

Excerpt from the book:

*Casino Capitalism*

*How the Financial Crisis Came About And What Needs To Be Done Now*

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Chapter 4: “Why Wall Street Became a Gambling Casino“

pp. 70 – 93

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## CHAPTER 4

## Why Wall Street Became a Gambling Casino

### Blind gambling instinct?

The title of this book 'Casino Capitalism' reflects the feelings evoked in many people by the events on the financial markets. The losses piled up in the financial crisis and the speculative business models that have been revealed are beyond anything conceivable and indeed suggest a comparison between the world of finance and a gambling casino. If within the span of one year more than 100 banks collapse or are partially nationalized and 60 per cent of all major US investment banks disappear because they were no longer able to shoulder the risks incurred, something must have gone very wrong.

But what was it precisely that pushed the financial world near the abyss? Was it psychological idiosyncrasies of the type observable in gambling casinos or lottery players? Was it a blind gambling instinct that pushed the banks into ruin? Or was it something else?

The answer is multifaceted: it was a gambling instinct, but not a blind one like that seen in gambling casinos. People who gamble in a casino must expect losses on average and in the long run. Although it is possible for winnings to exceed the stakes, the longer one gambles the more certain it becomes that one will not get back one's stakes. A private casino offers games with a negative mathematical probability to win, which is exactly the reason

why casinos are good business. Even the state frequently participates in this business by means of licences and taxes. In roulette, one loses on average one-thirty-seventh or 2.7 per cent of one's stake, as there are thirty-seven numbers in the game, one of which belongs to the casino. The lottery is also a gamble whose attractiveness may only be explained by a blind gambling instinct, as the expected values of the payoffs are often 50 per cent below the stakes.<sup>1</sup>

On Wall Street things were different. Wall Street banks took part in a gamble that in itself had a positive probability of winning, a gamble in which the payoff, on average, is not below but above the stakes. After all, today's losses were accompanied by extremely high profits for many years. The speculation of the investment banks, which is at the heart of the events, was based on a rational business model that may have similarities to gambling but differs from it as it promises huge private profits in the long run at the expense of society. This does not make things any better but shows where the problems lie.

The basic principle that is responsible for the huge profits of the investment banks, of all banks even, is the legal institution of limited liability, as limited liability permits earning profits from mere risk-taking by privatizing profits and socializing losses. To understand this phenomenon, we should first take a look at the history of limited liability.

### Limited liability as capitalism's secret of success

Whereas the beginnings of companies with limited liability may be traced back to Arabic and Byzantine commercial customs, even to Babylonia,<sup>2</sup> this type of company truly blossomed in medieval Italy in the form of the so-called *commenda*.<sup>3</sup> A *commenda* defined the legal relationship between

<sup>1</sup> M. Adams and T. Tolkemitt, 'Das staatliche Lotteriewesen: Eine wirtschaftswissenschaftliche und rechtspolitische Analyse des Deutschen Toto-Lotto-Blocks', *Zeitschrift für Rechtspolitik*, 11 (2001), 511–18. See also *Focus*, 29 (2005), 134.

<sup>2</sup> H. Hattenhauer, *Europäische Rechtsgeschichte* (C. F. Müller, Heidelberg, 1999), 268 f., and C. S. Lobingier, 'The Natural History of the Private Artificial Person: A Comparative Study in Corporate Origins', *Tulane Law Review*, 13 (1938–9), 41 n., here p. 56.

<sup>3</sup> For a detailed overview of the historical origins of the *commenda* and the role of limited liability in maritime law see M. Weber, *Die Geschichte der Handelsgesellschaften im Mittelalter* (Ferdinand Enke, Stuttgart, 1889), English translation: *The History of Commercial Partnerships in the Middle Ages* (Roman and Littlefield, Lanham, 2003).

an investor (*commendator*), a managing partner (*commendatarius*), and the outside world and may be seen as the origin of the modern corporation. The *Kommanditgesellschaft* (limited commercial partnership), a popular German legal form of business organization, directly dates from it. Similarly the *kommanditnoje tovarishchestvo* in Russia, the *usaldusühing* in Estonia, or the *komanditní společnost* in the Czech Republic relate more or less directly to this company form. The basic idea of a *commenda* consisted in dividing profits according to the capital shares and labour input and, in any case, investors were liable to the outside creditors with their investment only but not with their private assets.<sup>4</sup> In the twelfth century, the *commenda* was of decisive importance in the economic growth of the north Italian cities of Genoa, Florence, Pisa, and Venice. Risk consolidation among the partners, combined with the limitation of liability to the outside, allowed the lucrative but dangerous sea voyages of the Italian merchants to North Africa and the Near East that made Venice at the time the richest city in the world.<sup>5</sup>

Today, the most important form of a company with limited liability is the joint stock corporation. It originated in the Netherlands. Considered as the first stock corporation is the Verenigde Oost-Indische Compagnie, VOC (United East India Company, usually called Dutch East India Company in English), founded in 1602.<sup>6</sup> The Dutch East India Company organized large parts of seagoing trade, by means of which the Dutch became wealthy in the seventeenth and eighteenth centuries. Like the Italian *commenda*, the Dutch East India Company had two types of owners, the simple partners (*participanten*), who only invested money, and the managing partners (*bewindhebbers*). But the special characteristic of the Dutch East India

<sup>4</sup> G. Lastig, *Die Accomendatio: Die Grundform der heutigen Kommanditgesellschaften in ihrer Gestaltung vom XIII. bis XIX. Jahrhundert und benachbarte Rechtsinstitute* (Verlag der Buchhandlung des Waisenhauses, Halle, 1907), 129, and A. Renaud, *Das Recht der Kommanditgesellschaften* (Tauchnitz, Leipzig, 1881), 9. See also J. Meyer, *Haftungsbeschränkung im Recht der Handelsgesellschaften* (Springer, Berlin, 2000), 50–1.

<sup>5</sup> See also H.-W. Sinn, 'Gedanken zur volkswirtschaftlichen Bedeutung des Versicherungswesens', *Zeitschrift für die gesamte Versicherungswissenschaft*, 77 (1988), 1–27.

<sup>6</sup> A predecessor was the Muscovy Company, chartered in England in 1555, which organized the trade of the British Crown with Moscow. However, it did not have tradable stocks, organized only a few sea voyages, and did not find any imitators. See W. B. Truitt, *The Corporation* (Greenwood Press, Westport, Conn., 2006), 3.

Company was that even the managing partners were only liable up to the amount of their investment and that there was no direct liability of partners and shareholders beyond corporate assets.<sup>7</sup> The company expanded its capital base in 1616 by issuing stocks, whose owners' liability also only extended to their investment. These were the first stocks in the world. The limitation of liability, combined with the possibility to collect capital from many small investors, was the model of success to which the Netherlands owed its rise to one of the most important merchant nations of the world.<sup>8</sup> The model also showed weaknesses, however, reminiscent of the current crisis of the financial system. After the Dutch East India Company had been crippled by excessive dividend payments, it went bankrupt in 1798. At the time, the acronym VOC was translated as 'vergaan onder corruptie': passed away under corruption.

The British East India Company also followed the Dutch example. It was founded in 1600 under the patronage of Queen Elizabeth and acquired great wealth for the Crown and for England under Sir Francis Drake. However, it did not adopt an organizational form comparable to the Dutch model until 1613 and then also issued stocks, whose owners were only liable up to their investment. Although the East India Company acquired immense wealth for England, it developed into a state within a state with a private army of finally 260,000 men that was twice the size of that of the Crown. Having been put under state supervision in 1773, it was deprived of its economic functions in 1833 and formally dissolved in 1873.<sup>9</sup>

Following these historical beginnings, legal foundations for stock corporations were laid in many countries in the nineteenth century. For example, on 9 November 1843, the first stock corporation law came into being in Prussia. It introduced the form of legal person, regulated the issuance of stock, and allowed for the limitation of liability to the invested capital.<sup>10</sup>

<sup>7</sup> J. De Vries and A. Van-der-Woude, *The First Modern Economy: Success, Failure and Perseverance of the Dutch Economy, 1500–1815* (Cambridge University Press, Cambridge, 1997), 385; Truitt, *The Corporation*, 3–4.

<sup>8</sup> See J. Huizinga, *The Autumn of the Middle Ages* (University of Chicago Press, Chicago, 1996).

<sup>9</sup> Truitt, *The Corporation*, 5.

<sup>10</sup> See T. Baums, *Gesetz über die Aktiengesellschaften für die Königlich Preussischen Staaten: Vom 9. November 1843; Text und Materialien* (Scientia Verlag, Aalen, 1981), 216.

Among the initial great successes of the new joint stock corporation law was the construction of the railroad network in Germany, since only the issuance of railroad stocks permitted the collection of the immense funds necessary for the construction of the railway system. Later companies like Siemens, AEG, Telefunken, or Daimler were able, thanks to the stock corporation law, to achieve international reputations. Half a century after the introduction of the stock corporation law, on 20 April 1892, the legal form of GmbH, the limited liability company, was instituted that also granted small firms with a small number of owners the privilege of the limitation of liability. It proved to become the main driver of the development of efficient German small and medium-sized businesses.

Great Britain created the first legal basis for the establishment and registration of stock corporations with the Joint Stock Companies Act of 1844. It did not include a general limitation of liability for the stockholders. Nevertheless, a few years later, the Limited Liability Act of 1855 and the Joint Stock Companies Act of 1856 implemented the limitation of liability, as the interest in stock companies had remained small due to the direct liability of partners and shareholders beyond corporate assets. The Companies Act of 1862 also extended the possibility of limited liability to companies that were not organized as stock corporations.<sup>11</sup>

In the USA, corporations developed step by step at the state level in the late eighteenth and early nineteenth centuries. The New England states initially held on to the principle of unlimited liability.<sup>12</sup> The state of New York, however, permitted limited liability as early as 1811, New Hampshire in 1816, and Connecticut in 1818. Massachusetts followed in 1830.<sup>13</sup> Regardless of the legal rules, limited liability agreed by private law was a regular component of the corporation as early as the eighteenth

<sup>11</sup> B. D. Hunt, *The Development of the Business Corporation in England, 1800–1867* (Harvard University Press, Cambridge, Mass., 1936).

<sup>12</sup> For example, the first general establishment law of Massachusetts of 1808 only knew unlimited liability: the privilege of limited liability was only granted as an individual concession in exceptional cases. On the development of corporations and limited liability in the USA cf. A. Bruns, *Haftungsbeschränkung und Mindesthaftung* (Mohr Siebeck, Tübingen, 2003), 86 n.

<sup>13</sup> K. F. Forbes, 'Limited Liability and the Development of the Business Corporation', *Journal of Law, Economics, and Organization*, 2 (1986), 163–77, here 172.

century; it was indeed the true reason for the establishment of corporations.<sup>14</sup> The courts also increasingly treated limited liability as normal for corporations, unless the opposite had been agreed.<sup>15</sup> Later, toward the end of the nineteenth century, another legal form developed in the USA that also granted the possibility of limited liability to smaller, unincorporated firms, comparable to the German GmbH.<sup>16</sup>

While banks in Germany could make use of the limited liability provisions from the outset just like other firms in the real economy, in Anglo-Saxon countries such provisions were made available much later. In the United Kingdom, limited liability for banking corporations was allowed only in 1879, after the liquidation of the Glasgow Bank in 1878 had imposed high additional reserve liabilities on its shareholders.<sup>17</sup> In the USA, shareholders had to endure double liability (and in Colorado even triple liability) until well into the twentieth century. They not only had to cover losses with their bank's own equity, but, if that did not suffice, resort to their private wealth as well, which of course would require the issuance of registered shares in the first place. In the worst case, they had to tap their other sources of wealth for the same amount as their share of stock in the bank in order to meet the bank's creditors' claims. The double liability common during the nineteenth century in the Commonwealth countries still existed at the end of

<sup>14</sup> 'Limited liability was recognized as an attribute of an incorporated company, almost invariably without specific mention; indeed it was a principal object desired through incorporation.' J. S. Davis, *Essays in the Earlier History of American Corporations*, no. 4, 'Eighteenth Century Business Corporations in the United States' (Harvard University Press, Cambridge, Mass., 1917), 317.

<sup>15</sup> J. D. Cox, T. L. Hazen, and P. H. O'Neal, *Corporations* (Aspen Law & Business, New York, 1997), 30.

<sup>16</sup> In the states of Pennsylvania, Virginia, New Jersey, Michigan, and Ohio the 'Limited Partnership Association', a predecessor of the 'Limited Liability Company' (LLC), was created toward the end of the 19th century, an organizational form that closely resembles the German GmbH. But it took until the 1990s before all US states adopted the LLC laws. See A. Bruns, *Haftungsbeschränkung und Mindesthaftung*, 86 n.

<sup>17</sup> Starting in 1826, banks in Great Britain were allowed to establish themselves as corporations with unlimited liability of the registered stockholders. An effective limitation of the risk to the shareholders resulted in 1879 through the possibility of issuing registered transferable shares of stock. See C. R. Hickson and J. D. Turner, 'Shareholder Liability Regimes in Nineteenth-Century English Banking: The Impact upon the Market for Shares', *European Review of Economic History*, 7 (2003), 99–125.

the 1920s in thirty-five US states. It was not until 1933 and 1935 that a federal law granted the banks the option of limiting their liability to the corresponding shareholders' equity, and only in 1953 was the current legal basis established in the USA, when the option was turned into a rule.<sup>18</sup>

These historical developments were the basis of the capitalist system as we know it today. It allowed the corporation to collect money from many small investors that was needed by big companies. And the corporation needed limited liability and the protection of private wealth to convince the small stockholders to participate.

The limited liability corporation is the key success model of capitalism. It alone allowed the tremendous accumulation of capital that was the prerequisite for industrialization and economic well-being of the Western world and still is. In a speech delivered in 1911, Nicholas Murray Butler, President of Columbia University, explained the reasons for America's economic success: 'I weigh my words when I say that in my judgment the limited liability corporation is the greatest single discovery of modern times... Even steam and electricity are far less important than the limited liability corporation, and they would be reduced to comparative impotence without it.'<sup>19</sup>

### Undercapitalized investment banks

The dynamics of the capitalistic system, to which the standard of living of the Western world is owed, goes hand in hand with the corporation and limited liability. As such, limited liability is a necessary and beneficial legal concept.

However, the privilege of limited liability was expanded so much by the US investment banks, and not only by them, that in the end they were hardly liable at all because they worked only with minimal stocks of equity. Investment banks, until well into the 1970s, were all organized as partnerships, and as such offered their market partners the unlimited

<sup>18</sup> See N. C. Quigley, 'Shareholder Liability Regimes in Banking', in P. Newman, M. Milgate, and J. Eatwell (eds.), *The New Palgrave Dictionary of Money and Finance* (MacMillan Press, London, 1992), 441-2. See also A. Leijonhufvud, *A Modest Proposal*, unpublished text, UCLA and University of Trento 2010. Leijonhufvud pleads for reintroducing double liability for the managers' stock options.

<sup>19</sup> Cited after S. M. Bainbridge, 'Abolishing Veil Piercing', *Journal of Corporation Law*, 26 (2001), 479-535, here 479.

**Table 4.1** Equity asset ratios and returns on equity of the five big US investment banks in 2006

	Equity asset ratio (%)	Return on equity before tax (%)	Return on equity after tax (%)
Bear Stearns	3.5	25.9	16.9
Goldman Sachs	4.3	40.7	26.7
Lehman Brothers	3.8	30.8	20.9
Merrill Lynch	4.6	25.1	18.2
Morgan Stanley	3.2	25.7	21.1

*Notes:* According to somewhat stricter European rules, all equity asset ratios would have been even lower than reported in the table. For example, American accounting law allows balance sheet abridgement in case of mutually interlaced claims among financial institutions, which is not possible in Europe. Cf. Chapter 7. Equity asset ratio: ratio of equity to total balance sheet volume. Return on equity: ratio of profits to equity (including retained earnings).

*Sources:* Individual annual reports.

private liability of their owners. But they evolved eventually into corporations in order to limit their liability to their equity capital. Goldman Sachs, today the world's largest investment bank, took this step only in 1999. In addition, investment banks expanded their business volume so much in relation to their equity capital that the liability ultimately shrank to a merely symbolic residue. Table 4.1 presents the equity asset ratios of the five big American investment banks in 2006, before the financial crisis erupted. These ratios ranged from only 3 per cent to about 4.5 per cent. In view of the mostly very risky transactions of the investment banks, this is very little as it means that business volume was leveraged by a factor of 22 to 33 of what would have been possible if only equity had been lent. Although this enormous leverage ensures high returns on equity, it also generates enormously high risks, initially for the bank itself, then for its creditors, and finally for the taxpayers, who must pay for the rescue packages in the end.

Some may presume that investment banks were so undercapitalized because stockholders did not have more money at their disposal. That this presumption is incorrect is shown in Table 4.1. Accordingly, in good times, the investment banks' returns on equity amounted to 25 per cent and more. Goldman Sachs had a return on equity of more than 40 per cent. Even after-tax returns still averaged 21 per cent in 2006. At such a return, equity doubles in less than four years if profits are retained. Had the banks forgone



dividends for a few years without expanding their business volume, enough equity would have been available to cope with any crisis.

The reason for the low equity asset ratios was not the poverty of the investors but their ambition to get paid out as much money in dividends as possible in order to shelter it from risk. It was important to leave the smallest possible amount of capital in the bank, as whatever remained there could be lost in turbulent times. And when the collapse was near, the slogan was: 'Time to bail out.' It was symptomatic that the investment bank Bear Stearns paid out dividends in the amount of 76 per cent of book profits in 2007, shortly before its bankruptcy.

### Mark to market

The distribution of profits was facilitated by the accounting rules of the International Financial Reporting Standard (IFRS). According to IFRS, the principle of 'mark to market' and its variant 'fair value' applied. Accordingly, the assets of banks and other companies must always be carried on the balance sheet at their current market price, actual or hypothetical, even if nothing was sold. Thus, in the phase of general stock price increases (see Figure 2.5), high profits had to be reported. And although business was no longer good, correspondingly high dividends, financed by debt, were distributed to the stockholders. To the outside world, this behaviour was explained as the principle of 'shareholder value', that is, the creation of value for the stockholders, although it simply reflected the effort to safeguard the profits achieved and not leave them to the vagaries of the banking business.

Such a development would not have been possible under continental European accounting rules, as the 'lowest-value principle', anchored there for reasons of creditor protection, demands values for the balance sheet based on historical purchase prices of the assets or market values, whichever is the lower of the two. According to this principle, in times of rising stock prices, unrealized profits would not have shown up in the balance sheet, but rather, saved from stockholders' access, would have formed a buffer for bad times as hidden or 'silent' reserves. Unfortunately, all big financial institutions worldwide use the IFRS today, which contributed substantially to the increasing undercapitalization of the banks, in turn adding to their susceptibility to crises.

Undercapitalization was not only caused by the distribution of dividends but often also by the fact that banks allowed borrowed funds to increase faster than the equity that rose due to retained earnings. The banks pursued the objective of strengthening the effect of leverage on the return on equity. This effect, too, was facilitated by the close to market valuation of the assets, as in times of rising stock prices the banks borrowed more because they had become richer on paper, and finished with a reduced equity asset ratio when stock prices normalized again.<sup>20</sup> Whether the banks' undercapitalization was created in this way or by increased dividend distributions, it agreed in any case with the wishes of the stockholders, who demanded from their CEOs a reduction of the equity asset ratio to a level that just sufficed for the normal course of business. The undercapitalization that politicians condemn today was simply part of the investment banks' business model.

Undercapitalization made investment banks susceptible to crises and implied that in critical times they had too little equity to buffer against losses. If a business volume of 100 units of money is only backed up by three to four-and-a-half units of equity, it can easily happen that in times of crises the losses eat up the equity and lead to bankruptcy. This is the real cause of the collapse of American investment banks.

### Investment bankers as soldiers of fortune: the role of the Bloos Rule

Even worse was the fact that the low level of equity combined with limited liability induced the stockholders to demand ever riskier business models in order to increase their profits. It goes without saying that nobody is interested in losses. But if there is a chance to increase profits in good times at the expense of incurring losses in bad times, which because of limited liability one must bear only in part, the risk becomes more attractive. If some of the losses are borne by the creditors, who do not get their money back or get it from the state that acts as the rescuer, it pays to take the risk. Even if risky investment strategies fail to be more profitable on average than safe strategies, they still benefit the stockholders because upward deviations are

<sup>20</sup> This effect resulted in a strong pro-cyclicality of the system of accounting. See Chapter 7, section on Basel II, as well as the references given there.

privatized as profits and downward deviations are socialized as losses of the creditors or the taxpayers. The greater the dispersion of the profit distribution, that is, the higher the possible profits and losses, the bigger will be that part of the distribution that is cut off by limited liability and the higher the expectation of company profits. I have referred to the artificial risk preference, which is created in this way, as the *Bloos Rule*, others called the phenomenon *gambling for resurrection*.<sup>21</sup> The Bloos Rule is the microeconomic core of the financial crisis, and it explains the difference from gambling, where the average private gain is always negative. Chapter 8 (see especially Table 8.1) will shed some light on the empirical validity of the rule insofar as it demonstrates that during the crisis many important financial institutions, such as Citigroup, Wachovia, Washington Mutual, Fannie Mae, Freddie Mac, Merrill Lynch, or UBS, indeed incurred losses far exceeding their equity capital.

<sup>21</sup> According to the English saying 'It's like getting blood out of a stone' (=Bloos), cf. H.-W. Sinn, *Ökonomische Entscheidungen bei Ungewissheit* (Mohr Siebeck, Tübingen, 1980), esp. 172–92 (Dissertation, accepted by University of Mannheim in 1977, English edition: *Economic Decisions under Uncertainty* (North-Holland, Amsterdam, 1983), esp. 163–82) and H.-W. Sinn, 'Kinked Utility and the Demand for Human Wealth and Liability Insurance', *European Economic Review*, 17 (1982), 149–62. At the time, this theory was developed within an abstract risk-theoretic framework (expected utility theory and  $\mu - \sigma$  theory) and applied to the insurance market, currency speculation, and a number of other examples, where limited liability imposes various kinds of lower bounds on an agent's wealth level. Later the term 'gamble for resurrection' was used to describe the phenomenon. See M. Dewatripont and J. Tirole, 'Efficient Governance Structure: Implications for Banking Regulation', in C. Mayer and X. Vives (eds.), *Capital Markets and Financial Intermediation* (Cambridge University Press, Cambridge, 1993), 12–35, and M. Dewatripont and J. Tirole, *Prudential Regulation of Banks* (MIT Press, Cambridge, Mass., 1994), 97 and 113. For early contributions using the same incentive mechanism, though not the term, see J. Stiglitz and A. Weiss, 'Credit Rationing in Markets with Incomplete Information', *American Economic Review*, 71 (1981), 393–410; G. J. Benston, M. Carhill, and B. Olovsson, 'The Failure and Survival of Thrifts: Evidence from the Southeast', in R. G. Hubbard (ed.), *Financial Markets and Financial Crises* (NBER Books, National Bureau of Economic Research, Cambridge, Mass., 1991), 305–84. Later the theory was further developed in a model with banking and regulatory competition. See H.-W. Sinn, *The New Systems Competition*, Yrjö-Jahnsson Lectures (Blackwell, Oxford, 2003), chapter 7, 150–77: 'Limited Liability, Risk-Taking and the Competition of Bank Regulators'. For the history of economic thought on the artificial increase in risk-taking because of limited liability, see M. Hellwig, foreword to H.-W. Sinn, *Risk Taking, Limited Liability, and the Banking Crisis* (Selected Reprints, Ifo Institute, Munich, 2009). On the

A key example that is helpful in understanding this book and which is not atypical for the banking business may explain why it pays for a banker to behave like a soldier of fortune. Imagine a bank with assets of 100 units of money has backed these assets with 5 units of equity and 95 units of debt. The bond rate is 5 per cent, and at this interest rate the bank is able to issue securities, that is, to borrow for one year. Assume that the bank has the choice between two business models, a safe one and a risky one, both consisting of investments running for periods of one year. Using the safe business model, the bank can invest the available funds at 5 per cent. Using the risky model, it can invest the funds at 6 per cent but must expect to lose the invested funds at a probability of 1 per cent due to borrower insolvency. In other words, with the risky business model, on average, the invested money will be lost in one of 100 years and will generate a rate of return of 6 per cent in 99 of these hundred years.

If the bank chooses the safe business model, it does not make a profit on the borrowed and reinvested funds, but achieves the market return of 5 per cent on its equity. That is very little and too little to run a bank. Interesting business models look different.

Let us therefore look at the risky strategy. It is presented in Figure 4.1. At first glance the risky business model does not seem to improve things, as on average a return on investment of only 5 per cent is achieved. If, at a probability of 99 per cent, a return of 6 per cent is achieved and at a probability of 1 per cent a return of minus 100 per cent, the average return is also just 5 per cent.<sup>22</sup> Why invest at all, if one cannot get a higher return on average than with the safe strategy but must bear the risk?

The answer is that the return the bank earns on its investment is not the same as the return on equity. Return on equity is much higher, as the bank can pocket the risk mark-up of a one percentage point higher rate of interest in the normal case, whereas it can pass on most of the losses to others in case

general importance of the principle of liability in business decisions, see W. Eucken, *Grundsätze der Wirtschaftspolitik*, 1st edn. (Francke und Mohr, Bern, 1952), here cited according to the 7th edn. (Mohr Siebeck, Tübingen, 2004), 279–85.

<sup>22</sup> That is the bankers' rule of thumb. Precisely calculated, the expected (average) rate of return is 4.94%: at a probability of 99% the value of the assets rises to 106 at the end of the period and at a probability of 1% it is zero, implying an expected value of the assets of 104.94% at the end of the period.

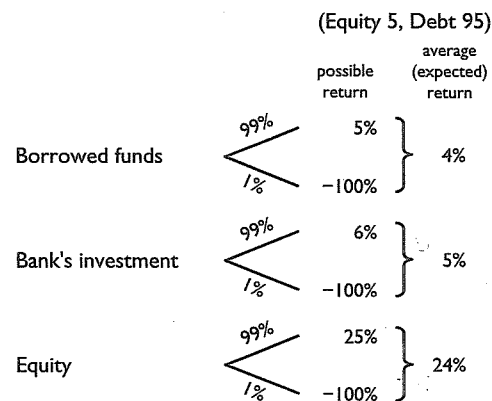


Fig. 4.1 The bank's calculation

of catastrophe. The share of its equity in the loss of 100, which happens with a probability of 1 per cent, is only 5 units.

In case of success, that is, at a probability of 99 per cent, the assets of the bank increase from 100 to 106, and its debt rises, due to the 5 per cent interest rate, from 95 to 99.75. The difference between 106 and 99.75 is earned by the bank. Its equity thus increases from the initial 5 to 6.25 units, implying a rate of return of 25 per cent. This number reminds us of the 25 per cent that has frequently been defined by bankers and analysts as the target rate.<sup>23</sup> So much for the normal case, when everything goes well.

At a probability of 1 per cent, the bank does not get its money back and goes bankrupt. In this case, its return on equity amounts to minus 100 per cent.

If success and failure are combined, the expected average return of 25 per cent declines to 24 per cent, which is still an amazing figure.<sup>24</sup>

<sup>23</sup> For example, the CEO of Deutsche Bank said: 'In Germany, 25 percent before taxes yields 16 percent after taxes. This is the absolute minimum today, the best banks far exceed this,' cited after 'Ackermann verteidigt Stellenabbau bei der Deutschen Bank', *WirtschaftsWoche*, 26 February 2005. <http://www.wiwo.de/unternehmer-maerkte/ackermann-verteidigt-stellenabbau-bei-der-deutschen-bank-91671/>.

<sup>24</sup> Again calculated according to the rule of thumb. More precisely, the rate of return is only 23.75%. As equity increases to 6.25 at a probability of 99% and is zero at a probability of 1%, the expected equity at the end of the period is  $(99\% \times 6.25) + (1\% \times 0) = 6.1875$ , implying a rate of return of 23.75% on an initial equity of 5, as  $6.1875/5 = 1.2375$ .

The special feature of this business model is that the high rate of return on equity is generated by the mere risk, i.e. not from the bank's assets yielding a genuine risk premium. According to the assumptions, the expected average rate of return of the risky strategy is not higher, at 5 per cent, than that of the safe strategy. Responsible for this result is the limitation of liability, which implies that in case of failure the losses are passed on to others.

These others are the creditors of the bank. The creditors were promised a nominal rate of return of 5 per cent, but they only receive this return if everything goes well, i.e. at a probability of 99 per cent. At a probability of 1 per cent, they will not get their money back because the bank is bankrupt. Their expected average rate of return is therefore only 4 per cent.<sup>25</sup>

The above example clarifies why the Bloos Rule or limited liability represents the core of the business model with which the American investment banks achieved their high profits. It is of much greater relevance, however, as most banks work according to a similar pattern, in America as well as in Europe and elsewhere. Thus, American mortgage banks, which foisted mortgages on homeowners for risky projects (Chapter 5), as well as European banks, which acquired securities from these banks that were based on such mortgages (Chapter 6), acted on a similar principle. The only difference from the investment banks is that the investment banks had to consider fewer regulatory barriers in their business and therefore incurred even more risks, resulting in higher profits than can be achieved by regular banks. Whereas regular banks in continental Europe were satisfied with a still considerable return on equity of 15 per cent, American investment banks had a minimum target of 25 per cent.

All banks make profits by taking on risks. They not only achieve normal risk premiums like those determined by the market for risky investments compared to less risky ones, but generate their returns also from the chance of passing the risk of losses onto other shoulders in view of the minute equity asset ratios with which they work. The losses to be borne by the banks' creditors in case of failure appear in the normal course of business as special profits that can be proudly reported on the balance sheet, to the delight of the shareholder.

<sup>25</sup> As the borrowed funds rise from 95 to 99.75 at a probability of 99% and decline to zero at a probability of 1%, the expected value of the creditors' claims is 98.75 at the end of the period, yielding a rate of return of 3.95% on the initial lending volume of 95.

While the artificial incentive for risk-taking shown in the example results from limited liability as such, an even stronger incentive would prevail if the bank can reckon on the government helping out if something goes wrong. If the bank anticipates that the government will consider it too big to fail and therefore bail it out in the case of equity losses, the bank's expected rate of return with the risky business model will even be higher. Suppose the 5 units of equity assumed in the example are the minimum that the supervision agency requires and that the government will cover any loss beyond that to protect the equity base of the bank. The worst that can happen to the bank now is that it is unable to earn a return on its equity, ending the period with the same 5 units with which it started. In this case, the 1 per cent chance gives a rate of return of 0 per cent instead of -100 per cent, and the expected (average) rate of return is nearly 25 per cent.<sup>26</sup> The bail-out guarantee increases the artificial incentives for risk-taking even further.

It increases these incentives only a bit, however, as the protected equity is close to zero anyway, if compared with the bank's business volume. In the above example, the bail-out guarantee makes the rate of return to equity just one percentage point higher, 25 per cent instead of 24 per cent, which is not a big difference. The only important difference could lie in the behaviour of the banks' creditors. As the bail-out guarantee reduces their interest in distinguishing between risky and safe banks, they would not be available as potential guards helping to ensure more prudent bank behaviour. However, for reasons that will be explained below (in the section on *Lemon trade*), it is unlikely that they can perform such a control function satisfactorily anyway, due to lack of information.

### Why sustainability was lost sight of

The extent to which banks consciously choose to gamble is difficult to determine. For regular banks, ignoring catastrophic risks is not even a conscious decision of the executives. Rather, this lax approach is 'business as usual' that has emerged from market conditions. Bank executives plan for

<sup>26</sup> With a probability of 99% the equity is 6.25 at the end of the period, and with a probability of 1% it is 5. Thus the expected end-of-period equity is 6.2375 which is 24.75% higher than the initial equity of 5.

the normal case and in their minds push aside the catastrophic case that only occurs with a small probability anyway. That is also why it remains unclear whether practising bankers have ever been aware of the calculations based on the Bloos Rule, presented in Figure 4.1. When asked before the crisis about the chance of a systemic catastrophe wiping out market partners, bank managers responded by the shrugging acknowledgement that these would be strokes of fate that could not be averted anyway. The fact that in that case the creditors or the state would have to pay the bill was implicitly accepted. In any case, they were not willing to reduce their aspirations for their normal business only to reduce the excess of losses over equity in the improbable case of catastrophe. Whether losses would be incurred that would be bigger than equity by a factor of twenty or only by a factor of ten, as in the example considered above, was completely irrelevant, in the same way as it is irrelevant whether following an earthquake the ruins of one's home burn down or not. In the course of normal business the topic was simply irrelevant and not subject to serious consideration by the bank's supervisors. The bankers may not have acted deliberately, but their actions were certainly based on ignorance and the imitation of others' temporarily successful behaviour, as is common in business life and in life in general.<sup>27</sup>

The formal models of risk theory used by the banks' investment managers did not consider the case of a systemic catastrophe, not even as a distant possibility. The investment managers derived their data on profit fluctuations only from normal situations of recent years, taking account only of short-term frequencies resulting in changes of direction from one day to the next. Even the risk of business cycles with typically one upswing and one downswing per decade was not adequately taken into account. As a rule, in calibrating the models the managers were content with statistical data covering only five years, if only because the supervisory authorities did not ask for more. For the periods during which investment bankers earn their money, business cycles already

<sup>27</sup> Economists in general leave it open why they assume that people behave rationally, whether it is because of cognitive decisions or only because there are cultural rules of behaviour that people imitate because they seem to work. Milton Friedman once called this the 'as if' approach, see M. Friedman, 'The Methodology of Positive Economics', in M. Friedman, *Essays in Positive Economics* (University of Chicago Press, Chicago, 1953), 3-43. See also G. Kirchgässner, *Homo Oeconomicus* (Mohr Siebeck, Tübingen, 2000).

represent a small eternity. That is why risks of a century, like those that led to a collapse of the banking system in 1929 and 2008, were not covered. Only the daily ups and downs of stock prices and the normal loan loss ratios of customers were transformed into a probability distribution of total profits. That was the basis of their risk estimates. Other risks, especially those that theoretically result in a collapse of the system once in 100 years, played no part in the datasets and were ignored. The fact that such deficient models were able to prevail is the result of a competitive selection process taking place in fair weather periods only. All of the data generated by these models on the so-called value at risk, the loss limit that would be exceeded at a probability of 1 per cent, underestimated the truth by a multiple factor.

The actors in these processes, the bank executives and their staff, were part of the 'business as usual' and were unable to defy the customary practices of the banking business. Even if they had wanted to, they had no possible means of counteracting and choosing a conservative investment strategy with a lower return on equity, because the financial markets would have immediately punished their behaviour by a markdown of the stock price. The analysts would have denounced the management and demanded its immediate replacement. In addition, a conservatively managed bank would have become at once the target of a hostile takeover by other banks, which knew that they could achieve the usual, higher returns with a change of the business model. Managers of big banks live in constant fear of their company being taken over by competitors. The concentration process is also advancing at great speed in the banking sector, and sometimes one bank swallows another one to prevent being swallowed by an even bigger fish.<sup>28</sup>

There are many good reasons for takeovers, and most of them are based on the possibility of increasing profits by implementing better business models and exploiting economies of scale. One of the reasons, however, is certainly also the attempt to pocket the profits from the described gamble. Banks that rely on conservative business models with high safety and low

<sup>28</sup> The fear of takeovers and mergers was especially great in Germany in recent years, as the abolition of capital gains taxation on the sale of corporate equity cross-holdings by the Schröder government in 2002 set in motion great changes in the company structure. Although this was successful, it did intensify the chase for short-term profits and changed the attitude towards banking business in Germany substantially.

profits are the natural victims of hostile takeovers. For reasons presented above, such business models do not maximize the value of the company and shareholder value but aim at stability and a long life of the company. If a clever management takes over a hitherto conservatively managed bank and then applies the described gambling strategy, the bank can achieve higher earnings and a higher company value because the stockholders are given additional dividends at the expense of the creditors and at the expense of the state. The stockholders of the acquiring bank can share the increase in the company value that is generated by the change in strategy.<sup>29</sup> In view of the permanent danger of being swallowed by someone else, the management of a bank has no choice but to take on risk and to implement the gambling strategy.

Sometimes it is argued that the behaviour of bankers violated the economic rationality assumption and that irrational behaviour or animal spirits are necessary to explain what happened.<sup>30</sup> Such factors may also have contributed to certain aspects of the crisis. However, the excessive risk-taking that results from gambling with limited liability does not necessitate such explanations. The strategy described is highly profitable precisely when banks act rationally, be it conscious rationality or unconscious rationality, as a result of simply imitating successful behaviour. As is often the case in economic decision-making, individual rationality breeds collective irrationality if externalities are involved. In the case at hand, it is the negative externality that bankers impose on their creditors and possibly the taxpayers that induces excessive risk-taking, producing private profits and social losses.

### Puppets on a string

It cannot be stressed enough that the explanation of the banks' gambling is not primarily the false incentives of the bank executives but the false incentives of the shareholders. After all, it is the shareholders who benefit from limited liability. They demand from their banks risky and profitable

<sup>29</sup> Empirically, the stockholders of the acquired bank profit more, however, than the stockholders of the acquiring bank, as a so-called control premium must be paid. See, for example, B. G. Baradwaj, D. R. Fraser, and E. P. H. Furtado, 'Hostile Bank Takeover Offers: Analysis and Implications', *Journal of Banking and Finance*, 14 (1990), 1229–42.

<sup>30</sup> G. A. Akerlof and R. Shiller, *Animal Spirits: How Human Psychology Drives the Economy, and Why it Matters for Global Capitalism* (Princeton University Press, Princeton, 2009).

business models that only function because they entail the advantage of socializing the risk of losses that exceed equity. The problem was not that bank managers did not act in the interest of shareholders, but that shareholders gambled with the money of creditors and taxpayers.

It was the shareholders who forced executive boards to meet high profit targets and banks' supervisors to design the remuneration systems for the managers to induce them to implement the appropriate business models. If the chairman of a bank announces a profit target of 25 per cent, then he does so because the analysts and institutional investors are on his back. Often, the relevant shareholders of the banks are not individuals who do not know the rules of the game but professionals, representatives of the big pension funds and investment companies, who are after the fast high profits. And even if there are no big shareholders, there are the analysts chasing the bank managers. The board chairmen of the big banks spend a substantial part of their time travelling through the world and presenting their strategies to the analysts of the various countries at so-called road shows, trying to convince them of the performance of their companies and to induce them to give 'buy' recommendations to investors for the stocks of their banks.

The much criticized short-termism of the remuneration systems stems from the interest of the shareholders in achieving high profits for the normal case, neglecting the long-term systemic risk for which one is not liable anyway. The remuneration systems of managers are usually constructed in such a way that there is a basic salary enlarged by bonuses in the case of high profits and stock price increases but no 'malus' when losses are made. For example, Anshu Jain, the investment banker resident in London, who used to achieve fairy-tale profits for Deutsche Bank, is said to have frequently earned a multiple of the income earned by the chairman of the management board, Josef Ackermann. Whereas Ackermann earned an income of markedly more than 10 million euros in good years, an investment banker is thought to have earned triple this amount or more, of course without having to fear a loss of wealth in case of failed speculation.<sup>31</sup> The asymmetry of the shareholders' sharing in profits and losses of a company that exists due to

<sup>31</sup> Cf. *Frankfurter Allgemeine Zeitung*, 3 April 2004, p. 21: 'He is said to have earned more than 100 million euros last year', and *Süddeutsche Zeitung*, 25 March 2006, p. 4: 'It is conjectured that he gets perhaps three times as much as the 11.9 million euros that Ackermann took home last year.' (Author's translations.)

limited liability is matched and even exceeded by the asymmetry of the remuneration systems of the bank managers. Under these circumstances it is no wonder then that investment bankers try to gamble in the interest of their shareholders.

Proposals by politicians to create new remuneration systems for managers to induce them to pursue a sustainable business policy, such as those made by some European governments at the G-20 summit on banking regulation in Pittsburgh in September 2009,<sup>32</sup> are not wrong but ineffective because the core of the problem is not the false incentive systems for managers but for shareholders. It is the shareholders who benefit from the Bloos strategy explained above, and it is they who design the incentive schemes for their managers in such a way that they act as soldiers of fortune. In economic terms, they are the principals and the managers are the agents. Or even more bluntly: the shareholders pull the strings in the puppet theatre, and the managers, whom the public blames for the evils they have witnessed in this crisis, are only the puppets. To be sure, sometimes the managers are more than puppets in reality, neglecting the preferences of shareholders. The strings occasionally seem flexible, like rubber bands, and the puppeteers have difficulties controlling the behaviour of the puppets. However, to explain the excessive risk-taking that caused the crisis, it is not necessary to dwell on the subtleties of economic principal-agent models. It is the shareholder value concept itself that points to the heart of the problem. Maximizing shareholder value is not the same as maximizing a bank's contribution to social welfare because of the massive externalities involved in the bank's risk decisions.

The heart of the problem lies in the shareholders' ability to get rid of the liability risk by minimizing their equity capital. A reform of banking supervision must therefore start with the equity rules, as will be described later on in this book, especially since policy-makers have no meaningful way to prescribe remuneration rules to shareholders and their representatives among the banks' supervisors. If shareholders had to be liable with more equity than today, they would prefer less risky business models, as they

<sup>32</sup> See Federal Government of Germany, *EU to Speak with One Voice in Pittsburgh*, Information from the government, 17 September 2009, online at [www.bundesregierung.de](http://www.bundesregierung.de), accessed on 20 October 2009.

would have to bear a higher fraction of the losses, and consequently they would also remunerate their investment bankers and bank executives in a way that would bolster their interest in a sustainable business policy.

These considerations show that an anonymous systemic fault exists, similar to the systemic faults that result in overfishing the world's oceans, the increase of the greenhouse effect, or the overcrowding of roads. In all these cases the search for the guilty parties who could be taken to court or made morally responsible makes no sense, because their misconduct has become the normal case and shows up in thousands of decision-makers, and no single individual can or should be held responsible. Only a change of the institutional framework of doing business, as specified in laws and rules, can solve the problem. This does not mean that those who have violated the laws should not be held responsible. If bankruptcy approaches, tricks are applied and criminal offences pile up. Individual offences must be prosecuted and punished wherever they occur. But the deficiencies of the banking system will not be corrected on these minor battlefields.

### Lemon trade

Some may think that the views expressed in this chapter are too pessimistic. After all, there are still creditors of banks who execute a certain control function that eliminates the risk preference of banks or at least limits it in their own interest. What if the creditors do not want to play the game? What if they do not accept an average rate of return of only 4 per cent instead of the rate of return of 5 per cent promised in the example above? What if they lend their money only to those banks that select safe investment strategies or demand higher interest rates to compensate them for the risk? Would not the shareholders have to bow to this counterpressure?

With similar reasoning, the argument that banks try to minimize their equity in order to shift potential losses to their creditors could be countered: after all, the creditors could change the bank if they consider their transactions too risky. This is indeed the content of the so-called Modigliani–Miller Theorem,<sup>33</sup> to which financial theory accords much importance. According

to this theorem, banks are indifferent to financing their business by equity or by debt because a reduction of the equity asset ratio induces the creditors to demand higher interest rates to compensate for the additional risk they have to bear. Thus, the expected return on equity cannot rise when leveraged banks take more risks, as the increase in interest rates they have to offer their creditors would offset any advantage. In the above example, the creditors would demand a nominal rate of interest of 6 per cent rather than 5 per cent if the bank chooses the risky investment option (abstracting from risk aversion which would imply an even higher demanded rate of interest). This would keep their average rate of return at 5 per cent and limit the bank's average rate of return on equity also at 5 per cent.

The hope for such counteraction is doomed to failure, however. One reason is the implicit government bail-out warranty that creditors expect. If the creditors of the bank can reasonably hope that they will get their money back because the government will not allow a systemically relevant bank to go bankrupt, they do not have to care what the bank really does with their money. For the bank this means that the expected rate of return on equity is lower, the higher the bank's equity stock is, because additional equity reduces the support coming from the state in the case of catastrophe.

Another is the creditors' lack of information. The banking business is much too complicated for outsiders to be able to assess the bankruptcy risk of individual banks. Although creditors are aware of the possibility that banks may go bankrupt and will therefore react to changes in the expected bail-out guarantee (as the Lehman Brothers case has shown), they are not able to differentiate among banks regarding the size of their idiosyncratic bankruptcy risk resulting from the respective business model. As each bank will claim that the money will be safe with it, the creditor cannot rely on the banks' statements. A look at equity asset ratios and the volume of assets also says little about the risk if one does not know how the bank does its investments, how it protects itself against losses by means of credit insurance or derivatives, and how such ratios are to be interpreted.

One could argue that the buyers of financial products are able to rely on experience and reputation and only buy the financial products of those banks with which they or other customers had been satisfied in the past. But this argument fails the test for the sole reason that bankruptcy is an extremely rare event and that one cannot, therefore, gather the necessary experience.

<sup>33</sup> F. Modigliani and M. H. Miller, 'The Cost of Capital, Corporation Finance, and the Theory of Investment', *American Economic Review*, 48 (1958), 261–97.

In the example mentioned, the investment strategy of the banks may be successful for ninety-nine years until bankruptcy occurs in the hundredth year. That is far too much time to be able to learn from experience, especially since numerous changes in the management and in the shareholder structure quickly devalue such long-term experiences.

That is why practitioners can only smile at the Modigliani–Miller Theorem. For them it goes without saying that highly leveraged banks achieve a higher return on equity than banks that operate with large equity asset ratios, even though they may not be aware that this is so, because leveraging means increasing the burden on taxpayers and creditors to the benefit of the bank's owners.

In order for creditors to be able to react to the risk of leveraging they would need profound knowledge of a bank's internal structure and the subtleties of accounting rules, knowledge that only a few specialists possess. Private rating agencies, which evaluate the creditworthiness of banks and investment strategies, employed such specialists and they should have been able to shed light on the investment risks. For reasons to be discussed later in Chapter 6 below, they failed miserably, however.

The bank creditors could have benefited from interpreting the risk coefficients the bank is obliged to publish according to the so-called Basel rules. These are an internationally agreed system of risk weighting of investments, controlled by state supervisory authorities. Very risky investments receive a weight of one, practically safe investments like government bonds receive a weight of zero, and the remaining investments are placed in between according to their riskiness. Dividing equity by the sum of such risk-weighted investments or 'risk positions' yields the so-called Tier 1 ratio that gives the bank's creditors some idea of their risks. However, the USA has not yet implemented the Basel agreement in their domestic banks. Customers of US banks were not even informed about Tier 1 ratios. And in Europe, too, few buyers of bank securities know what a Tier 1 ratio really means, because the complicated structure of the risk weights is difficult to understand.

Financial products issued by investment banks are, therefore, obviously a prime example of lemon goods, a term coined by Nobel laureate George Akerlof.<sup>34</sup> A bad used car is called a lemon. The fact that used cars for sale

are of poorer quality on average than all cars of the same age was explained by Akerlof with the better information of the sellers of used cars. Someone who knows that his car has a hidden defect, like high oil consumption or spark plugs easily clogged by carbon particulates, is more likely to sell it than someone whose car is in good order. Because the buyer cannot easily find the defect when he makes his decision, used cars in good working order do not achieve a higher price than used cars with hidden defects. This is the reason why more than a fair share of used cars with hidden defects wind up on the used-car market, while the good ones continue to be driven by their owners.

The case of bank securities is similar to that of used cars: conservatively managed investment banks selling safe financial products are pushed out of the market, and only a market for lemon products remains. As the conservative banks cannot explain the safety advantage over their competitors to their customers, they will lose their customers when they try to endow their products with a lower rate of interest, as would be appropriate given the higher safety. Or they will lose their shareholders when competition forces them to offer their customers the same rate of interest as the competitors do, because the rate of return on equity that the shareholders could earn is too low. Thus, they will ultimately disappear from the market, being crowded out or taken over by banks that choose more risky business models. This is the key economic problem of the lemon trade. Investment banks and other banks that aimed at high rates of return have been seduced into gambling by the combined effects of limited liability and information deficits and have thereby caused the world financial crisis.

*Competition*, 136–9 and 150–77. See also H.-W. Sinn, 'Limited Liability, Risk Taking and the Competition of Bank Regulators', and H.-W. Sinn, 'Lemon Banking', *Project Syndicate*, April 2008, published in 27 national newspapers in the respective languages, see [www.cesifo.de](http://www.cesifo.de), Ifo Viewpoint No. 94, 2008.

<sup>34</sup> See G. A. Akerlof, 'The Markets for Lemons: Quality, Uncertainty and the Market Mechanism', *Quarterly Journal of Economics*, 84 (1970), 488–500, and H.-W. Sinn, *The New Systems*