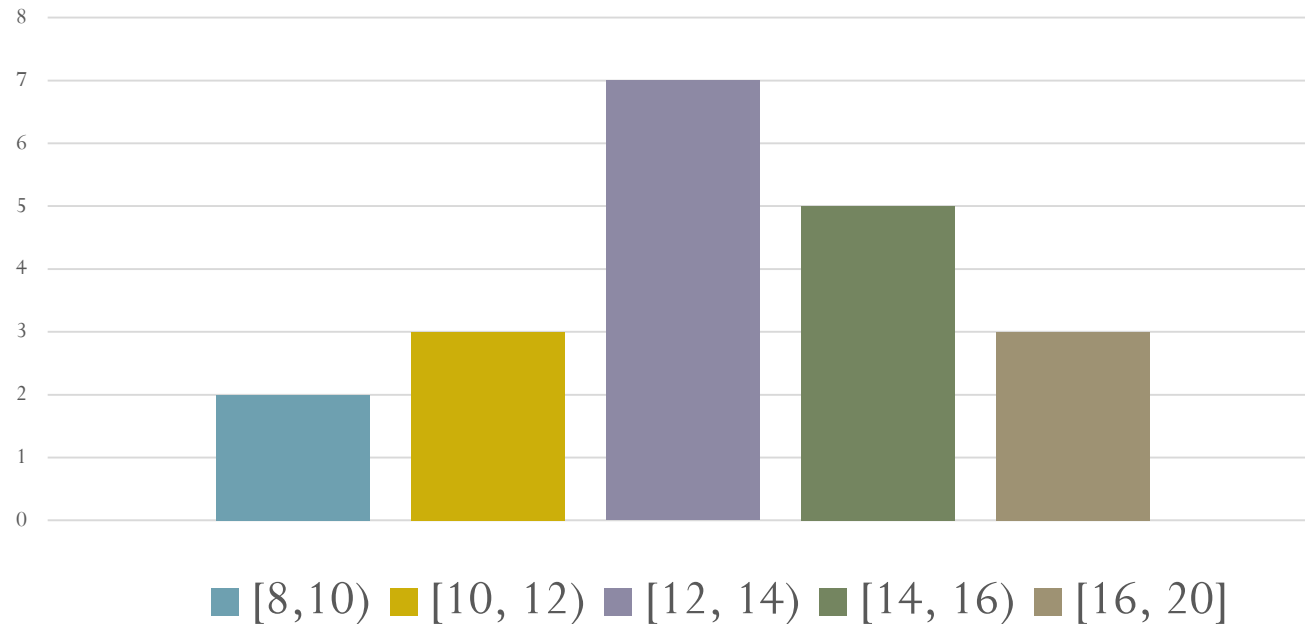


# 8th session

7th November 2017

# Mid-term test results and correction

Distribution of grades



Average: 13.3

Min: 8

Max: 20

# Answer keys

## ● A

1- C  
2- D      16. C  
3- B      17. C  
4- D      18. B  
5- A      19. B  
6- D      20. D  
7- B      21. A  
8- A      22. C or D  
9- A      23. C  
10. C     24. A  
11. A     25. C  
12. C  
13. D  
14. D  
15. B

## ● B

1- B      12- A  
2- C      13- D  
3- C      14- A  
4- A      15- C  
5- B      16- D  
6- B      17- B  
7- C      18- D  
8- D      19- D  
9- C      20- D  
10- C     21- C  
11- D     22- A or D  
            23- B  
            24- C  
            25- D

# Main problems

While trading in foreign exchange takes place worldwide, the major single currency trading centers are currently located in:

- a) the United Kingdom, the United States and Singapore.
- b) the United Kingdom, the United States and Hong Kong.
- c) the United Kingdom, Singapore and Switzerland.
- d) the United States, Hong Kong and Switzerland.

- Main financial centres concerning foreign exchange trading (data from **2016** 2013 (2010)) :

- United Kingdom **36.9%** 41% (36.7%) of all foreign exchange market turnover;
- the United States **19.5%** 19% (18%),
- Singapore **7.9%** 5.7% (5%),
- Hong Kong **6.7%** 4.1% (5%)
- Japan **6.1%** 5.6% (6%),
- France **2.8%** 2.8% (3%)
- Switzerland **2.4%** 3.2 % (5%),

- **BIS, Triennial Central Bank Survey – Table 5**

Suppose that the exchange rate between the Russian ruble and the U.S. dollar was 0.03 dollars to the ruble one year ago. The current rate for the ruble is 0.025 dollars to the ruble. If Russian inflation was 20%, what was the approximate U.S. inflation rate if relative purchasing power holds?

- a) 16.67%
- b) 3.33%
- c) 0.00%
- d) 4.32%

- $S_{t-1}(\text{RUB/USD}) = 0.03$ ;  $S_t(\text{RUB/USD}) = 0.025$
- Depreciation Rate of the Ruble =  $-(0.025 - 0.03)/0.03 = 0.1(6) = 16,(6)\%$

depreciation rate of the home currency =  
Inflation rate – inflation rate\*

- Inflation rate in Russia = 0.2 or 20%
- Inflation rate in US =  $0.2 - 0.1(6) = 0.0(3)$  or  $20\% - 16.(6)\% = 3.(3)\%$

# Eurocurrencies



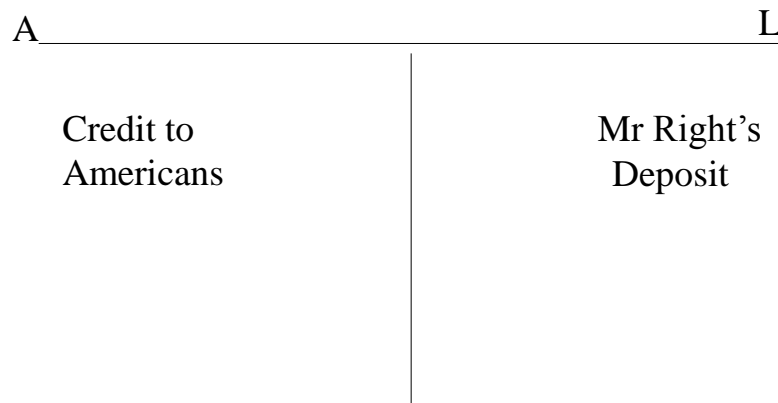
*Pugel, Chap 18*  
*Pilbeam, International*  
*Finance, Chap 12*

- Definition
  - Eurocurrency is a currency that is deposited outside the issuing country (*offshore*).
- What matters to be considered a eurodeposit is the location of the bank that accepts the deposit. Both the bank nationality and the location or the nationality of who provides the funds, are irrelevant. The bank that accepts deposits in Eurocurrency is a EUROBANK.
- Thus, a US dollar deposit by a US manufacturing firm in a branch of a US bank in London is considered a eurodollar, while a US dollar deposit by a French company in a German bank in New York is not.

- Creation Process

Mr Right has a deposit in dollars in a NY bank. Mr Right goes to Paris to work during a year and transfers his account to a branch of his bank in Paris, a eurobank, an offshore bank. Eurodollars were created.

- US Bank before the transfer of dollars



- US Bank after the transfer of dollars

A	L
Credit to Americans	Deposit of the branch in Paris

- Branch in Paris

A	L
Deposit in the US bank	Mr Right's Deposit



- The eurodollars are an indirect way of Mr Right owning a deposit in the USA.
- The branch in France now has an asset and can lend it on to people outside the USA, creating eurodollars. There must be an initial deposit in the USA, but the value of the eurodollar liabilities outside the USA do not have to be fully matched by the initial deposit inside the USA.
- The eurodollar market (*offshore*) does not exist without onshore dollar deposits in the USA.

*“Offshore markets in a currency can flourish if offshore financial institutions are able to maintain and to access freely clearing balances in the currency with onshore banks (Dufey and Giddy (1978))”*

- US Bank after the transfer of dollars to the branch in Paris and the subsequent loan to Babe Company

A

L

---

Credit to  
Americans

Deposit of the Babe  
Company's bank

- Branch in Paris

A

L

---

Credit to Babe Company

Mr Right's  
Deposit

- Babe Company's bank

A

L

---

Deposit in the US bank

Babe Company's  
Deposit

- The *offshore* market does not belong to any national banking system. It is outside the control of any single country and is largely unregulated.
- A eurobank is not necessarily a separate physical entity, it corresponds to a separate accounting in a bank - different jurisdiction, different regulatory regime.
- “jurisdiction” - any territory with its own legal system, not necessarily a state or country.

- The Eurocurrency market is different from the foreign exchange market, although participation in any of the markets may be motivated by the need to make payments in foreign currency or interest in making investments.
- Foreign exchange market: one currency is exchanged for another at a price that is foreign exchange rate.
- International currency market (Eurocurrency market): banking market where amounts are invested or borrowed at an interest rate – International Money Market.
- The Euromarkets allow the distinction between currency risk and country risk: a deposit in dollars in London has the foreign exchange risk associated with the dollar, but the country risk associated with the UK.

- The Eurocurrency market is largely an inter-bank or wholesale market - deals only in large amounts, usually of \$1 million or more.
- Usually short maturities: from overnight to 12 months. Similar time structure of assets and liabilities
- Needs of borrowers for loans of longer time periods (eurocredits) - development of rollover loans with a floating interest rate: the borrower receives a six-month credit with a guarantee that it will be renewed (rolled over) every six months for the life of the loan, which may be for ten years or longer. The interest rate may be adjusted at each roll over.

- Eurobond Market – part of the International Capital Market
  - borrowing and lending for periods larger than 1 year.

## ORGANIZED IN TIERS

- The interest rate on Eurocurrency loans or deposits is fixed by reference to LIBOR (London InterBank Offer Rate).
  - The contract defines the maturity of the loan or deposit and the interest rate as a percentage margin over LIBOR.
  - The difference between the LIBOR and the eurobank rate depends on the credibility of the borrowing entity. It may range from 15 basis points (b.p) to more than 300 b.p, most often between 100 and 200 b.p. [ If the LIBOR is 4%, a 75 p.b. margin corresponds to a rate of 4,75%].
  - 1st tier banks pay the least expensive rates for deposits from other banks and borrow at the lowest rates, too.
  - In the interbank market, dollar-based institutions are typically in the 1st tier.

# Participants (who demands and who supplies funds)

- Main Depositors:
  - Large firms (American or not) with international activities .
  - Commercial banks located in important financial centers.
  - Central banks, through BIS.
- Main Borrowers:
  - Large firms (American or not) with international activities .
  - Commercial banks located in important financial centers.
  - Governments.



# Factors that promoted the initial development of the eurodollar markets

- Political factor : The creation of Eurodollars in the 50s and the Soviets.
- Suez crisis (1957): Higher inflation in UK - Balance of payments crisis, threatening the Bretton Woods sterling parity - the British government restricted banks from lending British pounds to foreigners.
  - Too profitable a business for the banks to lose - attract dollar deposits in order to continue to finance trade, this time in dollars. Transactions between non-residents and in a foreign currency (not in Sterlings) mediated by banks in London were considered by the Bank of England to be *offshore* and not under its supervision. Because there was no interference in this activity, London became the first and still most important centre of Eurocurrency transactions.

- Restoration of the convertibility of currencies in Western Europe in 1958 and exchange controls lifting : surplus countries may invest where returns are higher; deficit countries can borrow where costs are lower. They can use the dollars and easily convert into local currency (financing activities).
- USA deficits: flow of dollars into the hands of non-US residents.
- Petrodollars: pos 1973.
- Regulation Q: EUA- 1963: limits to the interest rates that could be used to remunerate deposits. Prohibition of interest payments on deposits less than 30 days.
- Real integration: international trade, multinationals. Use of Euromarkets instead of hedging using *forward* contracts, for instance.

- The position of London in the eurodollar market
  - Despite
    - the exponential growth of the Eurodollar market since its inception,
    - globalization,
    - the emergence of competing financial centers mainly in the 90s\*  
maintains its dominant position. Data from 1994: London - 25% of dollar deposits outside the U.S. (almost double the next financial center, the Cayman Islands)
  - London has many international banks.

\*1968 - Singapore launched the Asian Dollar Market

Early 1970's – Europe - Luxembourg, Channel Islands, Isle of Man

- Regulation
  - Market outside any country.
  - It is difficult to impose banking regulation to euromarkets, because banks can shift their business between different regulatory jurisdictions.
  - Deposit Insurance – The available fund is too small to cover the volume of deposits in the international banking system. The interbank deposits are not protected.
  - Reserve Requirements- If a country imposed them unilaterally, the deposits would shift to unregulated centres. Multilateral cooperation is difficult.

- The supervision of the balance sheets of the eurobanks is unclear. If a branch of an Italian bank, operating in London trades basically in eurodollars who should supervise: the North-american regulators, the Italian or the English?
- Rediscount: Problem similar to the one of supervision: what central bank should act as the lender of last resort?
- *Offshore* banking activity is mainly interbank. A local disturbance may quickly assume a global dimension → need of regulatory international cooperation.

- Basel (Switzerland) Committee on Banking Supervision : presidents of 11 central banks— agreement in 1975 – Concordat – share of information between the supervisors of the “home” country and supervisors of the “host” country. - Requires better data on the balance sheets of the multinational banks.

A "home" supervisor - the supervisor of a bank, or banking group's principal place of business, normally where it is incorporated and licensed.

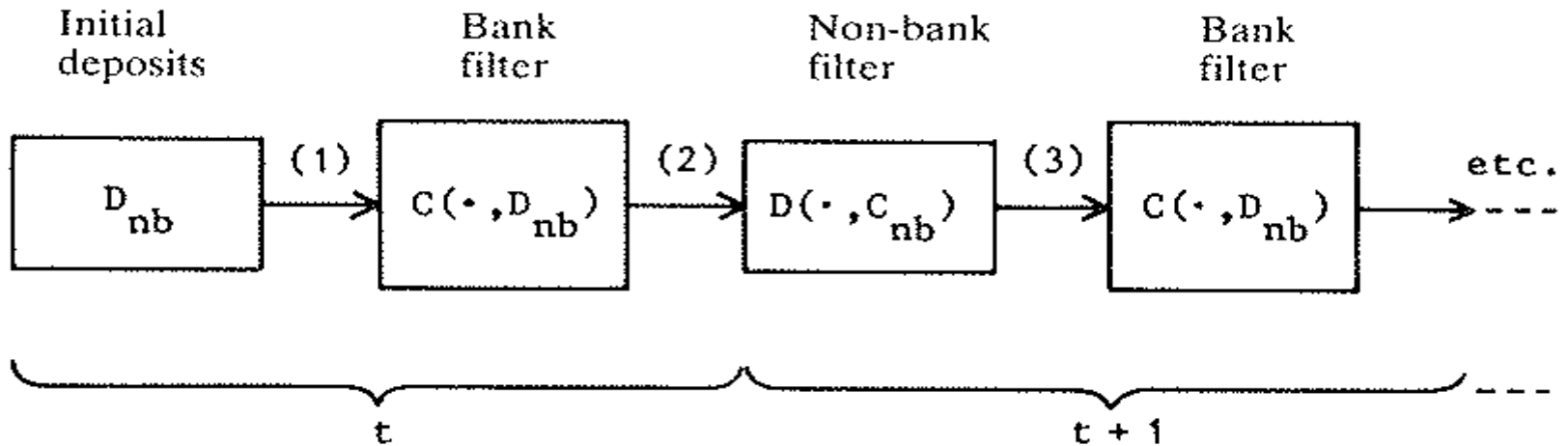
A "host" supervisor is the supervisory authority in any other jurisdiction where the bank or banking group has a presence that requires authorization. (IMF)

- Important change in the international financial relations during 90's: growing importance of new markets as origin and as destination of private capital flows → developing countries that liberalized their capital markets (Brasil, Mexico, Tailand, Indonesia) – 1997 to 1999: financial crises in emerging markets.

- Following the Asian crisis, several countries imposed capital controls, trying to reduce the use of their currencies in *offshore* markets.
- Worries:
  - to what extent the Eurodollar market feeds worldwide inflationary forces
  - whether Eurodollar lenders take greater risks when making their loans than do other lenders

- Eurocurrency multipliers.
    - The potential of Euromarkets to expand the Money Supply out of the control of the domestic monetary authorities.
    - FIXED COEFFICIENT MODELS
- Johnston, R. B. 1981, Theories of the growth of the euro-currency market: a review of the euro-currency deposit multiplier, <http://www.bis.org/publ/econ4.pdf?noframes=1>
- Swoboda (1968), Friedman (1969)





- Simplest Model:  $C(\cdot, D_{nb}) = 1-r$  and  $D(\cdot, C_{nb}) = 1$

r: fraction of deposits held as reserves by the Banking System

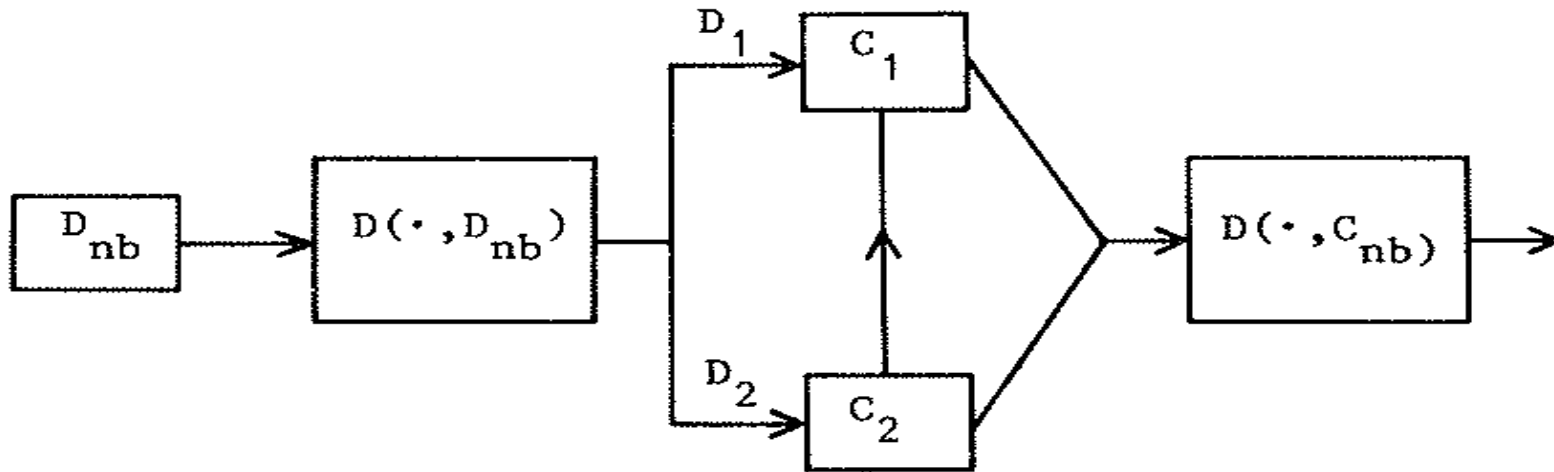
All credit returns to the Banking System as new deposits.

$$D_{nb}^F = D_{nb} + (1-r) \cdot D_{nb} + (1-r)^2 D_{nb} + \dots$$

- geometric progression :  $\sum_{\kappa=0}^{\infty} a \cdot q^{\kappa} = \frac{a}{1-q}$

- $D_{nb}^F = D_{nb} / r$

- With the euromarket:



$D_1 = b$  part that is deposited with the domestic banking system.

$D_2 = 1 - b$  part that is deposited with the euromarket.

$C_1 = 1 - r_1$  for deposits placed with the domestic system.

$C_2 = 1 - r_2$  for the deposits placed with the euromarket.

$$D_{nb}^F = D_{nb} + \underbrace{\{[(1-b) \cdot D_{nb}(1-r_2)]\}}_{\text{euromarket}} + \underbrace{\{[(1-b) \cdot D_{nb} \cdot r_2 (1-r_1) + b \cdot D_{nb}(1-r_1)]\}}_{\text{Domestic System}} + \dots$$

euromarket

Domestic System

$$D_{nb}^F = D_{nb} + D_{nb} \{[(1-b) \cdot (1-r_2)] \cdot + [(1-b) \cdot r_2 (1-r_1) + b \cdot (1-r_1)]\} + \dots$$

The ratio of the progression is  $\{.\}$

$$\text{Simplifying: } \{.\} = 1 - r_1 \cdot b - r_1 \cdot r_2 \cdot (1-b)$$

$$D_{nb}^F = D_{nb} / [r_1 \cdot b + r_1 \cdot r_2 \cdot (1-b)] = D_{nb} / [r_1 \cdot (b + r_2 \cdot (1-b))] =$$

$$D_{nb} / [r_1 \cdot (1 - 1 + b + r_2 \cdot (1-b))] = D_{nb} / [r_1 (1 - (1 - r_2) (1-b))]$$

- The larger the proportion of total deposits that is held in the Eurocurrency market  $(1-b)$
- The smaller the Eurocurrency reserve ratio  $(r_2)$

⇒ The Larger the money multiplier

- The euromarket can be said to have an expansionary effect on the global money supply.

Note: It does not rely on  $r_2 < r_1$ .

- The fact that the rate of creation of liquidity in the banking system be greater with the Euromarket raises difficulties to monetary authorities.
- To calculate the multipliers it is necessary to assume that the reserve and redepositing ratios are reasonably stable or predictable.
- Difficult to measure  $D_{nb}^F$ , total deposits.

- PORTFOLIO MODELS
- There is a natural limit to the liquidity expansion by the banking system: the deposits are a fraction of private wealth.
- For non-banks to be willing to hold more deposits at a given level of wealth or income, deposits have to be made more attractive in relation to other assets.
- The funds move to where the return is higher.
- Models of fixed coefficients: do not take into account the changes in interest rates that result from the changes in the banks balance sheets.
- Adjustments in the interest rates limit the dimension of the euromarket multiplier. The flow of funds to this market → reduces the interest rate in the euromarket and raises it somewhere else.

- General equilibrium models of the world's financial system try to integrate these interactions between the euromarkets and the domestic banking systems: Freedman (1977) e Hewson e Sakakiraba (1976). In the economic system, the sum of world assets and liabilities is given and only the allocation is decided.
- Conclusion: The eurocurrency market has an endogenous potential to create money, but it is limited by portfolio considerations.

# Offshores

- OFC: Offshore Financial Centre - definition?
  - Any financial centre where offshore activity takes place? Broad: it would include any major financial centre in the world.
  - Financial centre with external assets and liabilities out of proportion to domestic financial intermediation:
    - Large number of financial institutions engaged in transactions with non-residents.
    - Centres that provide some or all of the following services: low or zero taxation, light financial regulation, banking secrecy and anonymity.

IMF (2000)

[http://www.imf.org/external/np/mae/oshore/2000/eng/back.htm#II\\_A](http://www.imf.org/external/np/mae/oshore/2000/eng/back.htm#II_A)

- Variety: Hong Kong or Singapore *vs* Caribbean Islands (market development, infrastructures, supervision)
- REASONS TO DEVELOP AN OFC
  - Generation of employment in the host economy.
  - Generation of government revenue (through licensing fees, for example).
- REASONS TO USE AN OFC
  - **Legitimate**: lower explicit taxation, simpler prudential regulations (better prices), the reputation of specific OFC's and the quality of services.
  - **ILLegitimate**: tax evasion, money-laundering.



- In 2000, the OECD - Committee on Fiscal Affairs (CFA) published a list of non-cooperative jurisdictions, countries with practices facilitating tax evasion.
  - “jurisdiction” - any territory with its own legal system, regardless of whether it is an independent or sovereign state.
  - Identifies Tax Havens
    - (1) no or only nominal effective tax rates;
    - (2) lack of effective exchange of information on taxpayers with governments;
    - (3) lack of transparency
  - In 2000: 41 tax havens, of which 6 had made commitments to cooperate.
  - In 2007: 3 jurisdictions were no longer considered tax havens. 33 had made commitments to improving transparency and establishing exchange of information. 5 were ‘uncooperative’: Andorra, Liechtenstein, Monaco, Liberia and the Marshall Islands.

- End of 1990's – Industrialized countries:
  - **Attraction** associated with reserve requirements, interest rate controls, capital controls, **diminished**.
  - **Attraction** associated with tax advantages (ex.: inheritances, asset management) **remained**.
- Still particularly attractive to banks in emerging market economies, frequently with highly regulated financial markets.

IMF (2000)

- **Rose & Spiegel (2007)**
  - Cross-section – 223 countries
  - Geography has an impact on *cross-holdings*:
    - Distance, shared land border
    - Language
    - Currency
- “Being either a tax haven or a money launderer has an economically and statistically strong effect in raising the probability of being an OFC.”
  - Other tried variables (p. 1318) with no explanatory power.
- Positive impact on the competitiveness of the domestic banking system.

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