchez PA (2004) Die Schweizer Finanzmarktinfrastruktur und die Rolle des Staates, Ökonomenteam der Eidgenössischen Finanzverwaltung (EFV), Working Paper No. 3, Bern
- Zhou C (2009) Are banks too big to fail?, De Nederlandsche Bank, DNB Working Paper No. 232, Dec 2009
- Zürcher B, Held T (2009) Wie man systemrelevante Grossbanken besser diszipliniert, Neue Zürcher Zeitung, 07.05.2009, Zürich