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Preprint

Banking 2025: The Bank of the Future

Suggested Citation: Lenz, Rainer (2015) : Banking 2025: The Bank of the Future, ZBW - Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz-Informationszentrum Wirtschaft, Kiel und Hamburg

This Version is available at:

<https://hdl.handle.net/10419/110466>

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Banking 2025: The Bank of the Future

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Developments in information technology are fundamentally changing many traditional business models. Progress in the IT area is bringing about one change in particular: it is reducing search costs and allowing buyers and sellers of products and services to find each other directly on web-based platforms, without the need for a mediator, broker or intermediary. All business models of trade are affected by this development, and this means that financial trade is also affected.

However, bank customers will only turn to the new business model of web-based financial intermediation if the economic advantage of a behavioural change, in which the individual approaches the unfamiliar, is so compelling that the associated transaction costs of learning the new as well as the initial uncertainty of action are justified. Once the number of new users reaches a critical mass, the process of reorganisation is no longer linear and continuous, but advances in bursts and exponentially. This means that, at a certain point in time, the process of system change gains so much momentum that it can hardly be controlled. In view of the inefficiency of the existing banking system as well as the economic superiority of web-based alternatives, it seems that it is only a matter of time before a system change takes place in the banking business.

JEL Classification Numbers: G18, G21, G28, O33

Keywords: banking and financial market regulation, reform of the monetary system, crowdfunding, peer-to-peer lending, web-based financial intermediation, creation of scriptural money, debt economy.

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1 The 'bank' business model in 2015

1.1. Social privileges and their utilisation

In economic textbooks, the bank is usually depicted in its role as an intermediary that collects deposits from individual savers on the liability side of its balance sheet and distributes them on the asset side as credit to the private sector. This intermediary function, i.e. as a simple mediator of capital, would mean that a commercial bank could only lend out the same volume of credit that savers had previously deposited. This, however, is a misconception. Every commercial bank receives two social privileges along with its banking license that enable it to expand its business, regardless of the volume of savings deposits: (1) The option of favourable refinancing via central bank credits, which means that commercial banks always have central bank money at their disposal.¹ (2) The privilege of creating its own deposit money through lending and fractional holding of minimum reserves on deposits. Each time a commercial bank lends out money, it creates new deposit money because the borrower usually has an account with the corresponding commercial bank and the amount of the loan will be credited to this account. If one simply looks at the way balance sheets work, the bank grants a loan on the assets side and credits itself the same amount on the liabilities side as a customer deposit.² Since fractional reserve banking only requires a bank to hold a small fraction of the amount as a deposit with the central bank, banks can grant almost unlimited loans from a given volume of savers' deposits, thus creating money.³

The central bank has a limited amount of control and influence over the creation of money and hence the money supply because commercial banks can procure the necessary central bank money on favourable terms at any time by availing themselves of central bank loans. The central bank can only influence money market rates, which indirectly affect demand for credit in the real economy via capital market interest rates and thus guide the creation of mon-

¹ Central bank money includes cash and sight deposits with the central bank.

² This means that the process of deposit money creation takes place differently in reality than the way it is explained in many textbooks. The creation of money is primarily dependent on the demand for credit and not on the volume of savings deposits. The process begins with the bank granting the loan, which generates new deposits and new deposit money, not with the savings deposit. See *McLeay/Radia/Thomas* (2014), p. 14.

³ The minimum reserve ratio of the ECB is 0.05%. The minimum reserves bear interest at the interest rate of the main refinancing facility for commercial banks at the European Central Bank. See *EC Regulation No 1745* (2003).

ey.⁴ However, this transmission mechanism of monetary policy is highly vague and uncertain because, as the current situation in Europe demonstrates, the demand for credit in the real economy is influenced by a variety of factors.⁵ The costs of financing are only one determinant of business investment decisions, and often they are not even the deciding determinant. The central bank is, of course, free to intervene directly in the market by purchasing or selling securities (so-called open market policy) to create or remove money, enabling it to control the money supply. Nevertheless, the central bank can only justify such measures of quantitative control of the money supply in extreme market situations. Aside from this, the monetary policy of the central bank regarding deposit money creation can best be described as accommodative rather than controlling and supervisory.

For commercial banks, the ability to create their own money is a lucrative source of profit because the interest margin between lending and deposit rates is earned with every loan that is granted. No other type of private business has the privilege of automatically receiving financing (a bank deposit) on favourable terms for a (credit) claim at the point in time when the claim is created. The question is whether banks use this privilege in the interests of society, in other words for financing the real economy. Figure 1 provides an overview of the formation and usage of deposit money created by German banks.

Assets	EUR bn	in %	Liabilities	EUR bn	in %
Cash and cash equivalents	82.5	1.0%	Liabilities to banks	1743.6	22%
Lending to banks	2637.8	33.4%	Liabilities to non-bank	3375	43%
thereof unsecured loans	2029	25.7%	Bank bonds	1157	15%
thereof securities issued by banks	597.8	7.6%	Capital and reserves	466.6	6%
Lending to non-banks	3928.8	49.8%	Others	1149.7	15%
thereof unsecured loans	3153.9	40.0%	thereof derivatives trading portfolio	800	10%
thereof securities issued by non-banks	765.7	9.7%			
Shareholdings	132.7	1.7%			
Other	1110.1	14.1%			
thereof derivatives trading portfolio	838.6	10.6%			
balance sheet total	7891.9	100.0%		7891.9	100.0%

Figure 1: Aggregated assets and liabilities of banks in Germany Nov. 2014⁶

⁴See *McLeay/Radia/Thomas* (2014), p. 20.

⁵ Despite extremely low capital market interest rates, the private credit demand from non-banks in the euro zone has been in decline since the 2008 financial crisis.

⁶See *Deutsche Bundesbank* (2015).

If one looks at the aggregated assets and liabilities of German banks, it becomes apparent that the (unsecured) credits granted to the real economy only account for an average of 40% of the overall balance sheet volume, while loans to banks have a share of 26%. However, when banks lend to banks, money is created that does not flow into the real economy and create real value there. Instead, it remains in the monetary or nominal financial sector. Banks primarily use this money to acquire securities, investments and derivatives, and this is documented by the fact that they account for approximately 30% of the balance sheet total. This means that only a fraction of banks' usage of the social privilege of creating deposit money is for the purpose of financing the real economy.

1.2. Macroeconomic risks of the business model

The pictures of savers queueing in front of the Northern Rock Bank in England in 2007 made it clear that there exists an inherent danger in our monetary system: the only basis for the value of money and therefore for our existing monetary system is the faith of citizens in being able to exchange their money for goods at stable prices at any time, i.e. their confidence in its purchasing power. If this confidence is lost, then the result is a run on the banks to physically secure money. However, cash only accounts for approximately 10% of the euro money supply, and the bitter realisation that not everyone can exchange their account balances for cash leads to a desperate struggle to be the first at the bank counter. Sight deposits on accounts are ultimately bank bonds that include the right to exchange them for cash.⁷ The only thing that gives deposit money value and acceptance as a means of payment is the confidence in being able to exchange it for cash at any time, although only cash is defined as legal tender and must be accepted.

In a monetary system in which money has no intrinsic value, but its value is derived solely through the attribution of purchasing power, the money supply must necessarily rise in proportion to the volume of goods.⁸ Given the current business model of banks, this is difficult or

⁷ The English use the very tangible expression "I Owe You" (IOU) for bonds. By making a deposit at a bank, savers have implicitly acquired IOUs from banks, even if individual bank customers are hardly aware of this.

⁸ In Europe, money finally lost its intrinsic value with the collapse of the Bretton Woods system in 1973. In the Bretton Woods system of fixed exchange rates, participating currencies were still backed by gold, albeit implicitly, because the dollar was backed by gold, and this allowed a metal value to be calculated for each currency. During times when the gold standard existed, money had a direct connection to the price of gold via exchange ratios set by governments. See *Veit* (1969); *Jarchow/Rühmann* (1984).

almost impossible to achieve because, as explained above, the central bank only has limited influence over the creation of money by commercial banks.

Since the introduction of the euro, the growth of the money supply has been much stronger than the growth of the volume of goods. The reference value of 4.5% for the growth of the money supply specified by the ECB was almost continuously exceeded in the period between 1998 and May 2009.⁹ A comparison of M3 growth rates with those of the GDP on a quarterly basis shows serious deviations, i.e. highly excessive growth of the money supply, prior to the financial crisis. As Figure 2 documents, commercial banks created significantly more money than the real economy produced in new goods over a period of several years, and the European Central Bank did not intervene to correct this.

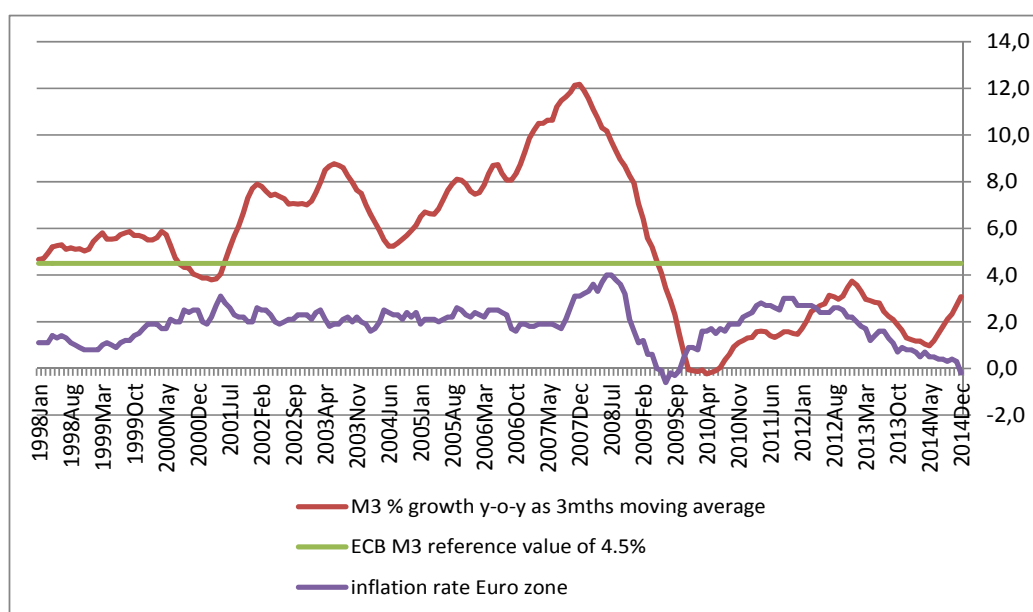


Figure 2: M3 growth, the ECB reference value and inflation rate

⁹ The reference value is calculated as a three-month moving average of annual growth rates. The ECB guideline of 4.5% is based on the assumption of 2% annual inflation, 2% to 2.5% annual growth of production potential and a decreasing velocity of money 0.5% to 1% per year. See *European Central Bank* (1998).

With the introduction of the euro, the ECB had explicitly defined monetary analysis and M3 growth as the second pillar of its strategy. However, in 2003, the ECB clarified that M3 growth has more a medium to long-term significance in relation to the development of prices. Under no circumstances could a failure to adhere to the annual reference value for M3 growth be viewed as justification for the central bank to automatically implement short-term monetary policy measures. To emphasise this, the ECB announced that it would no longer take any special attention to the annual deviation of monetary growth from its reference value in the annual evaluation of the success of its monetary policy.¹⁰

The development of inflation during the same period validated the ECB's position. The rate of inflation in the euro zone was continuously close to the target of 2% up until the financial crisis. So, technically speaking, the ECB's monetary policy was successful because it sustainably ensured the monetary stability of the euro with a low inflation rate.

But is the focus of monetary policy on inflation as the exclusive measure to preserve monetary stability not an overly one-dimensional interpretation of the value of money? The excessive development of the money supply in recent years is also reflected in a sharp increase in debt in all sectors of the economy. As the debt level rises, the insolvency risk of the debtors also increases. The imminent insolvency of governments or banks is a serious threat to the stability of the financial and the monetary system.¹¹ Figure 3 shows how debt has developed in the different economic sectors of selected European countries in the period since 2000 (base year).¹²

Debt growth % - since 2000	France			Spain			Italy			Germany		
	2005	2010	2013	2005	2010	2013	2005	2010	2013	2005	2010	2013
total economy	35%	92%	115%	105%	231%	232%	81%	83%	95%	16%	32%	30%
corporates	23%	54%	74%	96%	204%	148%	61%	86%	82%	7%	19%	26%
financial corp.	41%	148%	155%	490%	1137%	978%	390%	166%	172%	25%	39%	17%
public sector	42%	94%	134%	14%	75%	207%	43%	32%	56%	27%	20%	81%
households	46%	112%	132%	124%	210%	171%	72%	149%	148%	4%	1%	4%

Figure 3: Debt of selected countries in the euro zone by sector

¹⁰ See *European Central Bank* (2003), p. 86.

¹¹ See *Buttiglione/Lane/Reichlin/Reinhart* (2014).

¹² *OECD data* (2015).

The level of debt in the economies of France, Spain and Italy has risen considerably during the last ten years. The financial sector and private households in particular have experienced an extraordinarily high credit growth. The figures for Spain are particularly dramatic. In that country, the indebtedness of the entire economy has more than tripled since the turn of the millennium. In direct comparison with the other euro countries, credit growth within the German economy was relatively moderate.

In the banking and financial sectors, this credit policy has particularly harmful effects:

- In most countries, the banking sector has reached a size that is several times as large as the national economic output. This means that the nominal monetary sector has largely decoupled itself from the real economy and is trading internally with securities and derivatives, and this is increasingly becoming a risk to the stability of the monetary system. With equity ratios between 3% and 5%, banks are leveraged more than 20 to 30 times. Since a significant portion of the inflated credit volume is accounted for by interbank loans, not only does the sheer size of commercial banks lead to the 'too-big-to-fail' problem but their mutual interdependence in the lending business also poses a systemic risk.¹³
- The expansive credit growth is driving the stock and bond prices on the securities markets as well as real estate prices to increasing heights, and this is causing an uncontrolled rise in prices of assets. With the growing divergence between the nominal and real economy, asset prices lose their signalling and steering functions, which are exceedingly important for the efficient allocation of capital. Money flows into investments that have no connection with the real economy and therefore have no long-term value.
- Liberal lending to governments through the purchase of government bonds enables these governments to increase their budget deficits and debts far beyond their ability to sustain debt. Under current banking legislation, the purchase of government bonds, i.e. public financing, is privileged compared to the financing of businesses. In contrast

¹³ See *Cœuré* (2014).

to the purchase of corporate bonds, banks are not required to hold an additional amount of equity capital as a risk buffer when purchasing government bonds. Incidentally, this regulation has not been changed in the 'new' Basel III guidelines.¹⁴ The high monthly growth rates of government bonds and public sector loans on the balance sheets of European credit institutions shown in Figure 4 are evidence of a growing interdependence between nation states and national commercial banks.¹⁵ Governments are almost forced to rescue their creditors, the banks. If they were to lose their financiers, then sovereign default would be the consequence. The costs incurred by governments rescuing banks are, of course, once again financed by banks, and the renewed increase of government loans on bank balance sheets from 2007 onwards is evidence of this.

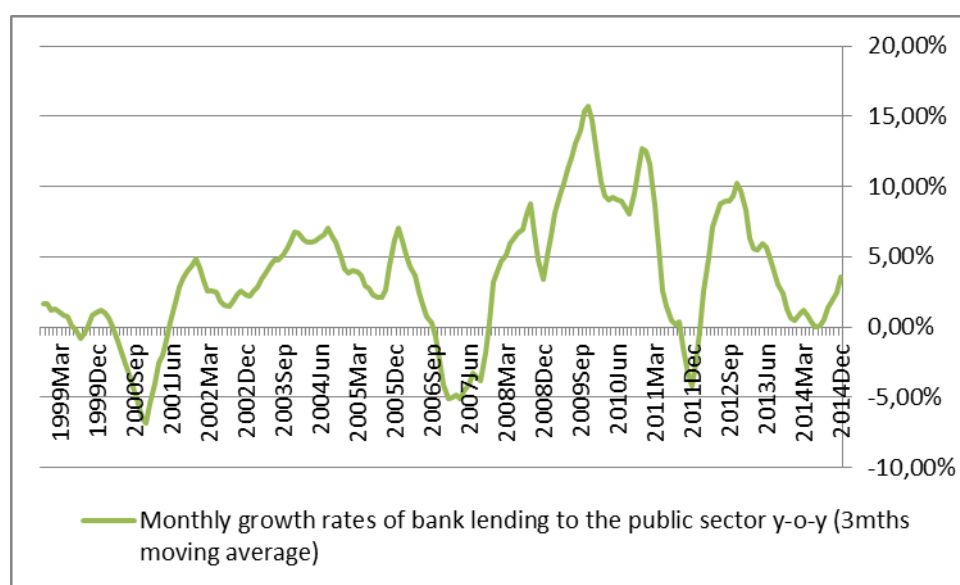


Figure 4: Monthly growth rates of bank lending to public sector 1999 to 2014

Interest payments and redemption of loans document claims to the future economic performance of the real sector.¹⁶ Companies must generate return of investments to service debt costs. In the case of private households, the interest and repayment have to be generated by labour income. Governments, in turn, pay interest and principal from the taxation of company

¹⁴ See *Deutsche Bundesbank* (2014), p.102.

¹⁵ European Central Bank data

¹⁶ See *Gali* (2010), p. 17.

profits and private income. However, since money has been created over the years without sufficient coverage from the real economy, these demands on real economic performance cannot be fulfilled. Nominal assets and liabilities have been created in the economy without any corresponding real economic values.

From a macroeconomic point of view, the financial crisis and the bankruptcy of debtors are the inevitable devaluation of excess monetary assets and liabilities, resulting in the adjustment of corresponding claims on the aggregate production potential within the currency area.¹⁷ A monetary policy that focuses solely on the inflation rate as an indicator of monetary stability and ignores the development of the money supply as well as its impact on the stability of the financial system is clearly misguided.¹⁸

1.3. Monetary policy and regulation of the 'bank' business model

1.3.1. ECB monetary policy after the crisis

Since the financial crisis, the European Central Bank has acted as a 'lender of last resort', preventing the collapse of insolvent debtors in the banking sector as well as governments and private households. It extended its credit facilities, so that banks are able to take on long term debt from the central bank at low interest rates. To reduce the burden on debtors and to stimulate the private demand for credit, they consequently reduced the interest on central bank lending to nearly zero. With the promise of unconditional purchases of government bonds from euro countries that are at risk of becoming insolvent, the ECB is shielding debtors from paying high risk premiums on their liabilities. However, the private demand for bank credit - and consequently the money creation machine of banks - does not seem to want to start up again, despite stimulation via low interest. Now the central bank steps in and fills the gap by creating money via own open market instruments. At the beginning of 2015, citing an acute

¹⁷ It would be ideal if the excess money in the economy could be easily written off by a symmetrically devaluating of nominal assets and liabilities in an aggregated balance sheet restricted to the monetary area, without having real economic consequences. Unfortunately, this balance sheet mechanism does not exist. Debtors and creditors are neither identical economic operators nor are debts and assets distributed evenly among all individuals and institutions. For this reason, any financial and debt crisis has serious consequences for the real economy.

¹⁸ *De Grauwe/Gros* (2009) express similar criticism and propose a new two-pillar strategy for the ECB that explicitly defines financial stability in addition to price stability as an objective of monetary policy.

threat of deflation, the European Central Bank announced a multi-year programme for monthly purchases of securities on the market worth a total of € 60 billion, which will ultimately lead to a direct expansion of the money supply in the trillions.¹⁹

This monetary policy saves the monetary and financial systems in the short term, but the problems of unsustainable debt in many sectors of the economy continue to exist unchanged. Ultimately, the ECB's policy of quantitative easing is only perpetuating the banks' pyramid scheme of deposit money creation, thereby keeping many insolvent debtors, including banks, governments (public sector at all levels) as well as private households, financially afloat in the short to medium term. An interest rate of almost zero or even negative interest rates may be advantageous for debtors in the short-term, but have a negative impact on the overall economy in the long run. Interest rates define the time value of money, which builds the basis of all valuation models for investment and financing decisions. If there is no more a difference between the present and the future value of a cash flow then financial markets are sending wrong signals to investors. This inevitably leads to a misallocation of capital. Bond and stock prices are being driven upwards to higher and higher levels by infusions of central bank money, signalling an economic strength and creditworthiness of borrowers that do not exist in reality.

1.3.2. Regulation of the banking and financial sector

Generally speaking, there are two ways to make the current 'bank' business model resilient and useful for society. One option would be to take action at the point where money is created and either completely remove commercial banks' ability to create their own deposit money or significantly reduce it by regulating lending and channelling the money that is created into the real economy. This regulatory intervention would reduce the current business model of banks to the function of a simple intermediary between savers and investors. The second option would be to cover the risks of using (surplus) money, which would leave the existing 'bank' business model unchanged and exclusively regulate its consequences. Figure 5 outlines the two alternative approaches of government regulation of the banking sector.

¹⁹ See European Central Bank (2015)

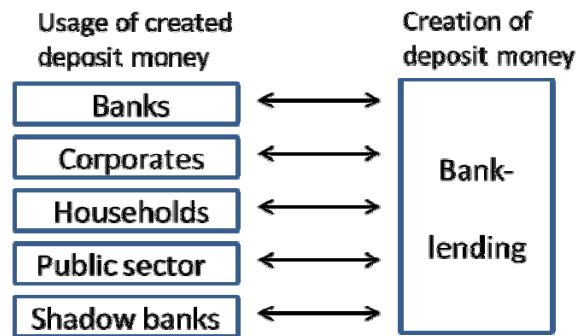


Figure 5: Use and creation of deposit money

Ever since the Basel 1 equity capital guidelines came into effect in the 90s, the focus of financial market regulation has been to monitor and regulate the use of money, not its creation, i.e. the source or origin of money. The problem with this is that there are endless uses for (newly-created) money; the creativity and innovation of the financial sector in this respect knows no limits. Ideally, money that has been newly created by bank lending is used to finance real economy investments in the corporate sector. However, the disbursement of a loan can also be used by the debtor to purchase securities, derivatives or investment certificates. Every use of money has its own risks and every debtor has their own risk-bearing capacity, each of which needs to be monitored and evaluated by financial supervision agencies. Debtors are those sectors that are in a credit relationship with the banking sector, i.e. the banks themselves as borrowers, private households, businesses, governments, and shadow banks²⁰

The array of numerous uses for money and various types of debtors results in a vast number of individual risks that can neither be controlled nor evaluated, and as if that were not enough, they also influence each other. Lawmakers and governmental financial supervisory agencies, which are trying to identify, write into law and regulate every single risk to the financial sector posed by the various uses of money, are letting themselves get pulled into a competition with financial institutions that revolves around the invention of an endless stream of new var-

²⁰ The term 'shadow bank' refers to financial investors such as private equity funds, hedge funds or securitisation platforms that perform highly-leveraged banking functions without having access to the refinancing facilities of the central bank.

iations, and due to limited public resources, their chances of winning are slim. And even if banking supervisory agencies were halfway able to regulate the numerous risks in the banking sector, new risks caused by the uncontrolled financing of shadow banks and their mutual interdependence with commercial banks are emerging.

The same applies to the interface between the government and the banking sector; financial supervision has its limitations here as well. If euro countries can take on debt that exceeds their economic ability to service that debt, then the threat of sovereign default of individual euro countries will continue to be a risk factor to the banking system that the European financial supervision authorities cannot control. In order to get the risks resulting from the nexus between government and the banking system in the euro zone under control, central European financial market supervision would need to be complemented by a central European fiscal policy with the authority to monitor and regulate government budgets. This shows how tightly monetary policy, fiscal policy and the stability of the monetary and financial systems are interconnected.

The financial crisis in Europe permanently shook the confidence of policymakers and citizens in the stability of the euro and the banking and financial system.²¹ Given the high cost of the bank bailout for government budgets and the real economic cost in Europe, this loss of confidence is hardly surprising.²² As always when confidence in a business partner is lost, the reaction is to try to cover all risks contractually. This is the only explanation for the exceptionally high number of new laws that were passed to regulate the European banking and financial markets during the last five years. Figure 6 provides an overview of institutional reforms to European financial supervision as well as law initiatives to regulate the banking sector in the narrower sense of the word, the financial market as well as shadow banks.

²¹ See *Gali* (2014), p. 232.

²² In the 'State Aid Scoreboard 2014', the EU Commission provides a detailed list of all 450 governmental support measures authorised by the EU to stabilise the financial sector for the period between October 2008 and October 2014. The total volume of governmental support measures from 2008 to 2013 adds up to more than 700 billion euros or 5.5% of European GDP.

Institutional reform of financial supervision
<p>2011 European Financial Supervisory System: Three European supervisory authorities for banking, insurance and securities markets (micro-prudential supervision) plus the ECB's European Systemic Risk Board (macro-prudential supervision)</p> <p>2014 European banking union with three supporting pillars: (1) Uniform supervisory mechanism with ECB (2) uniform settlement mechanism with resolution fund (3) deposit guarantee schemes</p>
Regulation of the banking sector (Basel III – CRD IV – 2013)
<p>Debt sustainability: risk adjusted equity 8%, leverage ratio 3%, liquidity requirements, macro-prudential risk provisioning</p> <p>Global systemically important banks: 1% to 3.5% more equity for additional loss absorbency in steps from 2016 to 2018 – FSB list – too-big-to-fail</p> <p>Institute remuneration system: Variable remuneration shall not exceed fixed remuneration</p> <p>Implementation Act: Corporate governance regulations including requirements for the supervisory board</p> <p>2015 EU bank structure reform: Separation and removal of investment banking activities from commercial banking (Liikanen Report); 2013 Germany and France introduce national 'separated banking' laws – implementation in mid-2015?</p>
Financial market regulation
<p>2012 EU Regulation Short Selling of Credit Default Swaps Restrictive handling of short selling</p> <p>2014 PRIIPs (Packaged Retail Investment Products): Investor protection through better information on the risks of structured products – 07/2016</p> <p>2014 MiFID II – Markets in Financial Instruments Directive Investor protection: Independent investment advice, product governance, product intervention by supervisory agencies, obligation to keep records, reference rates (Libor, fixings, etc.) Trading transparency for almost all types of securities: prices, volumes, mandatory reporting of trading in commodity derivatives, uniform tick sizes for ETFs Authorisation requirement for high-frequency trading and order-to-trade ratio limits Obligation to trade with central counterparty for derivatives – and no more OTC</p>
Regulation of credit rating agencies and shadow banks
<p>2010 EU Regulatory standards for rating agencies: Obligation to provide information on costs; transparency of rating models of credit risks</p> <p>2014 EU action plan to reduce dependency on ratings by rating agencies</p> <p>2011 Alternative Investment Fund Managers Directive (AIFM) Uniform EU rules and requirements for managing alternative investment funds (hedge, private equity as well as open and closed real estate funds)</p> <p>2013 EU Standards for money market funds, Transparency in repo and lending transactions.</p>

Figure 6: Institutional reforms and regulation in European banking and financial markets

Banking and financial market legislation was relatively complex even before the financial crisis, but with this wave of new laws it has reached a degree of complexity and proliferation which can hardly be increased.²³

1.4. Costs and benefits of the 'bank' business model in 2015

In view of the effort that society puts into the regulation and supervision of the banking and financial sector, the question immediately arises whether the costs and benefits are proportionate. The economic benefit of the banking sector is to finance the real economy via lending and loan securitisation as well as taking deposits from savers.²⁴ But the current monetary system, allow banks to expand their lending with nearly no constraints as the central bank lacks control on the process of money creation. Growth rates of money supply are not backed by real economic growth and the claims of creditors are not covered by the economic strength of the real economy. This inevitably leads to a nominal devaluation of assets and liabilities with fatal consequences for the real economy and thus for the prosperity of society: the insolvency of companies increases unemployment, debt-ridden governments must cut public spending (social transfers, education spending, etc.) and private households must restrict their consumption. This bank business model is embedded in a monetary system in which the central bank does not centrally control the development of the money supply in accordance with the production potential of the real economy. Instead, it continues to allow commercial banks to create their own deposit money to further their pursuit of profit, and this will lead to financial, economic and political crises with predictable regularity.

Instead of changing the business model, its foundations are being cemented by the extremely complex regulation of the banking and financial sector. The approach of regulating the use of money in the various sectors of the economy instead of changing the creation of money only treats the symptoms, not the causes. In the end, the citizen pays the private and public costs of

²³ Haldane describes the extreme complexity of banking legislation as well as the public and private resources necessary for banking supervision, using a variety of examples, comparisons and figures. See *Haldane* (2012).

²⁴ Organisation and settlement of payments are also on the asset side of the banking sector's balance sheets. A comprehensive network of ATMs and branch offices ensures the supply of cash. Banks' internal payment transaction networks with clearing houses ensure the smooth processing of cashless payment transactions. However, banks no longer have a monopoly in this area; the increasing penetration of non-bank payment processors is an indicator that there are efficiency gains to be capitalised on here. In addition, a banking license is not needed for processing payment transactions.

this extremely expensive financial legislation as a bank customer and taxpayer by covering the cost of numerous national and European supervisory institutions as well as the banks' internal implementation of the laws. This regulation simultaneously deters potential competitors from acquiring a banking license and shields the banking industry from competition from other economic sectors.

To sum up, the cost-benefit balance of the bank business model in 2015 is clearly negative. The limited social benefits in terms of lending to the real economy are outweighed by extremely high social costs and risks. The current banking system is a high risk factor as well as a burden for society.

2. The 'Bank 2025' business model

The monetary and financial systems are constructs created by humans to increase the prosperity of society as a whole. There is no law of nature that extrinsically determines the structure of the monetary system and the financial system. Organisational forms change with changing circumstances, and forms of organisation that turn out to be negative factors for society do not last. For this reason, the question is not whether a new monetary and financial system will emerge in the coming years: in view of the state of the current monetary system, that seems to be certain. The more interesting question is how the new monetary system will be organised and what the change process might look like.

2.1. Process of change

Crises often lead to fundamental changes in structure of organisations and processes. However, the European financial and euro crisis has apparently not had this effect. On the contrary, the reforms introduced after the financial crisis only serve to stabilise the current monetary system and can thus be labelled as system-compliant repairs. All of the reforms are objectively justifiable and are characterised by a self-contained, systemic logic. What is striking is the extremely high level of complexity, which makes expert knowledge necessary for the legislative process, supervision and control as well as on the part of the bank. In the spirit of 'technocracy', the current reforms in the financial sector are dominated by a kind of objective necessity and organisational determinism, and they are taking place without a societal evaluation of financial institutions and instruments. This technocratic method of managing the situation, which is completely removed from the context of its social effects, is hardly surprising:

all of the proposals for legislation come from the Financial Stability Board, the Bank for International Settlements, the International Monetary Fund, and national central banks. That is to say, from institutions that are shielded by their status from direct democratic control by society or national parliaments. No impulses, proposals or momentum for a system change are to be expected from these financial institutions. On the contrary, institutional economics teaches that institutions have an inherent urge to increase their power and influence. With the financial crisis, numerous new regulatory institutions were established for the financial sector and the responsibilities of the existing institutions expanded. A system change in money and finance would mean dismantling the rampant financial bureaucracy, and from the perspective of institutions, this represents a risk.

In a society in which the majority of relations between individuals follow economic rationality, a system change will only occur if it is worthwhile for the economic operators. This means that the economic advantage of a behavioural change, in which the individual approaches the unfamiliar, must be so compelling that the associated transaction costs of learning the new as well as the initial uncertainty of action are justified. At a certain point, the increasing number of users causes the network effect, and this gives the process of reorganisation and system change its own momentum.

Such a development has been evident in the financial market for a number of years. In addition to conventional banking, which is protected by regulation, a parallel market consisting of an increasing number of web-based financial intermediation platforms is establishing itself. Initially, so-called 'crowdfunding' was considered as a niche market for purely technology-focused business start-ups, but the platforms have now developed into a real alternative to bank loans. The high annual growth rates of this parallel market in Europe document the fact that more and more users are recognising the economic advantages of web-based financial intermediation and are also willing to bear a higher risk.²⁵

Peer-to-peer lending is attractive to both investors as well as borrowers because the existing bank margin between deposit and credit interest rates can be shared. The platform only receives a commission. These charges are much lower than a bank's interest margin because

²⁵See *Wardrop et al* (2015), page 9.

they only need to cover the cost of operating an Internet platform for financial intermediation. Nevertheless, when investors purchase credit claims they also take the credit risk of an individual debtor. Investors can diversify the individual credit risk exposure (“unique risk”) by participating in various financing projects with small amounts or by joining together in groups of investors over the Internet. The platform only fulfils the role of intermediation and does not take over own risk by contractual positions of its own. There is also no systemic risk if a platform becomes insolvent because the risks are now spread across the users in a decentralised manner. Whereas banks accumulate risks, platforms decentralise the risks. The increased transparency and the central management and documentation within the transaction platform simplify the monitoring and supervision of financial market transactions considerably. The unbeatable homogeneity makes money into a product that is ideally suited for web-based mediation. Transparency, competition and the mobility of capital are significantly increased by the use of information technology on transaction platforms compared to the oligopolistic banking market. Web-based platforms for credit intermediation do not require a banking license because they are not classified by the European supervisory institutions as credit institutions but rather as payment providers.²⁶ This enables non-bank companies to also enter the market of financial intermediation without having to fulfil the high requirements of banking regulation. Increased transparency, increased competition and, not least, the elimination of the bank margins all reduce the cost of capital and at the same time facilitate access to capital.

Despite all of the economic benefits, one might be sceptical as to whether the innovation of web-based intermediation can actually prevail against the banking business in the financial market. Nonetheless, the current zero-interest monetary policy of the ECB as well as extensive banking regulations are forcing bank clients to change their behaviour. Very low interest rates combined with low economic growth are to be expected in Europe over the next several years. A debt-based economy such as the euro zone simply cannot afford a rise in interest rates without risking the insolvency of many borrowers. Since many households as well as governments are already having to restrict their consumption due to the interest and repayment burden, domestic demand will not be a stimulus for economic growth.

²⁶See *European Banking Supervision Authority* (2015).

For the banking sector, this scenario means low profits because the essential advantage of money creation cannot fully come into play.²⁷ If the interest rate is zero, the interest margin that can be earned remains low because customers don't accept a negative rate of interest on their bank deposits. At the same time, the costs of bank regulation will increase during the coming years. With these meagre profit prospects, it is becoming increasingly difficult for banks to raise additional capital on the market to cover the risks from the lending business. Some banks will have to reduce activities that require high amounts of equity, including lending. By contrast, simple financial intermediation in the sense of passing money through as an intermediary, will become increasingly attractive because the bank does not take any risk which requires to hold additional equity capital. The business of securitisation of loans, which shrank after the financial crisis, could be revitalised. Nevertheless, regulations will require the quality standards of securitisation techniques to be higher, meaning that previous profit margins can no longer be earned.²⁸ These circumstances make entering the business of web-based financial intermediation via platforms such as peer-to-peer lending more attractive. Banks have all the prerequisites for this new business model: large customer bases, expertise in the assessment of credit risk, technical knowledge and experience in the area of online banking, and methods of processing payment transactions.

But how can a separate web-based platform for financial intermediation with its own legal personality be integrated with the traditional 'bank' business model? The platform will quickly prove to be much less expensive and can offer investors as well as borrowers better terms and faster processing. The traditional 'bank' business model, burdened by the high fixed costs of regulation, buildings, staff, and so on, will not be able to compete with web-based intermediation in the long term. Banks are therefore facing a dilemma: zero-interest monetary policy means that money creating becomes less attractive, a social privilege which web-based platforms anyway do not have. In addition, the costs of the excessive amount of regulation are burdening their business model. All banks are affected by this. Their competitors, the non-bank companies that offer web-based financial intermediation and operate outside of the regulatory walls of the banking sector, are not affected. The crowdfunding market in Europe has

²⁷ See *Economist* (2015).

²⁸ See *European Commission* (2015).

three-digit annual growth rates.²⁹ For banks not to enter this rapidly growing market segment would mean that they are leaving their very own business of financial intermediation, in which they have the core competency, to non-bank competitors. Embracing the new business model, however, carries the risk of radical restructuring or even completely phasing out the old business model, including all of the consequences that this would have for employees and the organisation of business processes.

Without an economic necessity, banks may not be willing to give up their existing business model and break new ground. But a long-term zero-interest scenario is forcing savers to accept a higher risk and pursue new forms of investment that offer a positive yield. Bank customers will increasingly ask their financial advisors about opportunities for peer-to-peer lending, and if an offer is not forthcoming, then they will look for investment opportunities outside of the banking sector. The same applies to the credit customers of the banks. Empirical studies show that it has become more difficult for small and medium-sized enterprises in particular to obtain a bank loan in the wake of the financial crisis, and if they are able to, then only at high interest rates.³⁰ To obtain financing for affordable conditions becomes the most serious problem of SMEs. Instead of asking a bank for a loan, many companies are already turning directly to P2P platforms because they offer two benefits from a business perspective: First of all, they provide quick and uncomplicated online processing of loans even outside of banking hours. Secondly, the terms of online lending are attractive compared to bank loans, often including the option of early premature loan redemption without a prepayment penalty

Savers and borrowers who are turning away from banks and to crowdfunding will allow P2P platforms to achieve the critical mass of users that is required for the network effect. The more participants the platform has, the greater the benefit for individuals. Consequently, when a minimum number of users is reached, the number of transactions on the platform begins to grow exponentially because each user passes on their experience with the new application to individuals in their social environment, which in turn accelerates growth. For many of the younger users, investing and raising capital via a web-based platform will be the norm, much

²⁹ See Wardrop *et al* (2015).

³⁰ See Öztürk/Mrkaic (2014); European Central Bank (2014).

like shopping on platforms and using a variety of mobile applications in their daily lives is also the norm.

2.2. The new organisation of the monetary and banking system

Information technology is reducing the search cost, so that supply and demand can meet directly and independently of their physical distance on the Internet platform. Business models whose value creation is based entirely or partially on the intermediation of supply and demand will increasingly be driven out of the market by web-based intermediation platforms.

In the banking sector, this process of disintermediation already began with the securitisation of loans in the late 70s. One could also refer to the securitisation of loans as an initial form of crowdfunding because, with the acquisition of a tradable credit claim, a large number of bond holders are directly connected with the issuer of the bond. In the 90s, banks increasingly established off-balance-sheet transaction platforms (“special purpose vehicles”) as an own legal entity because they were much more flexible in terms of the securitisation. However, unlike in the real economy, the financial crisis and its resulting increase in regulation put an end to this trend towards disintermediation in the banking sector. Figure 7 outlines the development of the reorganisation of the banking business during the past decade and shows a possible prospect for further development.

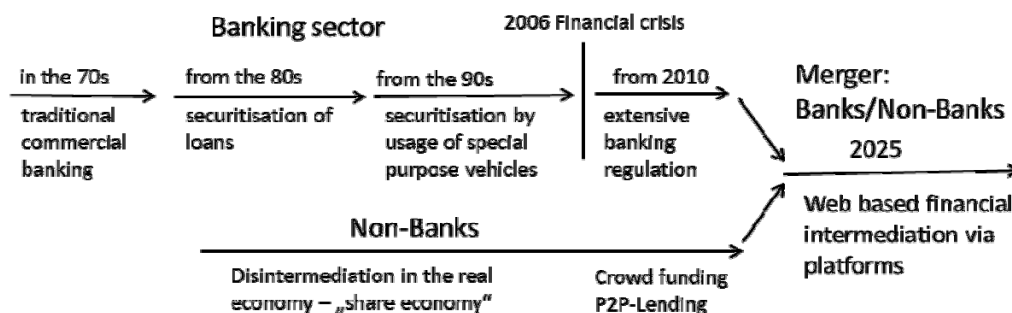


Figure 7: Development of the reorganisation of the banking business

The logical continuation of this trend is the web-based financial intermediation via platforms, which gradually replaces the conventional bank as an intermediary. Commercial banks that recognise this trend early on and take the risk to enter the platform business continue to exist but in a completely different organisational structure. These banks set up their own platforms to offer their expertise in the credit risk assessment, they provide consultation to clients about

investment opportunities on their own as well as other providers' platforms, and they continue to process payments. This means the bank will gradually become the 'front end' for the underlying digital platforms without having any risk positions on its own books, instead operating exclusively in the business of financial intermediation. Customers can continue to use the branch offices to seek personal advice and to process payments, but they have to pay a fee for this service in the future. In the finance platform business, banks compete with a variety of non-bank companies that also have a large customer base and many years of experience in digital processing of transactions, but which lack specific expertise in finance as well as their own payment transaction network. It remains to be seen who ultimately prevails in this competition as an efficient mediator.

However, banks are not the only ones facing a process of radical restructuring. This also applies to the monetary system of the central banks. Web-based platforms are simple capital intermediaries which cannot create their own money. If the banks convert to such a business model, the central bank would be missing a key element of its previous transmission mechanism of money supply. The central bank would then face the problem to steer money supply directly in relation to economic growth as the previously existing creation of money via bank lending would be eliminated. Deposit money, which hitherto represented the customer's claim against the commercial bank, would be a direct claim against the central bank for cash in the future. This could be implemented as a two-stage system, much the same as it has been up till now:³¹ Customers have accounts with commercial banks and these, in turn, have the same amount of credit as a mirror image with the central bank. The current fractional reserve requirements of commercial banks would de facto be replaced by reserve holdings of one hundred percent. The introduction of 'full reserve money' would eliminate the risk of bank runs because each claim to deposit money would be covered by corresponding deposits with the central bank and be exchangeable for cash at any time. In addition, the central bank would now have complete control over the development of the money supply.

³¹ Technical progress would make it possible for every citizen to have an account directly with the central bank.

The question remains what method the central bank will use in the future to put the necessary additional money into circulation when economic growth is expected, without directly intervening in the real economy and running the risk of favouring individual economic groups with a windfall. Different suggestions exist among economists for this. One idea is to implement the 'Chicago Plan' written by Irving Fisher in 1930, which provides for money to be transferred to the government on a regular basis via an account with the central bank. This direct form of government financing by the central bank would allow all citizens to benefit from the creation of money.³² Another model suggests that all citizens should be equal beneficiaries of the annual windfall from the central bank. The central bank would then transfer an equal amount to all accounts through the commercial banks.³³ At this point, one could suggest a third model that would use the financial intermediation platforms directly as an entry point. For the purpose of creating money, the central bank could act as an investor on all registered platforms, helping to finance real economy investments by 'sprinkling' money into the system. On the one hand, this would promote the volume of transactions on all platforms, including those of non-bank providers; on the other hand, it would ensure that the newly-created money is used for the real economy.

3. Prospects

Web-based financial intermediation is going to prevail as an economically superior form of organisation compared to the traditional banking business model. There is no doubt about this. The only question is the time period in which this system change takes place in the financial market. Whether this change occurs with or without the participation of banks depends on whether the banking industry recognises the signs of the times and is in a position to gradually restructure its present business model of money creation towards web-based financial intermediation. However, if the European banking sector entrenches itself behind the thick walls of regulation, then non-bank companies that are already active in the platform business in other areas of the real economy gradually conquer the financial market. The increasing market share of non-bank companies in the settlement of payments is a taste of things to come.

³² See *Benes/Kumhof* (2012).

³³ See *Mayer* (2014).

The problem is that the entire monetary system, including the central bank, banking supervision agencies as well as exchanges, are affected by a change in the bank business model. It is uncertain whether policymakers and governmental financial and banking supervision agencies can quickly switch from their current detail-obsessed, extremely complex regulation and control of all possible banking and market risks to the monitoring of financial platforms. Unlike banking legislation, consumer and data protection laws have the highest priority in web-based financial intermediation.

The worst thing that could happen would be for Europe to try to impose existing banking and financial legislation on the platforms. In doing so, Europe would miss its chance to provide a counterweight, at least in the financial market, to the US dominance in IT business with its own European platform companies (banks or non-banks). Neither technological progress nor the economic benefits can be stopped. The only question is whether Europe has the courage to play a pioneering role or whether it prefers to follow global developments after they have happened.

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