

## DISAGGREGATING THE CREDIT EXPANSION: THE ROLE OF CHANGES IN BANKS' ASSET STRUCTURE IN THE BUSINESS CYCLE

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**ABSTRACT:** The aim of the article is to refine the Austrian business cycle theory by discussing the effect of changes in banks' asset structure on the business cycle. I disaggregate the process of credit expansion in the spirit of Cantillon's dynamic analysis of how the new money enters the economy, pointing out that banks can conduct the credit expansion not only by granting loans, but also by purchasing investment securities. I examine distinct results of those two methods and differences resulting from the type of purchased security or granted loans (the so-called secondary effects of business cycle). Based on my analysis, I propose a preliminary classification of business cycles.

**KEYWORDS:** Austrian business cycle theory, bank's asset structure, Cantillon effect, credit expansion, secondary effects of business cycle

**JEL CLASSIFICATION:** B53, E32, E44, E51, G21, N12

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Credit takes various directions, and the effects of inflation can only be measured best at those points in the business structure where the use of credit has been most active.

(Fraser, 1933, p. 81)

## I. INTRODUCTION

The unique feature of commercial banks in the modern banking system is the ability to create deposits through the credit expansion based on the fractional-reserve mechanism. The nature of this phenomenon is well-known in the economic literature. Austrian economists consider it the cause of the boom-and-bust cycle (e.g., Huerta de Soto, 2006). Although true, it seems to be too general, because it does not take into account the fact that banks initiate the expansion of demand deposits not only by granting loans, but also by purchasing investment securities (Kent, 1947, pp. 131–132). The Austrian business cycle theory (ABCT) also does not distinguish among credit expansions related to different types of securities or loans.<sup>1</sup>

Neither Mises (1912; 1949), nor Hayek (1935) write about distinct methods by which banks can expand credit. Rothbard (1962, p. 437) claimed that “whether saved capital is channeled into investments via stocks or via loans is unimportant. The only difference is in the legal technicalities.”<sup>2</sup> In illustrating deposit expansion, Rothbard (1983) and Huerta de Soto (2006) focus exclusively on granting loans, overlooking the fact that deposits can be created also by purchasing assets other than loans.<sup>3</sup> Machlup (1940) came close to the issue discussed in this paper, since he examined the effects of granting credits to the stock

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<sup>1</sup> The same applies to mainstream economics. The only exception known to the author is Jordà et al. (2014) who analyze the rapid growth in the share of mortgages on banks’ balance sheets in the second half of the 20<sup>th</sup> century.

<sup>2</sup> Rothbard wrote about “saved” capital; however, this does not change anything in this context.

<sup>3</sup> In fact, from the standpoint of the whole banking system, deposits may also increase by the public depositing cash. From the standpoint of the individual bank, deposits may increase also by transfer from other banks’ accounts or bringing checks drawn upon other banks (Whittlesey et al., 1968, p. 112; Kent, 1947, p. 131).

exchange, not granting credits in general. However, he did not analyze the differences between distinct kinds of loans, because he was interested in discussing the question of whether the stock exchange absorbs capital. Bagus (2010) and Bagus and Howden (2010) disaggregate the loanable funds and take into account their different maturities. However, they focus on the time dimension of savings, while this paper disaggregates the credit expansion and takes into account different investment forms of banks' assets and the distinct purposes of the loans.

This omission in the ABCT is a bit puzzling, because "the purchase of investment securities by the commercial banks tends to have the same effect upon the volume of demand deposits as has the granting of loans" (Kent, 1947, p. 132).<sup>4</sup> There is no difference between these two cases—the proceeds either of loans or securities are placed in the deposit account of the borrower or seller. Undoubtedly, individual banks do not always grant loans to or purchase securities from their customers. However, for the banking system as a whole (even when banks buy securities in the open market), "the normal effect is to place demand deposits of equal amount on the books *somewhere in the banking system*" (Kent, 1947, p. 132, author's emphasis).

Banks' purchases of assets create deposits in the same manner as granting loans. It can also cause the boom-and-bust cycle, because buying securities reduces the interest rate, leading to entrepreneurial malinvestments in the capital-goods sectors. Investing either in bonds or stocks<sup>5</sup> affects interest rates and starts the reshuffling of the term structure of the interest rates and, consequently, of production. The bond market is perhaps easier to understand, since bonds are interest bearing. New funds flowing into this market raise their prices and lower yield. This makes other financial instruments more appealing and, through an arbitrage process, reduces the whole term structure of the interest rate (Philips et al., 1937, pp. 133–134).

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<sup>4</sup> Perhaps this oversight results from the fact that until the creation of the Fed and before the start of World War I, commercial banks did not generally purchase investment securities (Steiner et al., 1958, pp. 130–132).

<sup>5</sup> For the sake of simplicity, I write about only stocks and bonds, although these two instruments are, of course, not the only types of securities.

The same process applies to purchases of stocks, even though they do not bear explicit interest. This is because the interest rate does not have to be established in the loan market, and directly reducing the interest rate on the loan market is not necessary to disturb the intertemporal market.<sup>6</sup>

Therefore, both buying securities and granting loans under the fractional-reserve banking system create new deposits and cause the business cycle. This paper analyzes the different results of these two distinct methods of money creation by commercial banks, and thus tries to refine the Austrian business cycle theory. In other words, I disaggregate the process of demand-deposit expansion in the spirit of Cantillon's dynamic analysis of how the new money enters the economy (Cantillon, 1755).

The remainder of the paper is organized as follows. Section II examines differences between purchasing securities and granting loans by the commercial banks on the business cycle. Section III further refines my analysis by considering different types of securities and loans. Section IV presents some empirics about the changes of banks' asset structure to illustrate their role in causing so-called secondary effects of business cycles (i.e., distinct features of each cycle). Section V proposes a preliminary classification of business cycles and concludes.

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<sup>6</sup> Let us quote Huerta de Soto (2006, pp. 287–288): “The short-, medium-, and long-term loan market is simply a subset of that much broader market in which present goods are exchanged for future goods and with respect to which it plays a mere secondary and dependent role, despite the fact that the loan market is the most visible and obvious to the general public. In fact it is entirely possible to conceive of a society in which no loan market exists, and all economic agents invest their savings in production directly (via internal financing and retained earnings through partnerships, corporations, and cooperatives). Although in this case no interest rate would be established in a (nonexistent) loan market, an interest rate would still be determined by the ratio at which present goods are exchanged for future goods in the different intermediate stages in production processes. Under these circumstances the interest rate would be determined by the ‘rate of profit’ which would tend to equal the net income at each stage in the production process, per unit of value and time period.” This can be most clearly seen in Iran, where all banks are forced to operate according to the Islamic law, which prohibits charging interest on religious grounds. See, for example, Delavari et al. (2011).

## II. THE ROLE OF THE ASSET STRUCTURE IN THE BUSINESS CYCLE: LOANS VS. INVESTMENT SECURITIES

Although the banks' granting of loans and purchasing of securities both lead to the boom-and-bust cycle, it still matters how the new money enters the economy. What are the economic differences between these two channels and how they affect the course of the business cycle?

First, purchasing securities is more prone (i.e., quicker) than lending to cause a stock or bond bubble, because new money flows directly into asset markets. According to May (1935, p. 294), this way of distributing new money in the economy led to many subsequent changes: (1) the increase in the volume of securities flotation; (2) the increase in the number of investment banks and financial institutions; (3) the mergers and acquisitions of the banks and industrial companies; (4) the increase in the volume of the brokers' loans and loans "for the account of others"; and (5) the immersion of the commercial banking system in the speculative pool.

Second, funds flowing into securities markets lead to a unique kind of income and wealth redistribution. It benefits the financial sector more, at the expense of other sectors (Greenwood, Scharfstein, 2012). This is because new money does not enter into the economy evenly, as in Friedman's helicopter model (Friedman, 1969). First recipients benefit, because they have larger cash balances, but the prices have not yet changed (the Cantillon effect). Their spending causes a price increase of purchased goods, leading to consecutive changes (sellers' income will rise, and so also their spending, and so on) in the structure of relative prices and, consequently, redistribution of income and wealth (Cantillon, 1755). The creation of deposits by purchasing assets benefits also asset owners (the haves) at the expense of the have-nots (Hülsmann, 2013), increasing the wealth inequality. It is a distinct pattern of income and wealth redistribution than standard forced savings, described by Hayek (1935). And if banks do not grant loans to entrepreneurs, but buy Treasury bonds, they support the government and its spending.

Third, buying stocks or bonds can delay relatively the unsustainable boom. As long as the securities market absorbs the credit expansion in "speculative chain" (and does not simultaneously release other funds) the proceeds are not misallocated in the

production process, thereby prolonging the boom (Machlup, 1940; Bagus, 2007, p. 8).<sup>7</sup> The business cycle is not caused by the creation of credit *per se*, but by the allocation of these newly generated funds into more roundabout methods of production.

Fourth, acquiring securities can postpone relatively the necessary adjusting process during depression. This is because banks can purchase bonds and stocks when the demand for loans diminishes. Consequently, the process of credit expansion can last longer, leading to more misallocations in the structure of production. In particular, banks can choose to hold more Treasury securities, which supports government spending and additionally postpones the necessary adjusting process, crowding out the productive investments of the private sector.

Fifth, purchasing securities can lead also to greater monetary expansion: “the rise in security prices makes it easier for existing undertakings to secure overdrafts from the banks” (Robbins, 1934, p. 40). In other words, banks create money by buying assets, which also raises their prices. The more valuable assets then become collateral for further borrowing. Moreover, if the acquired financial instruments are “eligible to serve as reserve assets the system can create deposits and buy securities to an indefinite amount” (Prithard, 1964, p. 118). This is because commercial banks can buy Treasuries and submit these bonds to the central bank as collateral for loans, and then use the obtained funds in subsequent transactions. In addition, “if the central bank accepts those long term assets as collateral against new loans, the risk of maturity mismatching is reduced” (Bagus, 2010, p. 11), which can induce banks to lend more.

Sixth, buying securities can lower banks’ liquidity more than granting loans. It depends, of course, on the type of loans they grant and kind of assets they purchase. For example, short-term loans are relatively quickly liquidated, by definition, but investments

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<sup>7</sup> “Speculative chain” relates to a chain of security transaction in which nobody withdraws money from the asset market. In other words, the newly expanded credits can be used to purchase bonds and the sellers of these securities can also invest these funds to invest in bond market and so forth. Perhaps this is, at least partially, why the average duration of the business cycle in the United States was greater in the interwar period than pre-World War I and in most of the post-World War II era (NBER; Bergman et al., 1998).

must be sold, which can take some time, assuming banks are not eager to accept huge losses. Hence, perhaps it would be better to write that engaging in investments does not entail lower liquidity, but replaces liquidity with “shiftability.” The former means “the capacity of the borrower to settle his note out of his current obligations” (Willis, Chapman, 1934, p. 528), while the latter means “the ability to sell the collateral secured to the loan.” The shiftability approach implies that the liquidity of a bank in emergency depends on the possibility of shifting assets to stronger banks.<sup>8</sup> However, from the point of view of the whole banking system, it could be difficult to shift assets onto outside investors’ balance sheets, especially during a recession (Philips et al., 1937, p. 106). This is important because the longer the period of liquidation of bad assets, the longer the recession (the misallocated assets during the boom have to be redeployed to truly productive projects, a process which requires liquidation).

Seventh, acquiring long-term assets<sup>9</sup> not only reduces the banks’ liquidity, but also tends to lower the long-term interest rate, which could result in construction and real estate booms. In other words, the long-term investments (more remote from the consumers, such as construction or real estate) are prone to generate business cycles more quickly than short-term loans, because their impact on the long-term interest rate is more direct.

Eighth, purchases of securities weaken the central bank’s ability to conduct monetary policy. Because money flows into the financial sector, the Fed cannot affect the “real” economy, at least not quickly. In the 1920s the Fed wanted to prevent an asset bubble and at the same time stimulate the economy, which was obviously impossible (May, 1935, p. 292). Also, because banks have financial assets, they can increase their loans without the additional reserves from the central banks, but only by selling those securities (Credit Flow Framework, p. 238).

To sum up, it is very important how the credit expansion is conducted: by loans or investments in securities. Certainly, lending

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<sup>8</sup> On liquidity and shiftability, see: Mitchell (1923).

<sup>9</sup> Note that stocks are by definition long-term investments from the point of view of the whole economic system (Machlup, 1940).

is the core of the banking business and changes in the banks' asset structure between loans and investments in favor of the latter may be merely the indirect effect of the previous excessive granting of loans. Indeed, banks often purchase securities during depressions, when they either turn to safe instruments like government bonds (Klein, 1965, p. 72) or, faced with decreased demand for loans or lack of creditworthy borrowers, seek earning opportunities for reserves by purchasing higher-yield investments (Kent, 1947, p. 133; Philips et al., 1937, p. 90). In light of this, the fact that commercial banks acquire securities, except for the purpose of supporting the Treasury, can be considered an unintended consequence of monetary intervention in the banking market. However, the fact that "the banking statements themselves are a mirror in which national activity is reflected" (Bolton, 1963, p. 31) does not rule out that commercial banks, induced by the central banks, "cause certain directional impulses which in their turn affect the national economy, and thus by ricochet effect further changes in the banking system" (ibid. p. 31).

### III. DIFFERENT KINDS OF INVESTMENTS OR LOANS

The above analysis can also be applied to the next level of disaggregation. Banks can choose not only how much new money they pour into the economy in the form of loans or securities, but also into which kinds of securities and loans. Let us focus on securities first.

#### 1. Securities

The basic classification distinguishes among government securities and domestic securities other than governments.<sup>10</sup> The money that flows into government securities supports government expenditures and increases income and wealth redistribution from the private to public sector. It is worth pointing out here that this lending channel can also entail much higher (or earlier materialized) inflation of consumer goods and services because of income transfers and non-investment government expenditures.

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<sup>10</sup> Buying foreign securities transmits inflation and the business cycle abroad, and supports exporters (eventually, the currency has to return to the issuer's country).

Purchasing domestic securities other than government bonds does not directly support government spending or credit expansion abroad. However, it may also cause a securities bubble. This category can be further divided. I analyze briefly the differences between buying stocks and bonds. The differences are not merely technical—important aspects of the pattern of income and wealth redistribution (i.e., the Cantillon effect) depend on the type of securities purchased. First, the stock boom affects different agents than does the bond boom. Pension funds and households, which hold mainly stocks, usually benefit more from the stock boom (due to relative rise in stock prices), while insurance companies and foreign investors, which possess mainly bonds, benefit from the bond boom (Board of Governors of the Federal Reserve System, 2014). However, stocks are very unevenly distributed among households. According to Wolff (2010), the richest 10 percent of households in the USA accounted in 2007 for 81 percent of the total value of stocks. This is why the rise in the stock prices leads to the increase in wealth inequality. Moreover, bonds, and not stocks, are fixed-income instruments. Therefore, they can be more directly sensitive to changes in the interest rate (Bagus, 2007, p. 13), and their real price will be more negatively affected by price inflation.

Second, a stock boom due to credit expansion can fuel additional growth in stock prices because these instruments are typically chosen by investors in times of prosperity, while bonds are considered more defensive instruments.<sup>11</sup> This is related to the fact that investors perceive stocks as riskier instruments, such that when the interest rate is lower, stocks become more attractive due to the risk premium and, in consequence, offer a higher potential rate of return. In other words, the arbitrage process occurs slightly faster from bonds to stocks than from stocks to bonds in the case of a monetary injection in the expansion phase and slightly slower

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<sup>11</sup> As Bagus (2007, p. 5) points out: "After the asset price boom has been triggered by credit expansion, it is fueled by waves of optimism pervading the whole economy. This optimism, instead of fueling all asset prices simultaneously, might concentrate on one or more of these areas, i.e., stocks, bonds, or real estate." In other words, due to credit expansion, investing in stocks (in comparison to bonds) nowadays depends more on the rise in prices than on regular income in the form of dividends.

in the contraction. Moreover, stock prices seem to increase faster during the boom also because investors see them, more than bonds, as titles to the underlying capital goods.

## 2. Loans

“The type of economic activity which is supported by the extension of bank loans influences what is produced, how much of each product is produced, as well as where the products are turned out” (Steiner et al., 1958, p. 134), so it is very important what kinds of loans are granted. Loans can be classified according to many criteria;<sup>12</sup> however, this article classifies them by use and distinguishes between real estate loans, loans on securities (investment loans), consumer loans other than for real estate, and business loans other than for real estate.

Real estate lending creates distinct effects from those resulting from credit expansion driven by other types of loans. First, it increases the price of real estate, which enriches its owners<sup>13</sup> but has a negative impact on marginal buyers and people who rent real estate (higher prices cause less demand for rentals). In other words, it entails income and wealth redistribution in favor of housing and related sectors, such as the construction sector. Second, it lowers the liquidity of the financial system, since it is relatively difficult to sell houses quickly. Third, it can reduce the mobility of workers and, in consequence, impair the efficiency of the labor market (Ferreira et al., 2012). The less flexible the labor market, the longer the recession. Fourth, because houses are usually the dominant part of people’s wealth, it can lead to increased consumer spending due to the wealth effect (Carroll et al., 2006). Fifth, real estate lending generates debt overhang among

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<sup>12</sup> Such as the kind of collateral, type of borrower or maturity. On the term structure of savings, see: Bagus (2010); and Bagus, Howden (2010).

<sup>13</sup> It is worth noticing that houses are more equally distributed in the society than stocks. The richest 10 percent of households in the USA accounted in 2007 for 81 percent of the total value of stocks, while they possessed only 38 percent of the value of owner-occupied housing (Wolff, 2010, p. 20). Therefore, it can be argued that extending real estate loans does not increase income and wealth inequality as much as investments loans or purchasing securities.

households,<sup>14</sup> which lowers financial stability and typically leads to deeper recessions and slower recoveries (Jordà et al., 2014).

Extending investments loans has very similar effects to the direct purchases of stocks and bonds, i.e., an increase in prices of securities and income and wealth redistribution in favor of financial institutions. The main difference with the Cantillon effect is that extending investment loans supports borrowers.<sup>15</sup>

Banks can introduce newly created funds indirectly, through the stock market, or directly, in loans to entrepreneurs as commercial and industrial loans. There are many types of credit available to businesses; however, they all share one important distinguishing feature. It seems that funds that enter the economy through markets other than financial-asset markets can cause inflation of the commodity prices much more quickly, because new money entering into asset markets can stay there for some time.

Consumer loans are a very distinctive type of credit, in that they do not lengthen the structure of production, but actually shorten it, provided the proceeds do not finance durable goods,<sup>16</sup> but current consumption, and do not release other funds for financing industries in the stages furthest from consumption (Huerta de Soto, 2006, pp. 406–407). They also entail different patterns of income and wealth redistribution. Specifically, they give customers, not entrepreneurs, newly created funds. One beneficiary of this type of monetary injection may be the automobile industry, because proceeds are often used to purchase cars.<sup>17</sup> On the other hand, it can be more harmful (or its negative effect can come more quickly) for the rest of consumers—those not given the loans—due to increased consumption outlays and, in consequence, higher consumer-goods price inflation.<sup>18</sup>

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<sup>14</sup> According to Jordà et al. (2014, pp. 14–15), “household borrowing accounts for about 2/3 of the total increase in bank credit since 1960, predominantly driven by real estate lending.” In consequence, the household debt to asset ratio has risen substantially in many countries.

<sup>15</sup> Another difference is that loans seem to be more easily liquidated.

<sup>16</sup> Consumer durable goods are very like capital goods; however, it seems the increase of the supply of capital goods tends to raise labor productivity much more.

<sup>17</sup> Moreover, some of the commercial and industrial loans come from the sales-finance companies, who in turn supply credit to consumers (Cochran, 1971, p. 152).

<sup>18</sup> It can also entail social effects such as a raise in the social rate of time preference and the growth of consumerism, which leads to lower economic growth and a slower pace of recovery due to a lower volume of savings.

#### IV. EMPIRICAL EVIDENCES

In the previous sections I provided theoretical considerations about the differences between the ways how commercial banks create demand deposits, i.e., whether they buy securities or grant loans, and what kind of securities they buy or loans they grant. In this section, I present some empirical evidences from the USA that the form of the credit expansion and changes in the banks' asset structure really do matter.

Before World War I, commercial banks granted mainly short-term commercial loans. However, such factors as the increasing practice of entrepreneurs' financing through the securities market, the improvement of the art of analyzing securities' worth, and the inflow of funds available to the banks due to the loose monetary policy of the newly created Federal Reserve Bank contributed to the rise in securities' share in the banks' balance sheets (Willis and Chapman, 1934; May, 1934b).

During World War I and shortly after it, government securities played a key role. In 1916 government securities equaled slightly less than one-third of all investments of national banks. In 1919 such obligations constituted 62.8 percent of their total investment portfolio, and 50.2 percent in 1921 (Kazakévich, 1934, pp. 571–574). Between March 1917 and June 1919, loans increased 70 percent and investments in government securities 450 percent, while between March 1917 and June 1920 total investment of all Federal Reserve member banks increased 130 percent and investments in governments increased 300 percent (Philips et al., 1937, p. 34). Therefore, it can be argued that the expansion and the short depression that followed in that time were driven, at least partially, by the changes in banks' holdings of government securities.<sup>19</sup> Indeed, to fund World War I, "the federal government induced the banks to expand their portfolios by buying bonds and providing loans secured by the purchase of bonds" (White, 2009, pp. 35–36). The money that flowed into this kind of security enabled enormous government expenditures on its military and increased income and

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<sup>19</sup> These changes should be attributed to the amendment of the Federal Reserve Act of 1916, which "made it possible for national banks to convert their holdings of government bonds into other forms of credit through the use of the rediscount privilege" (Kazakévich, 1934, pp. 574–575).

wealth redistribution from the private to public sector. That period is also an example of how purchasing (government) securities can lead to greater monetary expansion. Between March 5, 1917 and June 1918 the increase of almost seven billion dollars in total loans and investments of Federal Reserve member banks "indicates how the creation of credit by the purchase of Government securities [by \$1.78 billion] led to a multiple expansion of loans and investments in the entire banking system" (Philips et al., 1937, p. 34).

The boom in the 1920s in the United States, which preceded the Great Depression, occurred to a great extent as a result of the growth of banks' investments holdings and loans to brokers, as well as real estate loans.<sup>20</sup> Indeed, investments in securities of national banks increased from 23.5 percent of total loans and investments in 1920 to 31 percent in 1929 (Kazakévich, 1934, pp. 576–582). Between March 8, 1922 and December 29, 1926, investments of national banks increased by 52.8 percent,<sup>21</sup> while total loans and investments increased by only 38.4 percent (Willis, Chapman, 1934, pp. 529–530).

The impact of the investments on the securities bubble was strengthened by lending on collateral of stocks and bonds. Between 1921 and 1929, the volume of investment loans of Federal Reserve member banks increased from \$3.7 billion to \$8.3 billion (May, 1934b, p. 616). The share of investments loans in all loans of all national banks increased from 22.5 percent to 34.6 percent of total loans (Kazakévich, 1934, p. 556). According to Bordo and Wheelock (2004, pp. 20–21), brokers' loans rose rapidly and in line with stock prices, while neither the money stock nor total bank credit grew at

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<sup>20</sup> The 1920s (and 1910s) witnessed also the significant rise in the volume of foreign securities in the banks' balance sheets. Between April 28, 1909 and June 30, 1932 the volume of foreign securities held by all banks in the United States increased by 23.6 times, from \$24.6 million to \$580.8 million, while the total assets rose by only 2.71 times (Kazakévich, 1934, pp. 550–551). This is why, according to Robbins (1934, p. 49), "the inflation was not confined to America, although it was that part of the world that some of its most characteristic manifestations were witnessed. An enormous volume of foreign loans spread out to other centres and generated expansion there."

<sup>21</sup> The share of loans on securities increased by 65.8 percent (Willis, Chapman, 1934, pp. 529–530). Between 1922 and 1931, security investments of national banks increased by 60.2 percent, while commercial loans decreased 17 percent (May, 1934a, p. 536).

an unusually fast pace during 1923–1929.<sup>22</sup> This fact confirms my main thesis that it is worth looking at credit expansion in a more disaggregated manner.

The example of the Roaring Twenties seems to show also the important role of real-estate loans in the business cycle. Real estate loans flourished during the 1920s in the United States, contributing to the real estate boom and following bust.<sup>23</sup> Indeed, total real estate loans of national banks increased from \$184 million in 1919 to \$725 million in 1926, which corresponded to an increase from 1.7 percent to 7.6 percent of total loans (Becker, 1934, pp. 591–595).<sup>24</sup>

According to Philips et al. (1937, pp. 103–104, author's emphasis), "although loans on securities and loan on real estate are technically classified as *loans*, the actual character of many such assets was such as to cause them to stand in much the same relation to the process of inflation as did *investments* proper."<sup>25</sup> In consequence, purchasing securities, loans on securities and on real estate entailed similar effects, such as lowering banks' liquidity and long-term interest rate. Banks' investment in securities in the 1920s entailed the lengthening of the banks' asset maturity. In consequence, as Philips et al. (1937, p. 81) point out, "the liquidity of banks declined in general to such an extent that they were ill-prepared to cope with the situation which arose when stock market crash placed an unduly severe pressure on the banking structure." Real estate loan had a similar effect on banks' liquidity. According to Becker (1934, p. 608), "excessive real-estate lending has unquestionably

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<sup>22</sup> Contrarily, according to Rothbard (1963, p. 93), between June 30, 1921 and June 30, 1929 the total money supply increased by \$28 billion, or about 61.8 percent, a very sizable degree of inflation.

<sup>23</sup> "A boom in real estate comparable to that in bonds and shares of industry took place throughout the second half of the decade of the 'twenties. Beginning in Florida, it gradually extended throughout the whole country. Bank portfolios became farther and farther swollen with real-estate investments" (Becker, 1934, p. 589).

<sup>24</sup> Loans on real estate do not represent all real estate commitments of national banks, as these banks also bought real estate bonds (Kazakévich, 1934, p. 559).

<sup>25</sup> However, there are strong arguments against regarding loans and investments as perfect substitutes. Investments seem to affect the securities market in a more direct way. Perhaps this is why a slight decrease in investment from 1928 to 1929, and an increase of loans on securities and real estate, depressed the bond market and caused a rise in the interest rate on corporate securities (Philips et al., 1937, p. 104).

contributed during the decade 1920 to 1930 to the increasingly unliquid position of American banks, and has been a major factor in bringing about a 'tied up' position which has doubtless often contributed to suspensions and failures" (Becker, 1934, p. 608).

The years preceding the Great Depression witnessed also the decline in the long-term interest rates, which resulted in a construction and real estate boom.

As a result of the plethora of bank credit funds and the utilization by banks of their excess reserves to swell their investment accounts, the long-term interest rate declined and it became increasingly profitable and popular to float new stock and bond issues. This favorable situation in the capital funds market was translated into a constructional boom of previously unheard-of dimensions: a real-estate boom developed, first in Florida, but soon was transferred to the urban real estate market on a nation wide scale, and, finally, the stock market became the recipient of the excessive credit expansion. (Philips et al., 1937, p. 81)

Additionally, these banks' long-term investments provoked some pro-cyclical feedback. Lower long-term interest rates induced entrepreneurs to retire short-term banking debt and to float bonds and stocks. Banks faced a decrease in demand for loans, so they eagerly absorbed new issues, further decreasing long-term interest rates and, in consequence, strengthening the construction and real estate booms (Philips et al., 1937, p. 111). In other words, huge purchases of investment securities and investment-like loans (on securities and real estate) caused the real estate bubble and stock market bubble, which eventually burst in 1929.

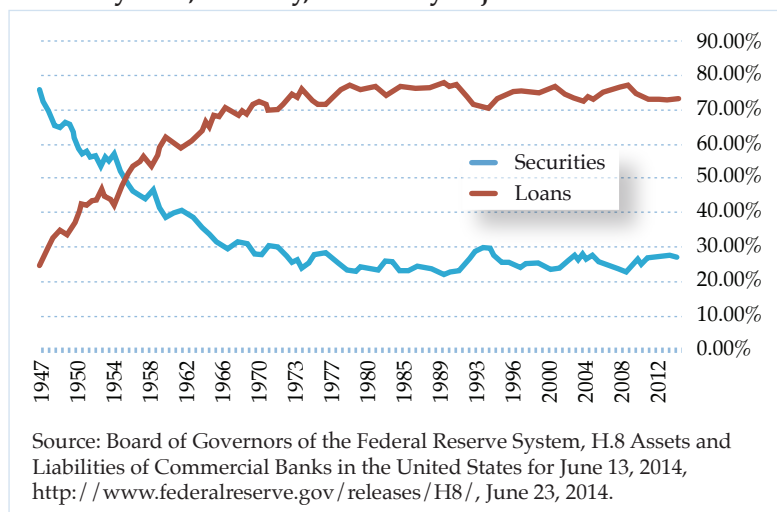
Indeed, the stock market crash in that year was caused by the selling of investment securities by the commercial banks in order to increase the volume of loans on real estate and securities (Philips et al., 1937, pp. 103–104), which confirms that the form of the credit expansion and changes in the banks' asset structure really do matter.

The 1930s and World War II were periods when another important stream of money was flowing into government bonds. Indeed, the share of loans in the portfolios of the Federal Reserve member banks decreased from 71.2 percent in 1925 to 38.9 percent in 1936 and to 22.8 percent in 1946, while the holdings of government bonds increased by nineteen times and their share increased from 12.1 percent to 70.9 percent between 1925 and 1946 (Kent, 1947, pp. 247–248). Between December 1939 and December 1945, commercial banks increased

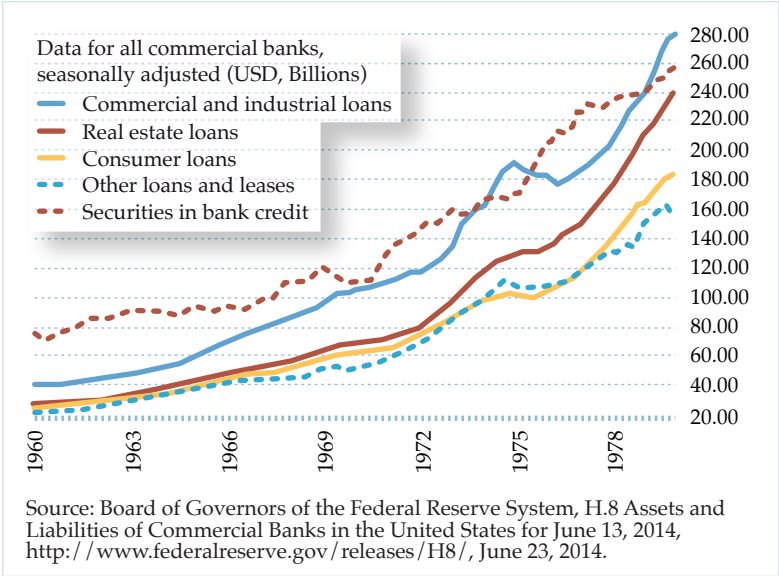
earning assets by \$83 billion, of which \$73.3 billion was allocated into government securities (Pritchard, 1964, p. 111). Buying government bonds could postpone the necessary adjusting process during the Great Depression, because it supported government spending and crowded out the productive investments of the private sector. It also allowed banks to pay too little attention to the quality of their other assets and gave them a ready means of access to the funds from the Fed, even though their investment and lending policies did not warrant it (Shere, 1935, p. 877).

My disaggregated approach can be successfully applied to the postwar era. As can be seen in Figure 1, from 1947 to the 1970s, the share of securities in commercial banks' total loans and investments was decreasing. This does not mean that securities became an unimportant channel of banks' lending. We can clearly see this in Figures 2 and 3, which show the volume of different types of loans (commercial and industrial, real estate, consumer, and other) and securities during the 1960–1980 and 1980–2014 periods. Purchasing securities (red dashed line) was a very important channel of credit expansions in both periods. In 1970s it was usually the most significant category, and since the beginning of 1990s securities were outstripped only by real estate loans (red solid line).

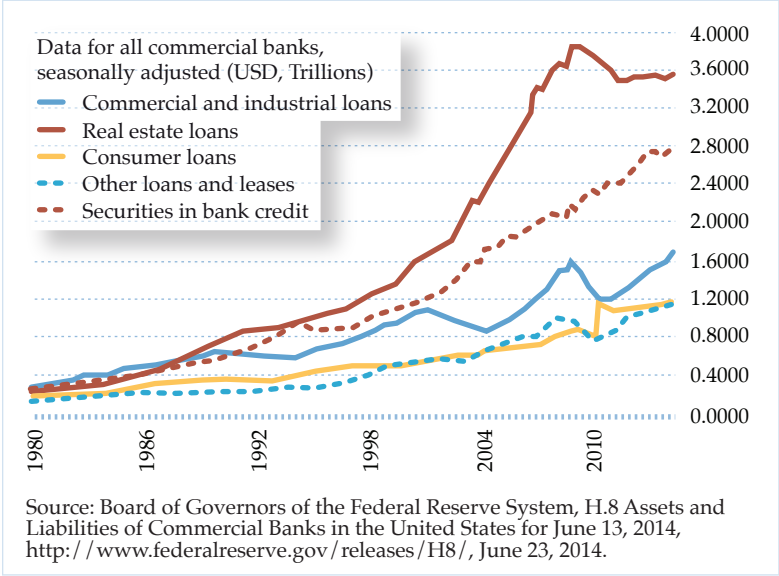
**Figure 1: Banks' securities and loans shares from January 1947 until May 2014, monthly, seasonally adjusted**



**Figure 2: The volume of different types of loans and securities between 1960 and 1980**



**Figure 3: The volume of different types of loans and securities between 1980 and 2014**



These figures show two things. First, between the 1960s and the mid-1980s commercial and industrial loans (blue solid line) were very important, if not the dominant channel of the credit expansion. The expansionary monetary and credit policy that started in the mid-1960s may, thus, account for the commodity boom in the 1970s (Bordo and Lane, 2013).<sup>26</sup>

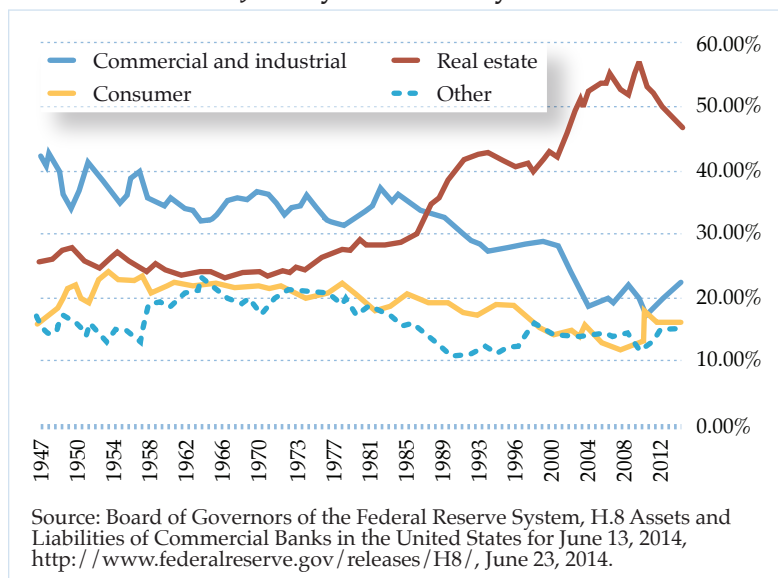
Second, the volume of real estate rose from the mid-1980s to 2009, and its share of total loans also significantly increased.<sup>27</sup> This can be seen in Figure 4, which presents the structure of commercial banks' loans between January 1947 and May 2014. There cannot be any doubt that this shift was the most important factor contributing to the real estate bubble in the 2000s. The real estate boom was accompanied by the increased consumer spending due to wealth effect (Carroll et al., 2006), while the housing bust reduced the households' mobility (Ferreira et al., 2012). The increased household indebtedness (due to mortgage lending) may also explain the slow pace of recovery from the global financial crisis of 2007–2008 (Jordà et al., 2014).

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<sup>26</sup> Another example of the important role of commercial and industrial loans in the business cycle may be the Weimar hyperinflation. Though speculation was active then, "the funds available for purchases of stock were relatively slim. The mounting commodity prices absorbed so large a proportion of the monetary supply that relatively little was left for the working of the financial markets, and the banks were not inclined to put credits at the disposal of stock speculators" (Graham, 1930, p. 65; emphasis added).

<sup>27</sup> Jordà et al. (2014) provide a long-term and international analysis. According to their research, the average share of mortgage loans in banks' total lending portfolios in 17 advanced economies has roughly doubled over the course of the past century, from about 30 percent in 1900 to about 60 percent in 2011.

**Figure 4: The structure of commercial banks' loans and securities between January 1947 and May 2014**



## V. CONCLUSION

In another work (Sieroń, forthcoming), I classify different possible manifestations of the Cantillon effect according to the way in which new money enters the economy. Credit expansion is one of the channels—the most important in our times.

However, there is no reason to stop the analysis of the distribution of the new money on such a general level. This paper disaggregated the process of credit expansion and tried to show that it matters how the commercial banks conduct it. There are important differences in the business cycle depending whether banks expand credits or purchase securities, and depending what kind of loans they grant or what type of asset they buy.<sup>28</sup>

<sup>28</sup> There is one obvious counter-hypothesis I would like to address here: that the composition of bank assets does not cause the business cycle, but that the business cycle causes bank asset compositions, i.e., banks lend heavily to sectors, which are

Various kinds of bank loans or investments in securities can drive the boom-and-bust cycle. The preliminary classification distinguishes between business cycles driven mainly by (1) the stock market (direct purchases and investments loans), as during the 1920s preceding the Great Depression; (2) government bonds, as during World War I, 1930s and World War II; (3) the real estate market (loans and mortgage securities), as with the 2000s' boom-and-bust cycle; or (4) commercial and industrial loans, as during the 1960s and the 1970s. These distinct channels do not affect the basic mechanism of the business cycle, but are responsible for differences in their so-called secondary effects. Perhaps more detailed classification and further disaggregation of data on banks' loans and securities will enable us to make more precise, but still qualitative, predictions about the business cycle.

At first glance, the finding that, for example, the housing sector will be affected first and most if the new money that enters into it seems rather trivial. However, different ways of distributing new money in the economy lead to some distinct secondary effects of the business cycles. In the example of the housing sector it may be the wealth effect, reduced labor mobility or longer liquidation and slower recovery. Moreover, it is always worth saying it explicitly, because only a few economists tie credit to asset bubbles. I strongly believe that such an analysis of the role of changes in the banks' asset structure can improve our understanding of the role of monetary inflation (more precisely: credit expansion) in the business cycle.

Obviously, this article is by no means conclusive. To fully understand how the Cantillon effect arises through credit channels, we need (1) to disaggregate the main types of loans

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already experiencing growth (for non-credit reasons). Surely, as I have already written in the second section, banks, as almost any entity, have to react to external factors and modify their balance sheets in response to changes in the market conditions and government regulations. However, the rationale behind the credit expansion does not rule out the fact that it leads to the business cycle. Similarly, the causes of changes in the bank asset composition (methods of credit expansion) do not rule out the fact that they are responsible for the secondary effects of the business cycles. Banks can lend to sectors, which are already flourishing, however the credit expansion based on the fractional-reserve is what transform the real bloom into artificial boom.

and securities even more;<sup>29</sup> and (2) to examine how this money is spent by borrowers.<sup>30</sup> Future research of the credit expansion in a more disaggregated manner may also include (1) the analysis of the impact of different credit expansion channels on the process of liquidation; (2) the examination of the role of the derivatives and securitization in the business cycle, or the role of banks' off-balance sheet activities in the business cycle; (3) the analysis of distinct methods how the central banks can conduct monetary policy and influence the money supply and commercial banks' activity; and (4) the examination of the potential differences between the course of the business cycle, depending on who enters (and transmits) new money into the economy.<sup>31</sup>

However, the author hopes that this article helpfully refines the Austrian business cycle theory, since although some incidental references were made in the past to the making of bank loans and investments as a part of the process of creating deposit currency, "no attention was (...) given to the various purposes for which credit is extended or to the relationship of the commercial banks to the financial and economic system as a whole" (Moulton, 1935, p. 91).

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<sup>29</sup> For instance, further disaggregation of real estate loans, e.g., into residential and commercial real estate loans, seems to be especially needed.

<sup>30</sup> For example, "in the United States, huge issues of Liberty bonds were sold to the public, which was encouraged to borrow the funds necessary for the purchase of these bonds from the banks and to redeposit the latter with the banks as security for the advances. The banks in turn were enabled to lend these funds to the public by the readiness of the Federal Reserve banks to extend loans to banks on the basis of governments bonds at preferential discount rates" (Murad, 1935, p. 223). The end result was very similar to the direct purchase of bonds by the banks (except with a different pattern of income and wealth redistribution). Another study might concern the proceeds spent on foreign goods, which are often returned to the US asset market.

<sup>31</sup> On the two last issues, see: Sieroń (forthcoming).

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