Patterns of Bank Credit Allocation and Economic Growth. The Case of Denmark, 1736-2012

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2013

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Lund Papers in Economic History

No. 131, 2013 *General Issues*

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Abstract

At present, relatively little is known about the relationship between bank credit allocation and economic growth. It seems clear that the structural characteristics of the banking system are significant factors influencing long-run allocation of credit across real sectors of the economy as well as across financial institutions. The purpose of this study is to examine the relationship between changes in credit allocation across sectors and economic growth in a long-term perspective. In addition, this study addresses changes appeared in the loanable funds among the different types of financial institutions for a number of long-run periods. During these periods, there were a number of waves of credit allocation as a result of economic transformation and high priorities were given by the major banks. During the periods under research, in reallocating their available funds, banks all affected almost by financial, monetary, and economic conditions in the country. Banking history in Denmark suggests that this study can contribute to fruitful field of inquiry for understanding bank credit allocation in relation to economic changes. Particular emphasis will be given in this paper to the contribution of savings banks, commercial banks, and mortgage institutions to the various sectors of the economy.

Keywords: banking history in Denmark, banking and economic growth, credit and economic growth, bank credit allocation.

JEL classification: N23-N24

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1. Introduction

There are a lot of detailed studies about the historical evolution of bank credit, however, the factors motivate or drive credit allocation within the economy are largely undiscovered. This is considered to be very crucial to ensure that credit allocation strategies have a huge impact on the economy. Study of credit allocation across sectors in relation to economic growth has attracted little attention from researchers in Denmark. This work will attempt to stimulate ideas within this important research area. Basically, commercial banks, savings banks and mortgage-credit institutions have played a significant credit-supplying role in the Danish economy since the 19th century, accounting a large proportion of financial activities within the financial market. It therefore becomes very important to investigate the effectiveness and relevance of sectoral credit allocation carried out by these institutions and their impact on the economy. In this framework, by using historical long-span series of financial and economic indicators, this paper attempts to investigate the interaction between the historical evolution of bank credit in Denmark and the real side of the economy. Therefore, the study will look in depth at the establishment, structure and performance of the Danish banking sector in order to search for any detectable changes in credit allocation in relation to economic transformations. This paper is carried out with the following two major questions in mind:

1- What are the factors that have been crucial to determine historical trends in credit growth and credit allocation in Denmark?

2- How relevant are changes in the patterns of sectoral credit allocation to understanding the historical long-run growth of the Danish economy?

2. What makes banks' credit special?

The whole rise of banking systems during the nineteenth century ran hand in hand with the industrialisation process in Europe. The banks in Europe had to adapt continually to changing conditions domestically, regionally as well as internationally, especially when they became the servants of industry and the major sources of foreign trade finance. Early scholar like Schumpeter in 1911 specified the role of banking in facilitating technological innovation through efficient allocation of savings toward entrepreneurs who have the best chances in implementing innovative products. Later, a number of economists (Schumpeter, 1933, 1939; Gerschenkron 1962; Goldsmith, 1969; Cameron, 1972; Kunt and Levine, 2001) have supported the above postulation about the significance of banking to the growth of the economy. They view the importance of banking lies in providing suitable opportunities for optimal economic performance. The table below shows the relative importance of total banks' assets and other financial institutions in the global economy as a share of GNP between 1880 and 1963.

Table 1: Total assets of financial institutions as a percentage share of GNP

Year	1880	1900	1913	1929	1938	1948	1963
Developed countries	72.9	102.5	122.8	133.1	159.5	132.5	155.9
Developing countries	-	24.2	39.6	41.9	49.5	51.3	65.4

Source: Summarised from Goldsmith, 1969:389.

The traditional view suggests that the banks as financial intermediaries can attract idle liquid resources and allocate them in the form of credit to entrepreneurs for investment in productive activities. According to Goldsmith (1969:400), mobilising liquid resource "*accelerates economic growth and improves economic performance to the extent that it facilitates the migration of funds to the best user, i.e. to the place in the economic system where the funds will find the highest social return*". However, this is not always the case, banks may play a negative role in the economy; they, for example, may hinder sustainable economic growth with unproductive loans. As a result, the outcome of credit allocation can give either possible or negative result for the economy. Such outcome in fact can lead to three possibilities; firstly, when banks create loans for productive use such as implementation of a new technology, they give fundamentally a number of entrepreneurs-investors the right to reclaim on certain amount of liquid inputs. In this case, credit can be considered to be conducive for sustainable economic growth if the entrepreneurs get higher value than the cost of the inputs on their own. This also means there should not be inflation, which desirable for the economy. Secondly, a destructive outcome can occur with credit allocation in the use for excessive consumption with existing market of goods and services, i.e., if banks create more and more irrational consumer loans, this implies more money will be chasing the same amount of available goods and services in the market, which will lead to greater demand and price increase. In this case of irrational consumer loans, credit creation results ultimately in inflation and this is not desirable outcome for economic growth. Thirdly, there is another outcome for credit allocation toward huge speculative investments, which can be regarded as the main reasons for events of global and domestic financial crises, e.g., banks grant credits to speculators who use them for financial and assets transactions in particular markets such as the stock markets, derivatives markets, and property markets. Initially, the assets creation market will indicate high performance and everyone is making profit; the banks and the speculators. Therefore, the bank will continue to expand loans for speculation and as a result will continue to raise assets prices. Paradoxically, this could display an indication of a kind of sustainable growth in the short-run, but continually increasing credit to speculation to the moment for some reasons the bank will stop or slower it. This will result in decline in assets prices, huge lose for speculators, and ultimately will cause a financial crisis. It worth noting here in this situation, the market mechanism will not deliver the optimal outcome to overcome the crisis. In this respect, credit allocation is much dependent on what money is channelled for by the banking system and whether credit has been used in productive investments or speculative financial transactions. This is in fact very crucial role of the banking system, since credit allocation will have long-term impact on the economic activities and performance. Structural development of the banking system is to a large extent an evolutionary process and has its deep roots in the past. Despite the fact that, the evolution of banking and monetary-economic systems is a unified history, however, in many cases the decision of banks on credit allocation can shape the economy of a country. Therefore, the study of historical evolution of a banking system in relation to economic transformation is of huge importance. From this theoretical point of view, the purpose here is to emphasis the role of banking and credit allocation in promoting sustainable economic growth. In other words, to show how banks' decision in credit allocation and economic circumstances interact.

The existence literature stresses the role of banking essentially in mobilising and allocating of credit across sectors. Sayers (1960) argues that the banking sector functions as money supplier and plays an entrepreneurial and guidance function in the economy as a whole that is beyond its intermediary role. From a historical perspective, Schumpeterian analysis of financial institutions considered banking as one of the primary and essential factors for economic development. Schumpeter (1933 and 1939) regarded the banking system as one of the two key agents (the other being entrepreneurship) in the whole process of development. Later, Gerschenkron (1962), in his essays about problems of European industrial development highlighted the role of banking in the historical process of industrialisation in Europe during the nineteenth century. Gerschenkron (1962) considers the banking sector as one of the elements of patterns of industrialisation in Europe, since the banks established the closest possible relations with industrial enterprise. German banking was said to be as powerful as the steam engine in generating industrialisation in Germany. This pioneering study was followed up and developed by Cameron (1967, 1972). Cameron (1972) in his comparative study of the role of the banking sector in the economic development of the European nations that achieved substantial industrialisation, adopted what can be called a "structural-functional" theory of the role of banking in economic development. Some of the case studies he edited, particularly Austria, Italy, and Spain, indicate that banking may or may not make a positive contribution to economic development, depending not on the personal qualities of the bankers but on the "*structural characteristics of the system, and the laws, regulations and customs*". However, Cameron pointed out that the contribution of banking to economic development does not depend only on the structural characteristics of the system and the laws, regulations, and customs that govern its behaviour, although those qualities are important. What is more important, according to Cameron, is the way in which the bank performs its functions. This may determine the degree of success of development efforts. According to Cameron, the banking system is an integral interdependent part of the total economy, and its structure will be affected by the actions of the political authorities in the form of laws, decrees and regulations. Cameron concludes that there is "*no single model of a banking system that is appropriate for all economies*". Goldsmith (1969) analysed the effect of the financial structure and particularly the effect of the banking system on economic development "*One of the most important problems in the field of finance, if not the single most important one, almost everyone would agree, is the effect that the financial structure and development have on economic growth*". He showed that the banking system tends to become larger relative to national output as countries develop and he assessed the links between the level of financial development and economic growth. Using data prior to 1964, Goldsmith showed a positive correlation between financial development and the level of economic activity in thirty-five countries. His conclusions are based on a number of financial ratios; e.g. the ratio of financial institutions' assets to GNP shows a direct association between financial and real development. In this line of research, using a broad cross-country data analysis of 150 countries, Demirgüç-Kunt and Levine (2001) studied the structure of financial development vis-à-vis long-term economic growth. They used a number of institutional key factors in their analyses, for example, looking at the liquidity, the relative size, and activities of the banking system compared to those of stock markets. Demirgüç-Kunt and Levine classified countries as either market-based or bank-based in order to analyse financial structure. They conclude that overall financial development tends to accelerate economic growth and there is a strong relationship between the size and liquidity of the banking sector with per capita GDP growth.

3. The historical evolution of credit and banking in Denmark

The Danish banking system has undergone long sequence changes. The prevailing financial and monetary conditions suggest the division of banking history in Denmark into two major historical periods. Each period can offer an opportunity to study the long-run changes in historical patterns of credit allocation-reallocation in relation to long-run economic growth; first, banking under the silver and gold standards, 1736-1914, second, banking under supervision, reforms and transformation, 1914-2012.

The period of banking under the silver and gold standards, 1736-1914 witnessed the naissance of the first note-issuing bank '*Kurantbanken*' as well as the birth of savings banks, commercial banks, and mortgage-credit institutes. This period offers an opportunity to study the roots and expansion of the Danish banking system which had been characterised by an enormous growth and stability. During this period, there was a dramatic increase in the number, scale, size, and operations of both savings and commercial banks. In addition, the late nineteenth century witnessed the breakthrough of industrialisation and economic transformation in Denmark. Consequently, banks had to deal with the new transformation which led to a major credit reallocation favouring industrial expansion. In 1914, the banking system entered a new period after the dissolution of gold standard system. The banking activities in Denmark have been ever since subject to supervision, reforms and regulations. 'Danmarks Nationalbank'-The Central Bank took over notes issuance completely in 1918 and therefore became the banker banks. Commercial and savings banks as well as mortgage institutions in Denmark during this period have been subject to legislation acts especially with the establishment of Bank Supervisory Authority. In addition, during this period, the banking system has been subject to gradual liberalisation influenced by the European policy and integration. During the two periods under study, long-term growth in aggregate private credit displays comparatively higher rate vis-à-vis GDP growth. Table 2 shows that the growth rates of the aggregated private credit have been much faster than those of the economy as a whole during the two periods (1857-1914) and (1914-2011).

Table 2: Average annual GDP growth rates (at factor costs) and average annual aggregate private credit[1] growth

	GDP annual growth	Credit annual growth
1857-1914	3.0	6.7
1914-2011	2.8	7.4

Sources: Svendsen, 1968:171,221, 279, 249, 296;
Hansen, 1983: Volume II, table 3: 245-249;
Hyldtoft, 1999:98;
Johansen, 1987:22,26, 31,46, 73, 107, 125, 126, 166;
Abildgren, 2006&2012;
Denmark Statistics online, www.dst.dk, www.statistikbanken.dk.

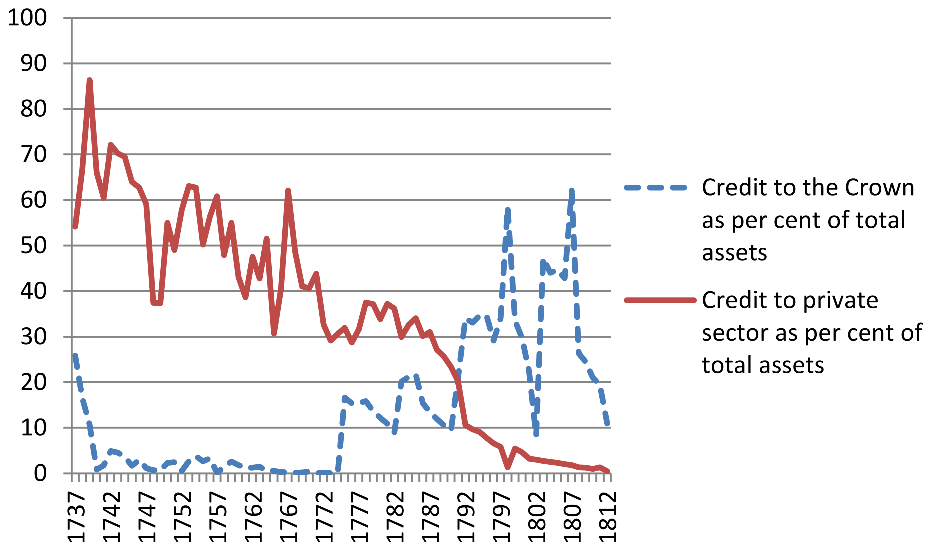
3.1 Banking and credit under the silver and gold standards, 1736-1914

In 1736, the first note-issuing bank, '*Kurantbanken'*, Kurant Bank[2] or the Copenhagen Bank was founded under the Danish-Norwegian monarchy in Denmark as a private joint-stock company. The bank's lending was derived from deposits while it monopolised the right to issue banknotes that could be exchanged for silver coins at any time. The bank was authorised to discount bills[3] and lend at 4 per cent per annum on security in bonds, specie and non-perishable goods within 75 per cent of the value (Johansen, 1994:97). After, the establishment of Kurantbanken, Denmark started to play a formal financial role in line with the thriving trade during the eighteenth century known as "Flourishing Trading Period" with Africa, the Far East and the West Indies (Andersen, 2011:42-43). In this respect, the main task of the bank was to supply short-term credit secured by collateral to the commercial and manufacturing business communities. Credit was directed toward private as well as royally chartered trading companies. As shown in figure 1, credit to the private sector extended by Kurantbanken represented the big share in the bank's total assets between 1737 and 1773. After 1773, the balance-sheet of this bank displayed a major credit allocation by types of credit, when the government took over the bank. The largest credit share went to the Crown in a form of long-term credit at the expense of private credit which started to decline gradually until 1813 when the bank was dissolved with the bankruptcy of the Danish state. As indicated in the figure below, the lending activities to the government increased with so much volatility

[1]Extended by commercial, savings and mortgage-credit banks
[2] The official name of this bank was (Den Kjøbenhavnske Assignation, Vexel –og Låne-Banque'.
[3] Discounting bills of exchange were widely used in trade transactions. A bill of exchange is a debt document which is issued by the buyer, for instance the trader, to the seller in which the payment is postponed. In a case the seller decides to get the money immediately, he can sell the bill of exchange to his bank. The bank makes a profit by purchasing the bill of exchange at a discounted rate.

during the Napoleon War to cover government deficits and military expenses. Credit to the Crown went down sharply after the bombardment of Copenhagen by England in 1807.

Figure 1: Credit extended by Kurantbanken as per cent of total assets, end of year 1737-1812, (Rdlr.kurant)



Sources: The National Archives, Kurantbanken's balance sheets, Kurantbanken, 1737-1812: *Balancebøger til Hovedbøgerne, 1737-1755, 1756-1776, 1777-1812,* Rigsarkivet 388.

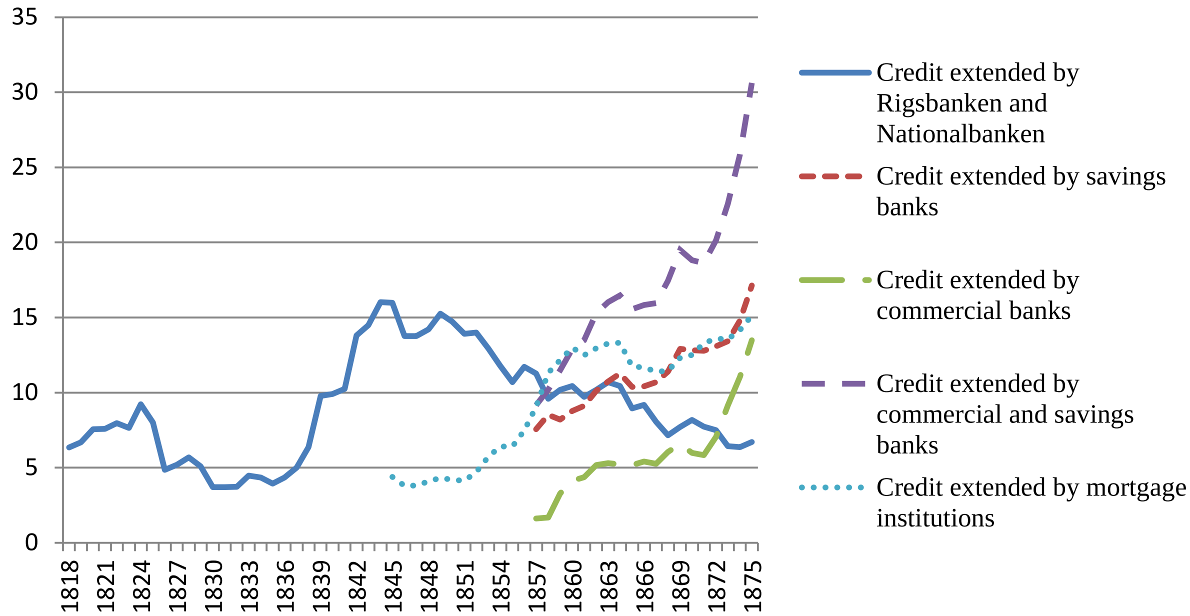
In 1757, due to the excess of banknotes issuance and the depreciation of notes, the exchange of Kurantbanken's notes was deteriorated as the confidence in the bank had been disappeared. After 1760, more than 50 per cent of the outstanding amounts of loans advanced by the Kurantbanken were claims on the central government and consequently in 1773 the central government acquired the bank (www.nationalbanken.dk: Historical Snapshots). A system of two banks emerged during the second half of the eighteenth century when the note-issuing Schleswig-Holstein Specie Bank was founded in 1788 as a governmental institution in Altona. This bank took over the responsibilities of the Kurantbanken in the Royal Duchies within the Danish monarchy. In 1791, a new note-issuing bank for Denmark-Norway, the Danish-Norwegian Specie Bank, was founded in Copenhagen as a private joint stock company. The notes issued by this bank were used for payments to the central government. This bank was subject to major regulations with high reserve requirement ratio for lending; however, the role of this bank was limited compared to Kurantbanken. After 1794, during the Napoleon Wars the huge central government deficits was to a large extent financed by a massive issuing of bank notes through 'Depositokassen' founded in 1799.

In 1807, Denmark became an ally of France and joined the war. The Danish economy entered a very hyperinflation state due to the excessive banknote issuance to finance the military expenditures. As a result shipping and foreign trade were damaged and the Danish monetary system was collapsed by the end of 1812. In 1813, the two note-issuing banks were closed down and the value of notes in connection to silver was dramatically declined, which led to a new monetary reform prevailed in the founding of new banknote issuing bank, the Rigsbank. The bank was given the privileges to issue bank notes with the status of legal tender in Denmark, Norway and the Royal Duchies Schleswig and Holstein. During these years, the Danish economy witnessed a major expansion of economic activities and increasing demand of means of payments and funds (Johansen, 1994:97). Foreign trade was financed in these years by short-term credit and a number of traders in Copenhagen became merchant bankers carrying out trading in bills of exchange. Following the collapse of the Danish-Norwegian monarchy in 1814, a new bank namely the Nationalbanken[4] in Copenhagen replaced the state-owned Rigsbanken in 1818, which was organised as a private joint company. A new charter was issued by the King gave the bank a status very close to a 'central bank' in a modern sense. The primary objective of the Nationalbanken according to its charter[5] was to provide a safe and secure currency system and to promote currency circulation, facilitate production and trade through the extension of credit. The Nationalbanken started to open branches in the other cities and to advance loans to business sector by rediscounting bills of exchange (Rubow, 1918:67). However, the bank was reluctant in collecting private deposits, which were viewed to be as unstable funds (Andersen, 2011:73). The 1810s witnessed the birth of "*sparekasse*" savings banks were first introduced to play a very crucial role in the Danish economy in empowering the labouring savings. Figure 2 shows the credit extended by different types of banks. As shown in the figure, during the 1820s and 1830s, there was a shortage of credit. As a result, many business bodies had to pledge credits from other financial centres such as Hamburg and Amsterdam (Johansen, 1994:98). However, the general trends as shown in figure 2 indicate that credit extended by the Nationalbanken increased quickly during the last two decades of the first half of the nineteenth century to decline again gradually with the rise of commercial and savings banking in Denmark during the second half. Consequently, as shown in figure 2, this period witnessed a major trend in credit allocation across financial institutions changing the banking landscape and favouring

[4] Re-named Danmarks Nationalbank in 1936
[5] Paragraphs 2 and 5

commercial and savings banks as well as mortgage credit institutions, as the Nationalbanken started to play the role of conventional central banking.

Figure 2: Credit extended by Rigsbanken and Nationalbanken, savings and commercial banks, and mortgage institutions, 1818-1875, per cent of nominal GDP at factor costs.



Sources:

Rigsbanken 1813-1818, Balance Bog for Rigsbankens Hovedbog, the National Archives

Svendsen & Hansen, 1968: 171,221, 279, 249, 296.

Hansen, 1983:245-246

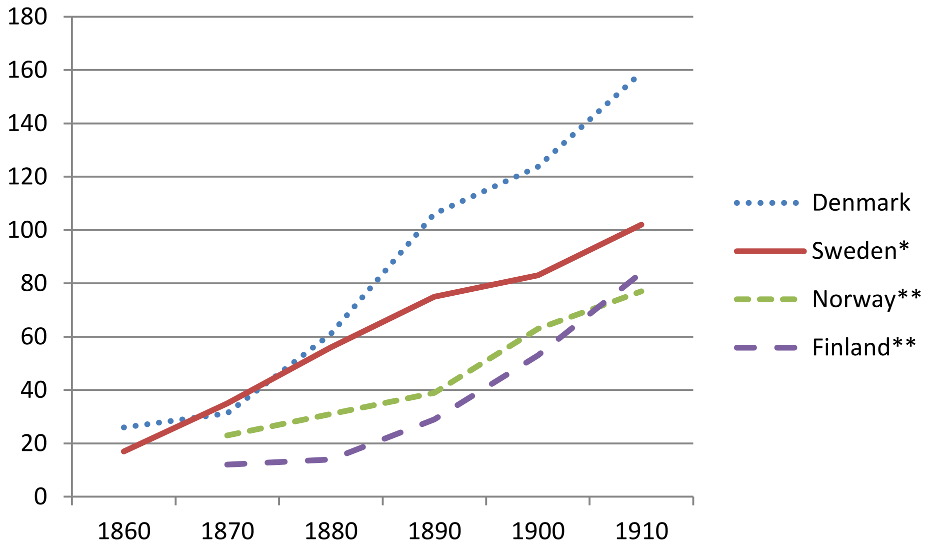
Hyldtoft, 1999:98

Credit extended by the Nationalbanken as illustrated in figure 2 declined between 1845 and 1846 as a result of the new minimum reserve requirement regulation that was introduced as a contractionary monetary policy (Johansen, 1994:98). After 1846, Nationalbanken followed a more expansionary credit policy supported by large sales of grain to Great Britain and Germany which led to improved prices and growth in exports (Andersen, 2011:64). Consequently, during the 1850s, the Danish economy expanded on large scale which increased the demand for more short-term credit to open the door widely for the birth of a great number of savings banks, commercial banks, and mortgage-credit institutes[6], and credit associations (Kreditforeninger). As indicated in figure 2, savings banks and mortgage-credit institutions gained great significance in terms of involving extensively in credit supply in the

[6] The first Danish mortgage credit institute (Kreditkassen for Husejer I Kjøbenhavn) was founded in 1797. This was a response for the huge demand for finance to rebuild Copenhagen after the great fire in 1795 where around one third of the buildings in Copenhagen were destroyed.

second half of the nineteenth century. The major area of activities of savings banks was finance to agricultural enterprises by interest-bearing securities of low denominations, whereas commercial banks were advancing short-term loans to other productive sectors such as commerce and manufacturing. Mortgage-credit institutions directed by the creditors provided loans by issuance of negotiable debt securities against mortgage on real property. As illustrated in figure 3, during the second half of the nineteenth century, private credit in Denmark started to grow rapidly than the other Nordic countries, particularly, when Hamburg ceased to play the role of main financial sources of credit to trade and agriculture.

Figure 3: Growth in private credit; commercial banks, savings banks, and mortgage institutions, as per cent of GDP



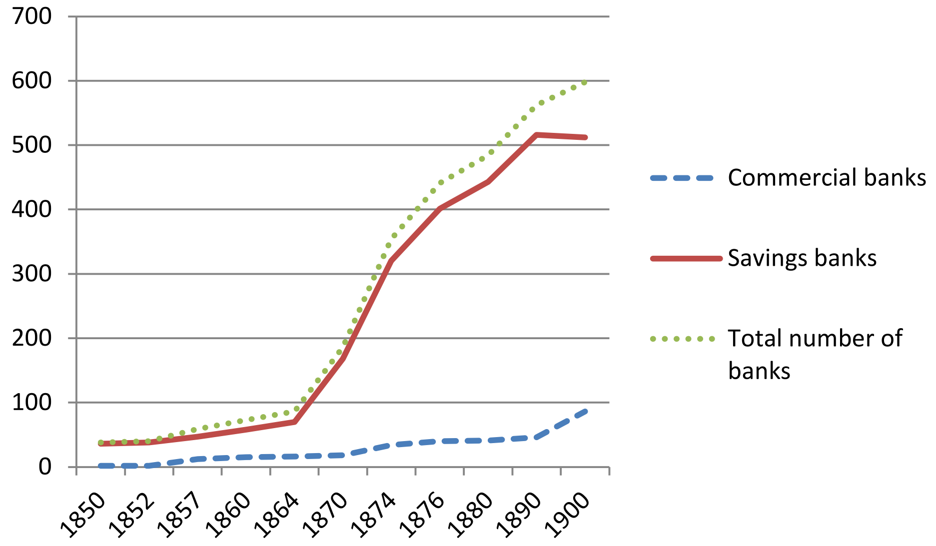
Sources: Figure 2; Andersen, 2006: 115,137,158.

*Per cent in GNP

**Mortgage credit (Bonds) was issued by government and commercial banks.

New commercial banks were established by landlords, businessmen, and merchants, so the merchants themselves were the stakeholders of the banks in the same time. For instance, in 1846, Fyens Disconto Kasse A/S, a commercial bank was founded in Odense by a group of merchants was accounted for 22 per cent of total banks' capital existed in 1860 (Svendsen, 1968:390). In 1857 the Privatebanken I Kjøbenhavn was also launched by merchants in Copenhagen. During the second half of nineteenth century, Privatebanken have supplied at least 20 industrial and commercial companies, many of which still exist at the present like Danisco, DFDS, Tuborg, and TDC. In this domain, this bank can be classified as an industrially oriented bank. Another major bank was founded by landlords namely Landmandsbanken[7] in 1871. Landmandsbanken grew rapidly from the late 1890s and became the largest Nordic bank between 1910 and 1923 (Andersen, 74-79). In 1873, Handelsbanken, the fourth major bank in Copenhagen saw the light, which like Landmandsbanken opened branches in other Danish areas. As shown in figure 4, during the second half of nineteenth century, the number of savings banks increased very quickly; most of which were small banks and have their socio-cooperative and agricultural origins. The figure also compares the changes in number of savings banks with those of commercial banks and reveals the large number of small savings banks vis-à-vis few larger commercial banks.

Figure 4: Changes in number of commercial and savings banks, 1850-1900



Sources: Bisgaard,1910:196;
Svendsen, 1968:294
Danmarks Statistik, Statistik Årbog, relevant years.
Danmarks Statistik, 1969, Kreditmarkedstatistik, Statistiske Undersøgelser nr.24

Savings banks started from the mid-nineteenth century to extend short-term loans to private customers against all types of collateral, including real estate to place funds in Nationalbanken's shares, government and mortgage bonds (Andersen, 2011:81). The institutional framework of the banking system remained nearly unchanged until the mid-nineteenth century. The second half of the nineteenth century witnessed the institutionalisation of the banking system after the introduction of savings banks' and mortgage associations' acts. In 1880, the first savings banks' act saw the light, whereas the

[7] Den Danske Landmandsbanken became in 1976 'Den Danske Bank' and 'Danske Bank' after 1990.

first mortgage associations' act was already introduced in 1850 followed later by 1861 and 1897 acts. Following the new act, savings banks started to compete with mortgage associations, especially when mortgage finance became an increasingly important business in rural districts and provincial towns. In line with the development of the banking sector, the stock market grew gradually when the number of bonds and shares issued and traded in the exchange increased significantly. However, Denmark displays a relatively slow economic transformation and late industrial break-through. As illustrated in table 3, in the 1850s, the Danish economy was still relied heavily on agriculture which accounted for about 60 per cent of GDP. However, as a whole, industry grew gradually throughout the nineteenth century but no break-through happened until the 1890s (Hansen, 1970:7, 20, 21, 64)**.**

Table 3: Sectoral distribution of GDP at factor costs, per cent, 1850-1910

	Agriculture	Industry*	Trade and services**
1850	68.3	20.2	11.5
1860	61.8	25	13.1
1870	58	25.1	16.9
1880	49.9	26.9	23.1
1890	43.5	28.9	27.6
1900	34.5	32.6	32.8
1910	32.5	31	36.5

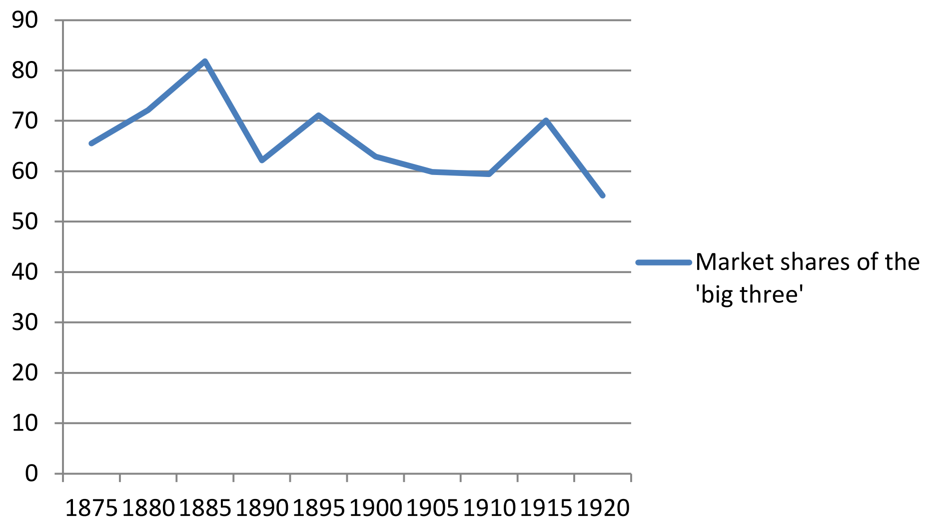
Sources: Johansen, 1985:395-397, table 1.4b, figure 3.1.

*Including construction and building works

** Including transportation

The 1870s witnessed a series of changes such as the replacement of the silver standard by the gold one and the introduction of Danish krone in 1875 as a new means of payments. In 1875, all Scandinavian countries introduced the gold standard under the name of Scandinavian Currency Union Convention. The convention stipulated that all countries should introduce the gold standard based on the same unite of account (the krone). The Scandinavian Currency Union lasted up to World War I. After 1875, the banking system in Denmark took the shape of modern banking while the capital market and foreign borrowing to investments grew very fast (Hansen, 1983:309). Perhaps one of the most important characteristics of the Danish banking system in the late nineteenth century was its high level of concentration with few large Copenhagen based banks and branches in other Danish territories (Abildgren, 2005:54). As indicated in figure 5, concentration in the Danish banking system intensified in 1885, when the market shares of the three big[8] reached 82 per cent of the total assets of commercial and savings banks.

Figure 5: Market shares of the 'three big' in total assets of commercial and savings banks



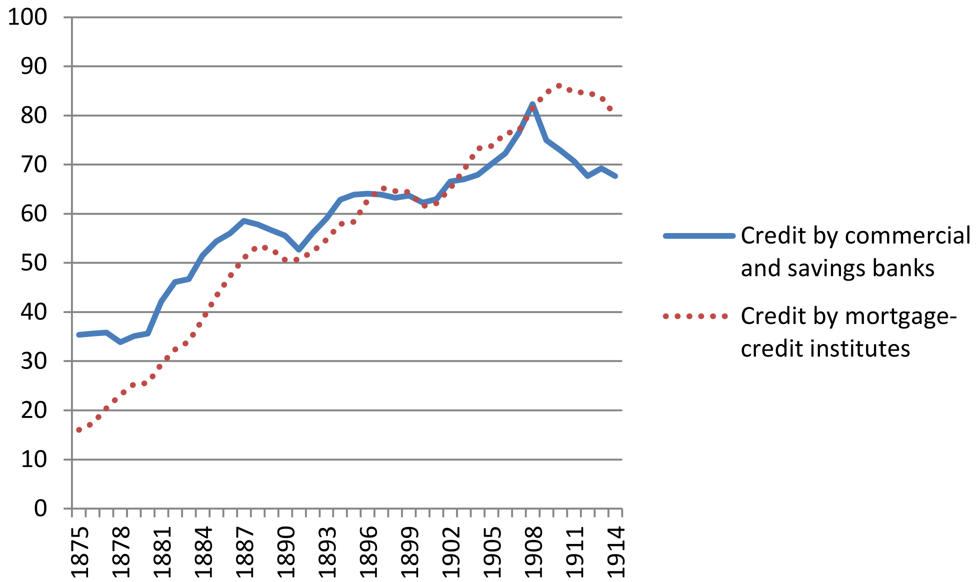
Sources: Danmarks Statistik ,1969, Kreditmarkedsstatistik, Statistiske Undersøgelse Nr.24., Tabel 1-2.

Between 1886 and 1896, the Danish agricultural sector faced a price decline of grains, which led in turn to decrease in farmers' savings and increased debt burden. Consequently, there were a number of savings banks' failures followed by a massive credit reallocation across sector favouring industrial expansion. During the 1890s, the Danish economy was subject to industrial expansion, as a result, commercial and savings banks had to deal with the new transformation. They engaged in share-issuing activities in the form of cooperation with large industrial and commercial enterprises based on short-term lending (Johansen, 1994:100). As shown in figure 6, credit advanced by commercial and savings banks to the private sector increased dramatically to reach 80 per cent of GDP in 1908. However, this followed by a serious banking crisis which caused a steep decline in credit advanced to the industrial and business enterprises as indicated in figure 6. The crisis happened during the expansion in the construction sector which was subject to massive speculative investments based on short-term

[8] 'Three Big': Landmandsbanken, Privatbanken, and Handelsbanken.

loans (Johansen, 1994:100). As illustrated by figure 6, lending by commercial and savings banks was curtailed after 1908 vis-à-vis a further increase in loanable funds of residential credit advanced by mortgage-credit institutions to reach 86 per cent of GDP in 1910.

Figure 6: Credit advanced by commercial and savings banks and mortgage credit institutes, 1875-1914, as per cent of nominal GDP at factor costs



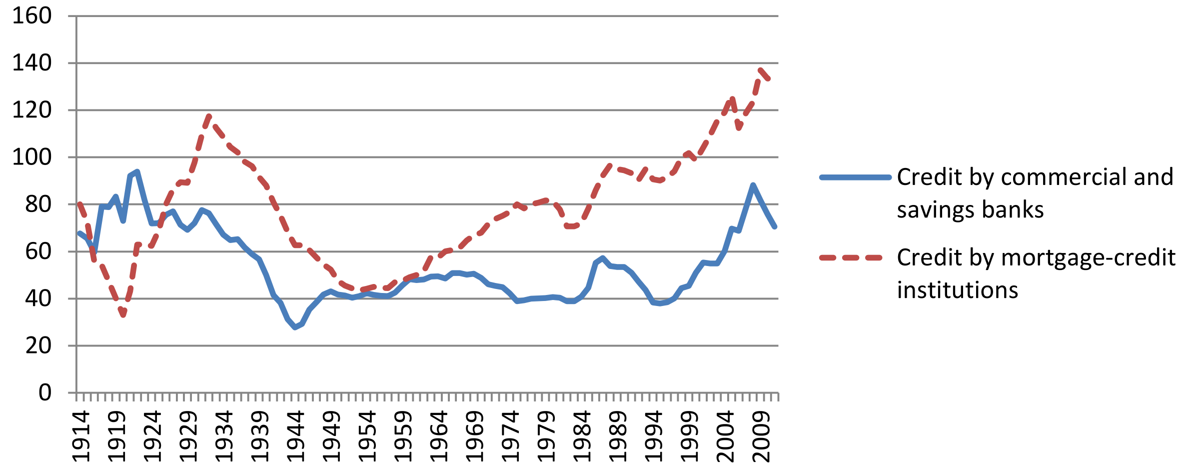
Sources: Hansen, 1983:246-248, Volume II, Table 3, Abildgren, 2006 (Danmarks Nationalbank's publication).

3.2 Banking and credit under supervision, reforms and transformation 1914-2012

In 1914, banking in Denmark entered a new historical period with the dissolution of the gold standard[9] and the Scandinavian Monetary Union at the outbreak of the WWI. Due the neutrality of Denmark, the banking sector gained momentum in attracting more deposits and gold stocks during the War, which caused a surplus of liquidity and an increase in credit extended by savings and commercial banks to manufacturing, foreign trade, and particularly to the more profitable shipping industry (Johansen, 1994:101). During the post WWI period, the large commercial banks shifted very large sums of money out of their loans to speculative investments. As a result, as shown in figure 7, credit advanced by commercial and savings banks increased gradually until 1921 compared to a sharp decline in credit of mortgage banks.

[9] In 1927, the Danish krone returned to the Gold Standard at the pre-war parity. However, Denmark left again the Gold Standard in 1931, shortly after the UK went of gold. Apart from major krone devaluation in 1933, the Danish krone was pegged rather closely to the British pound until WWII.

Figure 7: Nominal credit[10] extended by commercial and savings banks and mortgage credit institutes 1914-2011, as per cent of nominal GDP at factor costs



Sources: Hansen, 1983:246-248, Volume II, Table 3; Abildgren, 2006&2012 (Danmarks Nationalbank's publication); Denmark Statistics, www.dst.dk, www.statistikbanken.dk.

Generally speaking, during the war, commercial and savings banks relied on attracting more deposits and providing in turn more short-term credit to the productive sectors with less need to large share capital and large reserves. However, Nationalbanken's lending-credit to commercial business and particularly to mortgage loans decline after 1905 vis-à-vis an expansion of credit to the government (Andersen, 2011:75). In 1918, the Danmarks Nationalbank[11] took over notes issuance completely. Commercial banks in Denmark were subject to the first legislation act in 1919 which established the Bank Supervisory Authority[12]. As a result of the new monetary and financial conditions, changes in banking structure seem to influence significantly the observed response pattern of credit extensions during the first half of 1920s. The deflationary policy prevailed in the post-war period had major effects on firms that relied on bank credit. Many firms failed with the failures of several commercial banks (Johansen, 1994:101). Consequently, the 1920s witnessed the first waves of bank failures, mostly caused by excessive speculation and over-sized exposure of individual banks (Andersen, 2011:164). The 1920 - 1933 financial crisis was a very severe crisis because of several reasons; firstly, a large amount of lending to a single borrower had been a main cause of many of the bank failures during the 1920s: 26 of the failed banks between 1920 and 1933 had each advanced more than 50 per cent of their capital to a single borrower (Hansen,

[10] Not seasonally adjusted
[11] In 1936, the central bank became a self-governing institution whose profits after provisions were to be transferred to the central government. Before 1936, the Central Bank was a private joint-stock company.
[12] The 1988 witnessed the establishment of the Danish Financial Supervisory Authority.

1996:157). Secondly, after the reintroduction of the gold standard in 1927, prices increased followed by a very rapid appreciation of the krone and deflation, which escalated in turn the crisis in the banking sector and brought unemployment up to 22 per cent (www.nationalbanken.dk). Thirdly, in 1931, Denmark was also hit by the effects of Great Depression which caused pressure on the Danish currency reserve after the run of non-residents to redeem their claims.

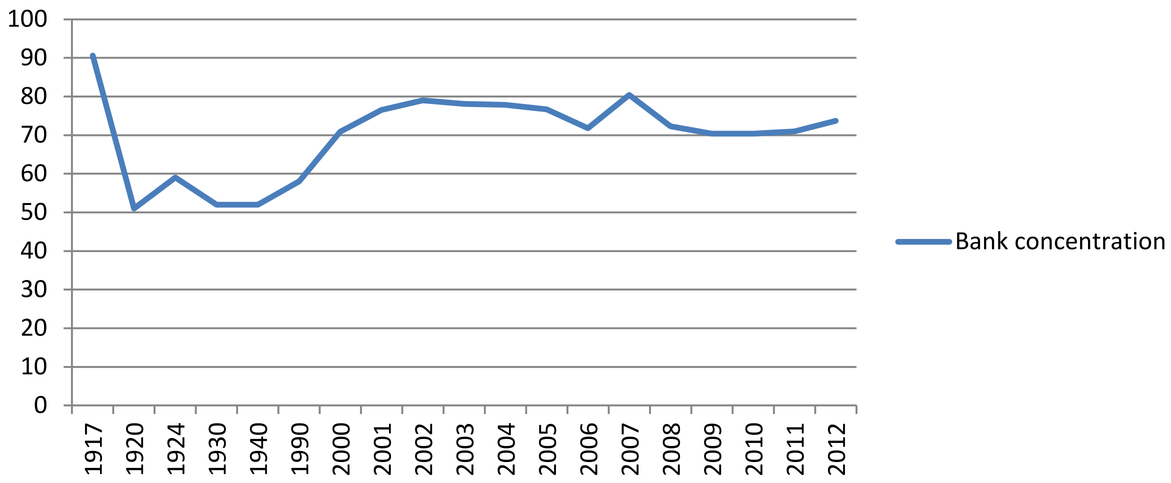
Perhaps, credit allocation across sector was one of the most spectacular changes that occurred during the crisis years, 1922-1933. In these years, a major reallocation of credit had been carried out by the banking sector, particularly, when a high priority was given to mortgage loans as illustrated by figure 7 above. The increasing trend in mortgage credit and declining trend in commercial and savings banks' credit between 1920 and 1932 as indicated in the figure seem to have a kind of substitution of credit from the real sectors toward mortgage credit which has been regarded as the most reliable low-cost source of secured finance to the private sector (Abildgren, 2012:11). While commercial and industrial loans seem to have been hard hit in this period, consequently, mortgage credit supply started to play a very crucial role in the Danish credit market (Andersen, 2011, Abildgren, 2012, 2008 and Frankel, 2004). A turning point emerged during the early 1930s, when the ratio of credit to GDP had declined substantially in both types of credit. Since then the trends had reversed for mortgage institutes' credit as well as commercial and savings banks' credit thus the pre-1920s crisis level was not reached until 2004 (see figure 7 above).

In 1930, the Commercial Bank Act was subject to revision that restricted the lending to a single borrower to 35 per cent of the bank's equity capital or 50 per cent if approved from the supervisory authorities. The Savings Bank Act was more restrictive than that of commercial banks' act. It was until 1975, when the savings banks were given by a new commercial and savings banks' act the full right in practicing commercial banks' activities and to provide all types of banking services. The commercial banks and savings banks' act of 1974 made possible for banks and savings banks to merge and to transform themselves into joint-stock banks (Andersen, 2011:175-176). An expansionary policy followed by Danmarks Nationalbank during the War years and occupation between 1940 and 1945. The tremendous pressures on commercial as well as savings banks during the War years obliged them to go into series of consolidations to enhance their activities. In the post war period, Denmark adopted the Bretton Wood system, while the domestic economy was favourable to foreign trade based on rising output and moderately declining prices. However, the period between 1945 and 1986 witnessed a chronic foreign exchange shortage, mounting government and foreign debts, and excessive governmental spending with the rise of the Danish welfare state during the 1960s (Andersen, 2011:164).

From the beginning of the second half of the twentieth century, major changes appeared in the banking practices in Denmark, especially when many customers started to move from savings banks and open accounts in commercial banks after the introduction of salary-payment through banks. With the rise of commercial banks' deposits during the 1960s, many of them opened more branches in many areas of the country aiming at covering the new banking services. In these years, advancing short-term credit remained the major way for finance to trade and manufacturing. From the mid-1960s, the Danish banking sector witnessed a major structural change, when industrialisation reached rural areas (Johansen, 1994:104). Since 1973 when Denmark joined the EEC, its monetary policy has been influenced by the European one. As a result, the banking system became much more related to the larger European market and the Danish Krone was linked now to the German mark within the European Monetary System (EMS). During the 1970s and the beginning of the 1980s, the Danish economy was open to foreign trade which represented approximately one third of GDP. As a result, commercial banks were heavily involved in foreign trade finance. The Danish monetary authorities used monetary policy measures to stimulate capital import in order to finance current account deficit. During the 1970s, the Danish level of interest rates was consistently kept higher than the interest level for instance in Germany, and it was therefore more profitable for Danish companies to seek finance abroad. Many Danish banks established branches or subsidiaries in London, Luxembourg, Frankfurt and the Cayman Islands (Balling and Grosen, 2002: 55). From 1979 and until 1999 with the introduction of the euro, Denmark joined the Exchange Rate Mechanism (ERM) within the EMS. In addition, between 1982 and 1988, the Danish financial system went into a liberalisation process favouring free international capital movement, open European markets, and easier access for foreign banks in Denmark as well as for Danish branch offices abroad. Such a situation had given rise to new types of business and more intense competition in banking, which led to wave of mergers and acquisitions (Hansen, 1993:35). During the 1980s, Danish banks competed on volume basis rather than profit basis, which led to decline in net earnings. Banking troubles were intensified by financial distress reducing employment in the banking sector and many branches were closed down (Hansen, 1993:36). Furthermore, commercial banks involved during the 1980s strongly in real estate and building financing, as a result, they were hit hard when these markets collapsed at the end of 1980s, however comparably the situation was far less severe than the banking crisis of the 1920s (Hansen, 1994 & 1996, Balling & Grosen, 2002: 54). According to figure 7 above, credit of commercial and savings banks as a per cent of GDP declined slightly between 1986 and 1996 from 55 per cent of GDP to 38 per cent. This was due to the collapse of the Danish real estate sector in the beginning of 1990s in which commercial banks had already involved very deeply (like the other Nordic countries). In several cases, during the difficult time of the beginning of 1990s, mergers and bank restructurings were realised under the surveillance of the Danish Financial Supervisory Authority and Danmarks Nationalbank to restore confidence in the financial market. Consequently, most large savings banks transformed into commercial banks after 1993 and most of bank failures have been resolved by takeovers of troubled banks by larger ones (Hansen, 1993:39). However, in contrast to commercial and savings banks, the general trends as revealed in figure 7 above suggest that the level of bank earnings of mortgage credit-institutions has improved during the 1980s following the gradual liberalisation process. This improvement was in the form of better earnings and profitability performance (Balling & Grosen, 2002: 57). The Mortgage Credit Act was amended several times to meet the requirements of EU directives, which enhanced the credit supply advanced by the mortgage-credit institutions (Abildgren, 2005:61). As a result of this new regulatory framework, since the mid-1990s, the banking system has been characterised by increasing competition on new loan types as a cross-sector competition offered by mortgage-credit institutions and commercial banks as well (Abildgren, 2005:63). The 1990s witnessed one of the most remarkable structural changes of the banking system when commercial banks establishment their own mortgage-credit branches, consequently, a number of commercial banks[13] reallocated a substantial portion of their lending across sectors from commercial and industrial loans into consumer and residential mortgages for the subsequent years as illustrated by figure 7 above: credit advanced by mortgage-credit institutions in 2000 represented 98 per cent of GDP compared to 51 per cent for credit extended by commercial and savings banks. The European and regional integration of the Danish banking system during the 1990s and 2000s enhanced the level of bank concentration and cross-border bank mergers. As illustrated in figure 8, the percentage market share of ‘three big’ in 2007 reached 80.4 per cent of total working capital of the banking system.

[13] In 1993 the two largest Danish banks established their own mortgage-credit institutes; Danske Bank established Danske Kredit and Unibank formed Unikredit.

Figure 8: Bank concentration ratios*, as market shares (per cent) of 'big three'[14], 1917-2012

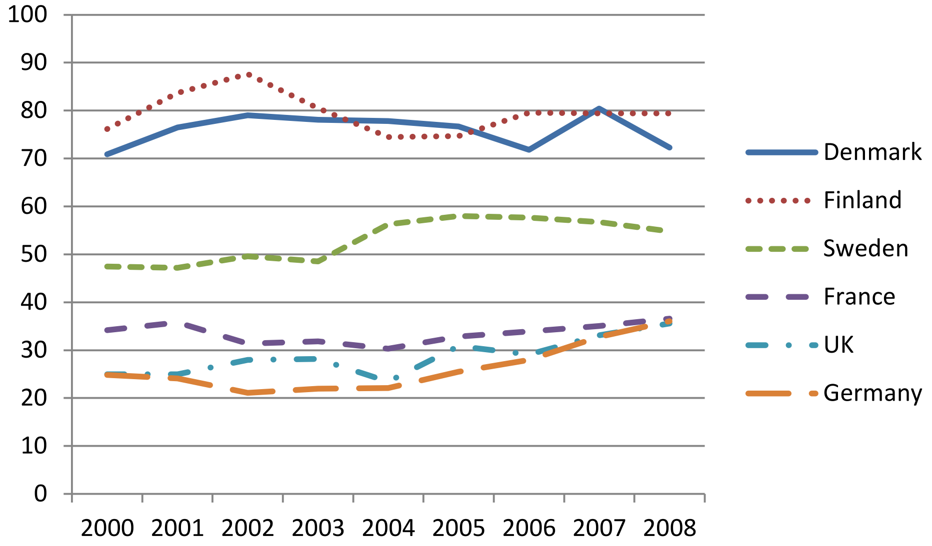


Sources: Andersen (2011:79-80, 172) table 3.6;
Mikkelsen, 1993:361;
Finanstilsynet (Danish FSA, www.finanstilsynet.dk): Danish Financial Supervisory Authority's data for the whole banking system and for each 'big three'.
*1917=Market share in total market credit.
*1920-1990=Market shares in total market assets
*2000-2012=Market shares in total market working capital (Total deposits, issued bonds, subordinated debt and shareholders' equity)

In this respect, as indicated in figure 9, like Finland, Denmark has one of the highest bank market concentration ratios compared to a number of other European countries.

[14] 1917: the 'big three', Private Banken, Landsmandsbanken, and Handelsbanken; 1920-1990: the two largest bank, Den Danske Bank and Unibank; 2000-2012: 'big three': Danske Bank, Nordea Bank Danmark, Jyske Bank.

Figure 9: ***Bank concentration ratios, as market shares in total assets (per cent) of the three largest banks, 2000-2008***



Sources: Finanstilsynet (Danish FSA, www.finanstilsynet.dk);
Ferreira, 2012:20-21

Perhaps, the creation of large financial institutions carrying out universal banking activities has been the most remarkable structural change in the Danish banking system in the last two decades (Abildgren, 2005:57-58). Throughout the second half of the 2000s, as a continuation of regional integration, the banking system witnessed a series of mergers among large banks as well as between domestic and other Nordic banks. The result was an increase in the level of concentration with a system of two large dominating commercial banks[15] and small institutions (Andersen, 2011:181). Between 2005 and 2008, the financial sector was under excessive speculation in the stock and property markets, associated with bank failures, much like in the early 1920s, and much like elsewhere but of limited lasting consequence (Andersen, 2011:164). In September 2008, the international financial market entered into new financial turbulence with the collapse of major US investment bank Lehman Brothers. The access to liquidity for banks in Europe deteriorated as well and consequently the financial sector in Denmark entered into a new phase of financial crisis and resolution process[16].

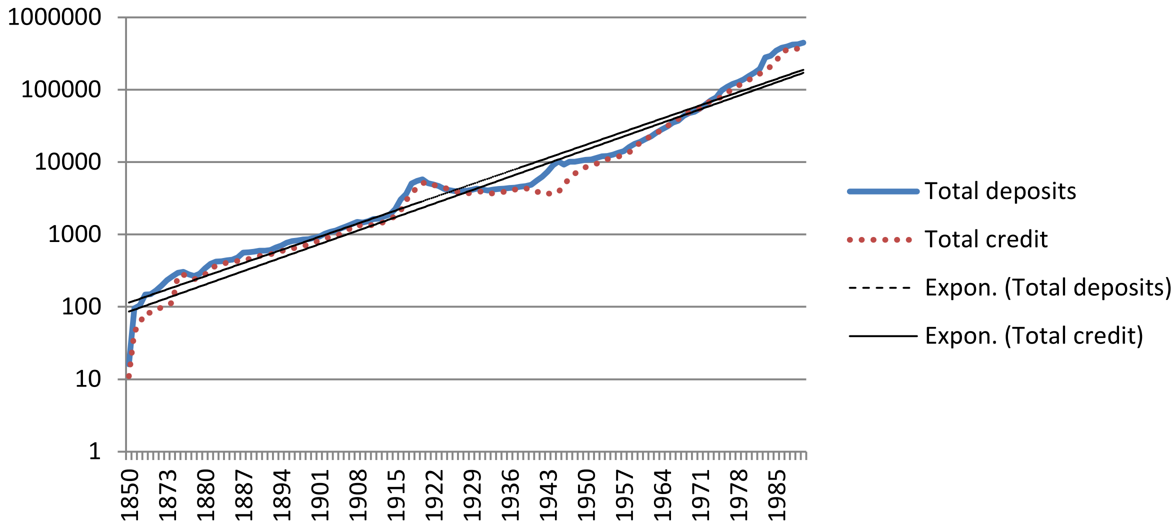
[15] Danske Bank and Nordea and only two major independent residential mortgage institutions; Nykredit A/S and BRF-kredit A/S.

[16] In 2008, acquisitions of a major bank namely the Roskilde Bank by Danmarks Nationalbank and the Danish Contingency Association.

4. Historical factors affecting the patterns of credit allocation in Denmark

The growth of total credit extended by any banking sector is largely related to the flows of funds into this sector. The relative growth rates in earning assets will be, therefore, closely parallel to both the relative growth rates in bank deposits and the size of the banking system as a whole. Thus, changes in deposits at the macro level of the banking system, will impact relatively the types of credit. In Denmark, as shown in figure 10, the volume of credit extended by the existing two types of banks increased in parallel to total deposits between 1870 and 1990 at almost the same rates of average annual growth; at 7.3 per cent for total credit and 6.9 per cent for total deposits respectively.

Figure 10: Total deposits and total credit in commercial and savings banks 1850-1990, end of year, in mill. DKK (Logarithmic scale at base 10)



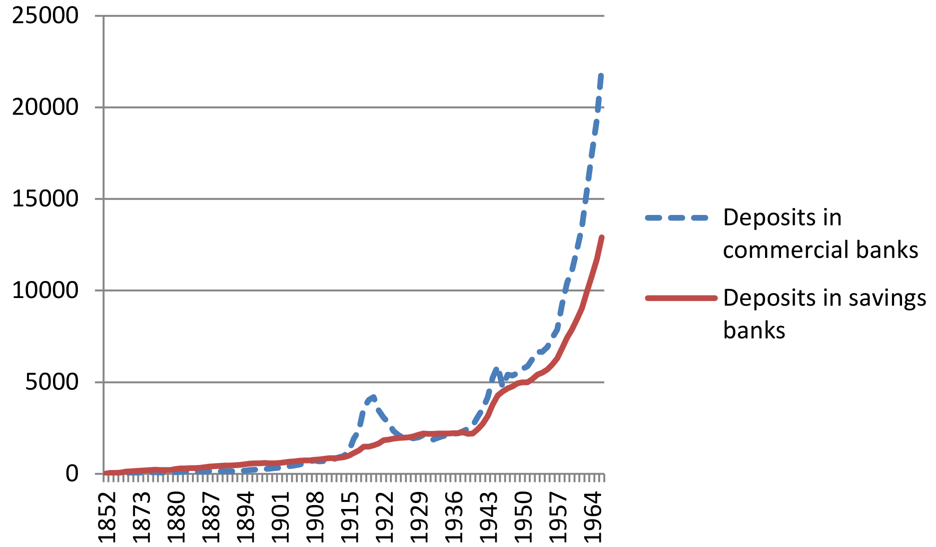
Sources: Kreditmarkedsstatistik, Statistiske Undersøgelser planlagt udsent 1968
Svendsen og Hansen, 1968:294;
Olsen og Hoffmeyer, 1968:45, 70, 314;
Mikkelsen, 1993:428:table II.9;
Hansen, 1984, Bind I;
Olsen, 1962, 282-285, table Ic;
Hansen, 1983:246-248, Volume II, Table 3;
Abildgren, 2006;
Abildgren, 2012;
Denmark Statistics, www.dst.dk, www.statistikbanken.dk.

However, as long as the type of deposit is considered, deposits in commercial banks and savings banks grew at different rates under different banking structures as shown in figure 11. For instance, deposit at commercial banks expanded between 1914 and 1966 by about 6.1 per cent, while deposit at savings banks expanded at 5.2 per cent. Between 1870 and 1913, the growth rates were at 8 per cent in commercial banks' deposit and 4.8 per cent in savings banks. This relatively faster growth rates in flow of funds to commercial banks could be related to the diversity of their types of credit under the historical structural changes of the Danish banking system. In this respect, the last quarter of the nineteenth century can be mentioned here as one of the most favourable periods for commercial banks to reallocate their credit in order to bring a powerful rise in the use of deposits in industrial and commercial credit at the early stage of industrialisation.

From another point of view, one can suggest here that the pattern of credit allocation during the industrial take-off can be more properly attributed to the differences in the banking practices and also regulation might have had impact on the availability of funds among different types of financial institutions; from 1880 onwards certain limitations were placed upon savings banks' activities such as banning them from the discounting of bills. A closer examination of figure 11 indicates the remarkable increase in the importance of commercial banks' deposits after 1914 vis-à-vis deposits in savings banks. It seems that the expansion in commercial banks' credit was based on a vital chronological coincidence between the increase in their deposit portfolios and the industrial break-through, whereas, traditionally, savings banks' customers did not consist to any great extent of industrialists but tended to be drawn from both farmers and craftsmen (Hansen, 1970: 38-39).

Perhaps one of the most spectacular effects of financial regulation after 1914 was the shift of deposits as indicated in figure 11 from savings banks to commercial banks. However, there had been a deposits reallocation in the opposite direction during the 1920s toward savings banks which were more restrictive in their lending policies (Andersen: 2011:167). Savings banks placed their working capital during the crisis time mostly in mortgage and governmental bonds as they faced difficulties in finding more lending opportunities for their increased deposits (Andersen, 2011:171).

Figure 11: Evolution of deposits in commercial and savings banks, 1852-1966, in mill. DKK



Sources: Kreditmarkedsstatistik, Statistiske Undersøgelser planlagt udsent 1968

Olsen og Hoffmeyer, 1968:45, 70, 314

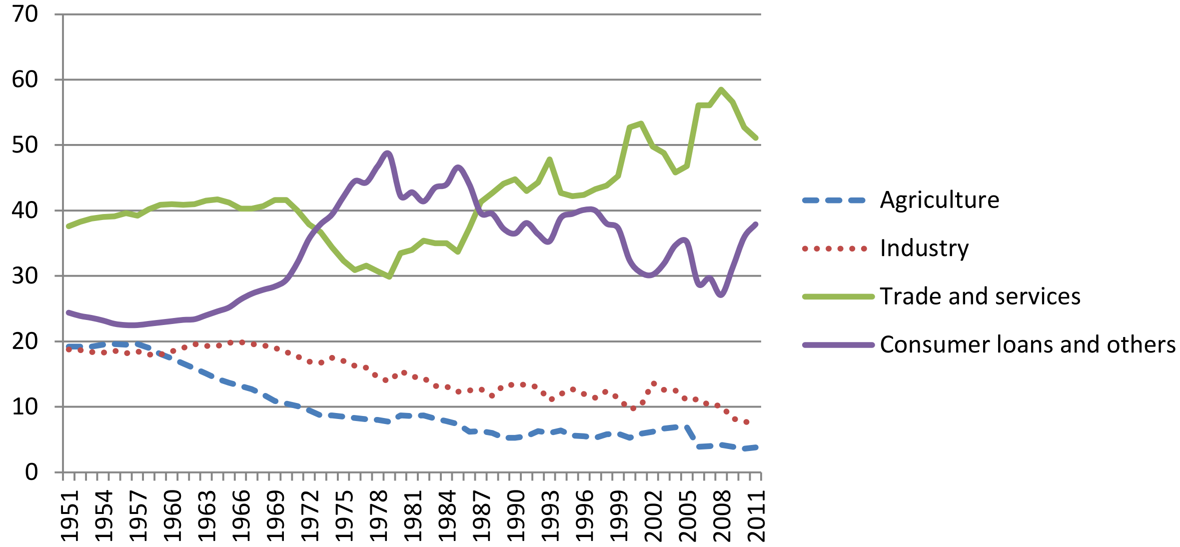
Mikkelsen, 1993:428:table II.9

Hansen, 1983, Bind I,

Olsen, 1962, 282-285, table I c.

Later, during the second half of the twentieth century, these banking practices were changed by a major credit reallocation across sectors as illustrated by the data in figure 12. The figure shows the large relative decline in both commercial and savings banks' credit extended to industrial enterprises since 1951. In looking at the period after 1959, perhaps the most surprising trend is that credit to agriculture and industry showed a declining trend vis-à-vis a gradual growth in credit to trade, services and consumption. Obviously, the general view of this observation suggests that trade, services and consumer loans tended to draw funds away from industry and agriculture during the second half of the twentieth century.

Figure 12: Sectoral distribution of nominal credit[17] advanced by commercial and savings banks, per cent of total credit, end of year, 1951-2011

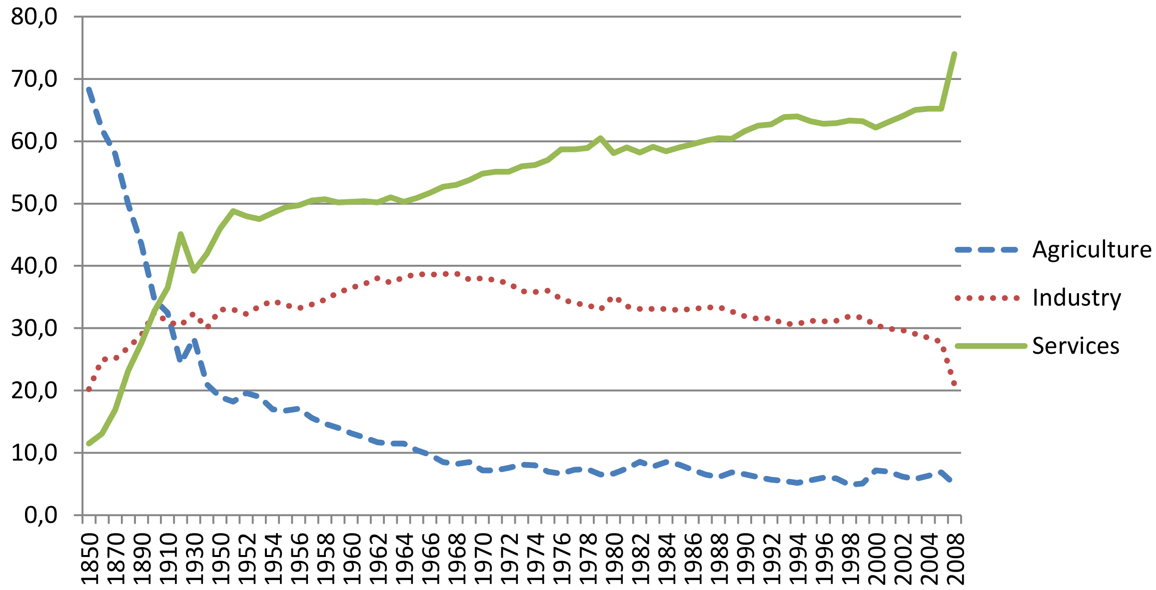


Source: Abildgren, 2007:40, Appendix B, Danmarks Nationalbank Working Paper, 2007.47; Denmark Statistics, Statistical Yearbooks, 2006-2012:Tables, 440, 434, 436, 410, 406, 407.

A possible explanation of the general shift in private credit toward trade and services can be observed by the structural transformation of the Danish economy that have occurred in step with the major changes in banking structure after 1914. Figure 13 shows the structural transformation of the Danish economy beginning late nineteenth century throughout the twentieth century towards more increased production of services.

Figure 13: Composition of GDP (at factor costs) by sector (per cent), 1850-2008

[17] Long-time series on sectoral distribution of private credit in Denmark are almost not available. However, Abildgren (2007) has constructed annual time series for stock credit (aggregated credit) between 1951 and 2005 based on the available figures and data from Statistics Denmark after 1978 and Danmarks Nationalbank, 1951-1977.



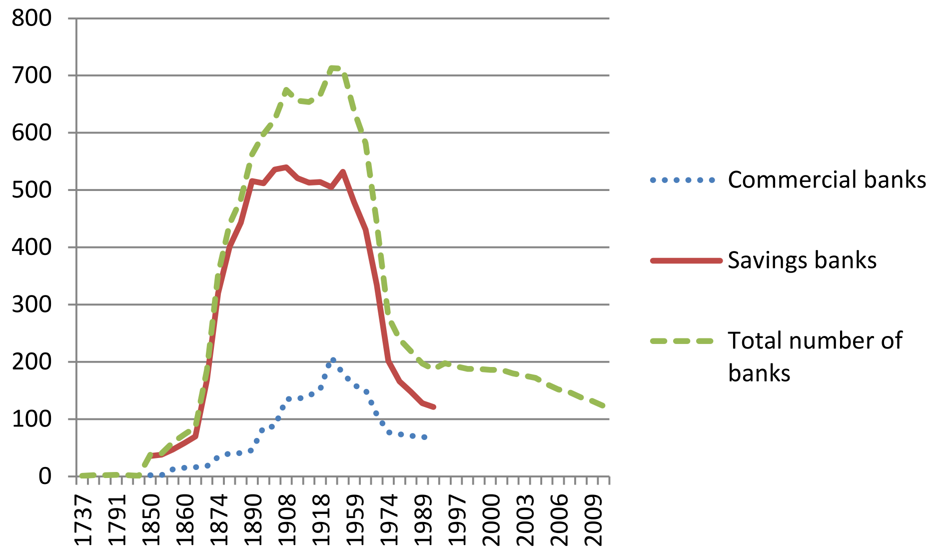
Sources: Johansen, 1985:395-397, table 1.4b; figure 3.1.
Andersen, Torben M., 2001:30, 2010:30, table2.1.
Johansen, 1987:22.

Abildgren, 2007:51, Table B.12.

5. The effects of financial crises

In line with the prevailing economic transformation and with the increasing liberalisation and growing world trade, the Danish banking system has been subject to sequence of structural changes since 1914. However, the 1920s and 1980s financial crises had a number of devastating effects on the banking system; about one third of the nearly 208 commercial banks existing in Denmark in 1920 lost some or all of their share capital between 1920 and 1930. As a consequence of the 1920s crisis, financial intermediation slowed down and probably with a negative effect on the economy as a whole. Figure 14 shows that the many commercial banks failures of the 1920s caused the number of both commercial and savings banks to decline considerably after 1930. Ever since, number of commercial and saving banks in Denmark has been in decline due to a number of waves of mergers and acquisitions.

Figure 14: Changes in number of commercial and savings banks, 1737-2010



Sources:

Bisgaard, H.L., 1910:196 (for 1850)

Svendsen & Hansen (1968:294), (for 1857, 1860,1864)

Danmarks Statistik:Statistik Årbog, relevant years (for 1852-1940)

Danmarks Statistik, 1969, Kreditmarkedstatistik, Statistiske Undersøgelser nr.24

The Danish Financial Supervisory Authority (Finanstilsynet) 2007, Key figures for financial undertakings under supervision (for 1997-2010)

Hansen, 1996:77, table4.2

Mikkelsen, 1993:358

Hansen (2012) (for 1737-1810)

Later, major changes in the European markets during the 1970s and 1980s such as the liberalisation of international capital movement and the establishment of European currency and monetary systems brought the Danish banking system further toward more concentration and internationalisation. The development resulted in series of bank consolidations and mergers. The newly emerged financial conglomerates controlled by the largest banks, have played a very important role in shaping the Danish economy in the second half of the twentieth century. However, during the 1980s and the beginning of the 1990s a number of banks came into financial distress; as indicated in figure 14, 52 commercial and savings banks, out of a total of approximately 240, were shut down between 1979 and 1998, which seven of them went bankrupt. Compared to the crisis of 1920s, however, the 1980s crisis was less severe since most of failed banks were small and no large bank failed. None of them had a market share exceeding 1 per cent by total assets (Andersen, 2011:179). Figure 14 shows that between 2000 and 2010, the total number of banks in Denmark declined from 186 to 123. This reduction in number during the 2000s came about either through taking over of small institutions by larger ones or by merger of small provincial institutions into larger regional banks.

6. Conclusion

The data presented in this paper show that factors such as structural changes in the banking system and economic transformation influenced the patterns of credit allocation-reallocation observed during the periods under study. This might have produced significant variations in economic growth in Denmark. Banks with different structural characteristics and credit types responded differently to the changes in monetary policy. The vast bulk of credit of the banking system went to residential mortgage markets at the expense of commercial and industrial loans after the 1920s financial crisis. It seems that implications of credit allocation should be regarded as one of the most important factors in shaping the economy. This study has shown that the structural characteristics of the banking system must be taken into account in tracing out the interaction between the allocation of credit process and economic growth. Furthermore, the examination of historical trends in credit growth is useful to trace how changes in banking structure and economic transformation might lead to reallocation of banks' credit. By looking at the changes in long-run span of historical trends in bank credit growth, one can obtain a rough indication of the steady-state impact of the structural factors on credit allocation. In general, the data indicate that a greater proportion of funds were extended to residential and property business. There are two outstanding features in the data on mortgage credit; first credit developed to this business increased sharply with the size of the banking system. Second, despite the fact that residential credit is to a large extent extended by mortgage-credit institutes, the large commercial banks devoted also a big share of their total assets to this single category of loans. In this connection, changes in the Danish banking structure provide a reference point from which to judge the impact of such credit allocation on the economy. If the banking system were experiencing steady growth under stable structure and monetary conditions, one would have expected to find the various categories of banks' credit growing approximately at the same pace.

During the two long periods under research, bank aggregate credits were of continuous expansion. During the first period, 1736-1914, the banking system had been able to expand credit sufficiently to accommodate the increase in industrial expansion and real economic activities. Banks were able to advance more credit and to compete aggressively for loanable funds. But then, after the end of WWI, monetary policy was tightened substantially, when the

Central Bank imposed more restrictions. These changes in financial conditions were accompanied, however, by some pronounced changes in the patterns of credit allocation. The amount of credit extended by commercial and savings banks for the two historical periods lagged substantially behind the expansion in credit of mortgage institutions. For instance Aggregate mortgage credit increased at annual growth rates of nearly 7.3 between 1875 and 1914 and 7.6 per cent between 1914 and 2012, whereas in the case of commercial and savings banks, the growth rates were less, nearly at 4.7 and 7 per cent for each period. This could reveal the tendency of the banking system to reallocate bank credit toward service and trade activities in line with the economic transformation already occurred at the end of nineteenth century. Perhaps one of the interesting findings form this paper is that although at the aggregate level, monetary policy was much less restrictive during the period 1736-1914; aggregate private credit during the period 1914-2012 expanded faster at 7.4 per compared to aggregate private credit expansion at 6.7 per cent between 1857 and 1914. A downturn in credit growth seems to have appeared from the early 1930s to the middle of the 1950s where the ratios of credit to GDP decline from 117 per cent to around 43 per cent for mortgage-credit institutions and from 77.6 per cent to 44 per cent for commercial banks and savings banks. A gradual increase emerged after the mid-1950s but the pre-World War I levels were not reached until the end of 1970s (see figures 6 and 7). This can be attributed to changes in the regulatory framework during the period 1914-2012, which caused significant changes in the banking structure.

It is apparent than any of these factors mentioned above, acting separately or in combination, could produce the observed changes in the pattern of banks' lending. It is quite conceivable also that changes in general monetary conditions can alter the distribution of funds among the various types of credit. This in fact can effect indirectly the individual bank decision which lies outside the banking system's structure; changes in the monetary system can alter the distribution of credit by changing credit priorities for profitable funds. Under tight monetary conditions, a bank may choose to restrict certain types of lending in order to increase credit to more favoured borrowers with higher returns. It has been already observed that during the periods under study, banks did, in fact, expand their mortgage loans much more rapidly than lending to industrial and agricultural enterprises. Residential and commercial loans are important areas in which the banks adopted relatively expansionary lending policy. Finally, in short, it's worth noting that the relative economic transformations have occurred during the two study periods tend to screen out the effects of structural determinants on credit allocation across sectors and financial institutions, as the Danish economy has relied more heavily on service and trade activities since the beginning of twentieth century.

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