Novac i monetarna politika

PROF. DR MAJA BAĆOVIĆ

07.11.2022.

Definicija novca

- Zakonsko sredstvo plaćanja na određenoj teritoriji

- Monetarni agregati

- M_1: Gotovina u opticaju + depoziti po viđenju

- Depoziti po vidjenju:
  - Mogu se transformisati u gotov novac
  - Na osnovu depozita mogu se realizovati transferi i izdati čekovi
  - Prinos je nulta ili veoma niska kamatna stopa

- M_2: M_1 + oročeni (štedni depoziti) sa neograničenim pristupom

- M_3: M_2 + oročeni (štedni depoziti) + računi kod nebankarskih institucija

Kreiranje novca

- Centralna banka (monetarni autoritet) i komercijalne banke
  - Papirni i kovani novac (Centralna banka)
  - Depoziti (komercijalne banke)

- Centralna banka emituje gotov novac i kreira rezerve (depoziti komercijalnih banaka kod CB)

- PRIMARNI NOVAC (monetarna baza) – M_0: suma gotovine i rezervi poslovnih banaka

- Poslovne banke
  - Finansijski posrednici
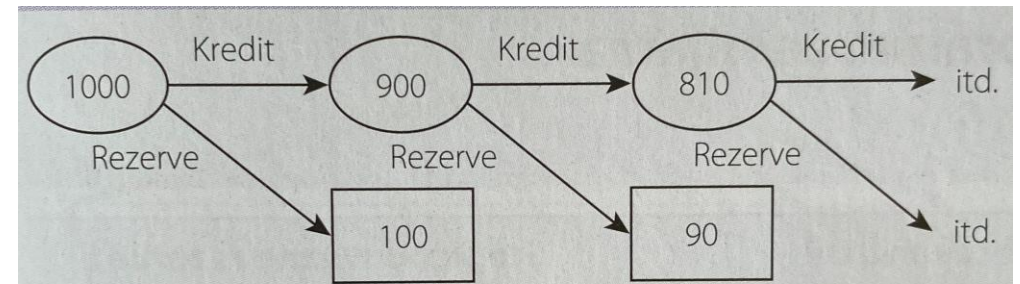 - Konverzija dospjelosti

Slika 9.1   Bilans stanja poslovne banke

Kako poslovne banke kreiraju novac?

- Proces multiplikacije

$$Rezerve = rr * depoziti$$

- rr – stopa obaveznih rezervi komercijalnih banaka

- $Multiplikator\ rezervi = \dfrac{1}{rr}$

Slika 9.2 Monetarni multiplikator

Inicijalni depozit omogućava izdavanje kredita. Kada banka zadrži deset posto kredita u formi rezervi (bilo da je depozit u formi gotovine ili na računu centralne banke), svaki zajam biva za deset odsto manji od prethodnog. Tako se lanac depozita i kredita na kraju gasi.
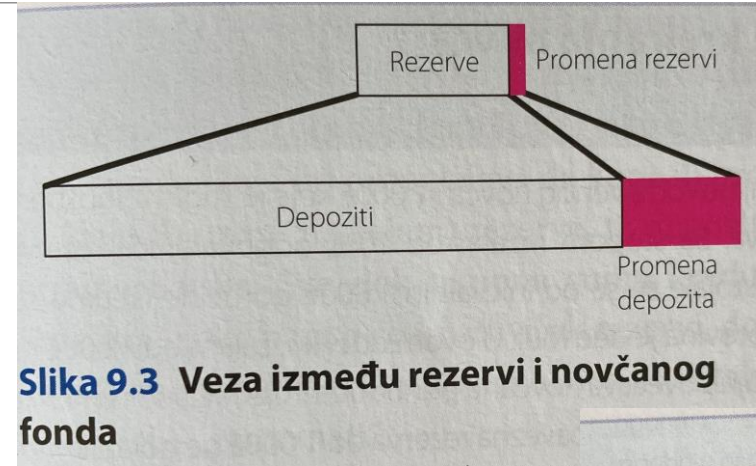
Kako centralna banka kontroliše ponudu novca?

- Upravljanje stopom obavezne rezerve

- Ponuda novca

$$M = \frac{1}{[c + rr(1-c)]} M_0$$

c – procenat novca u gotovini

$\frac{1}{[c+rr(1-c)]}$ - novčani multiplikator
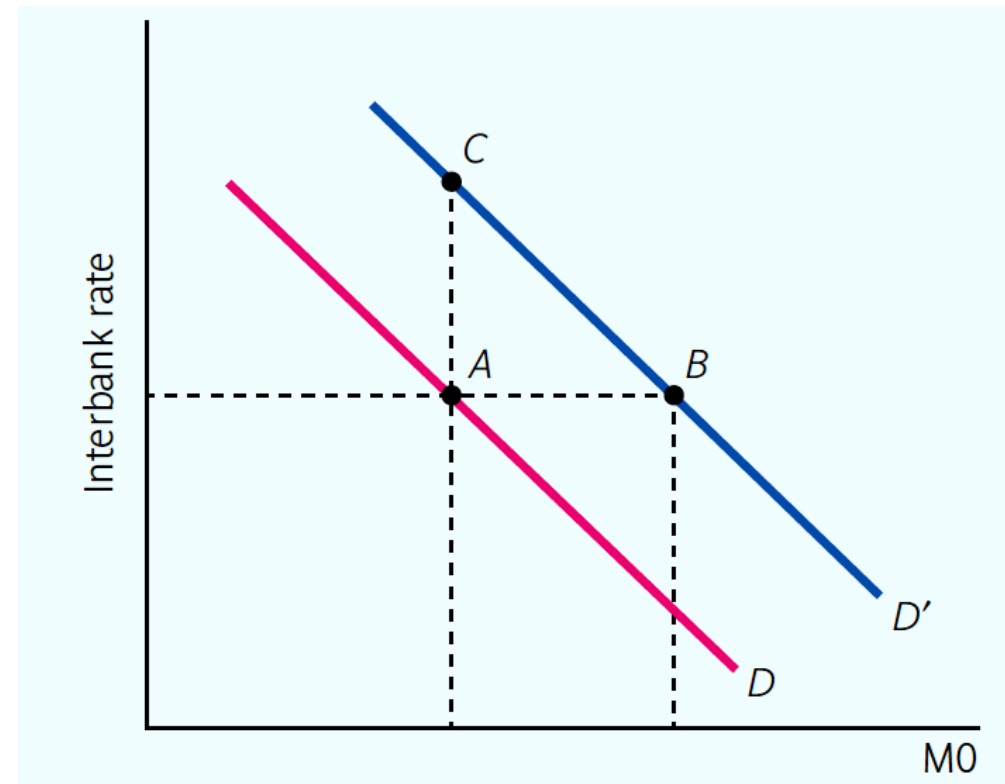

Slika 9.3 Veza između rezervi i novčanog fonda

Slika 9.4 Bilans stanja centralne banke

Tražnja za novcem
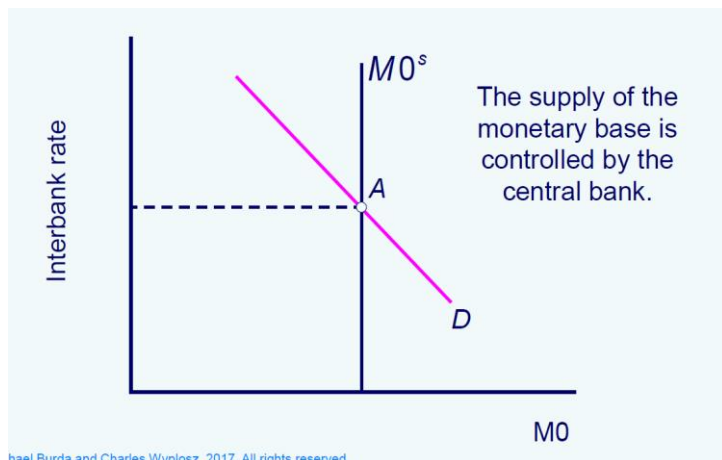
- Broj transakcija, kamatna stopa

$$M^d = k(i)PY$$

Grafik: Tražnja za novcem

Ravnoteža na tržištu novca

- Ponuda novca = tražnja za novcem

$$M = M^d$$

Grafik: Ravnoteža na tržištu novca
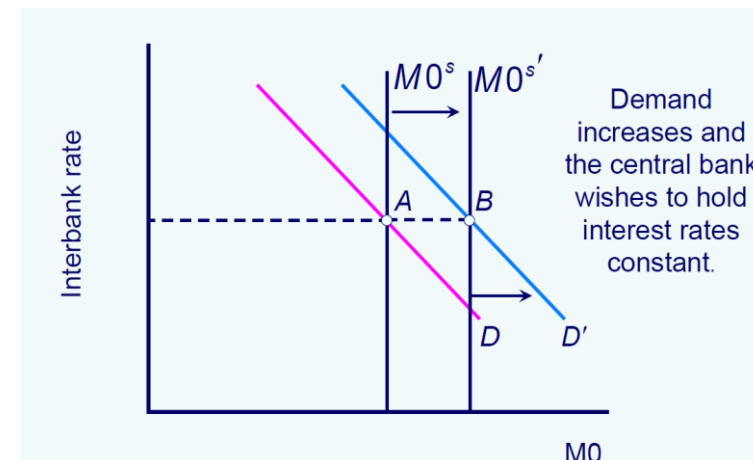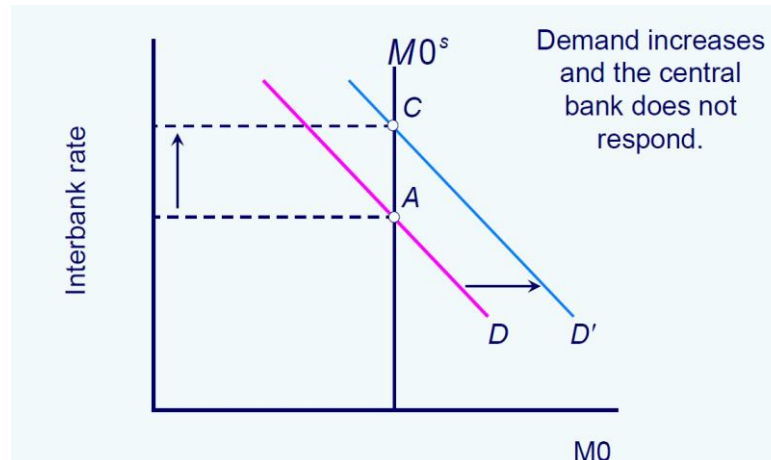
Instrumenti monetarne politike

- Kamatna stopa

- Stopa obavezne rezerve

- Operacije na otvorenom tržištu

- Tagetiranje inflacije

- Bankarska regulativa i supervizija

Tejlorovo pravilo

- CB će povećati međubankarsku kamatnu stopu u dva slučaja:
  - Kada stopa inflacije premaši ciljnu stopu inflacije
  - Kada realni BDP premaši svoj ravnotežni nivo

$$i = \bar{\imath} + \alpha(\pi - \bar{\pi}) + b\frac{Y - \bar{Y}}{\bar{Y}}$$

Novac i princip neutralnosti

- Kembdrička jednačina tražnje za novcem

$$M = kPY$$

- Realna tražnja za novcem

$$\frac{M}{P} = kY$$

◦ Inflacija – rast novčane mase

$$\pi = \frac{\Delta M}{M}$$

◦ Inflacija, cijene i output

$$\frac{\Delta M}{M} = \pi + \frac{\Delta Y}{Y}, \text{ odnosno } \pi = \frac{\Delta M}{M} - \frac{\Delta Y}{Y}$$
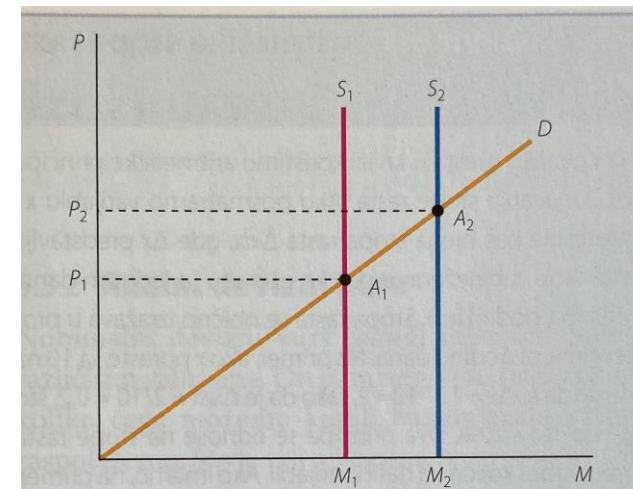
Slika 6.3 Ravnoteža na tržištu novca

Nominalna ponuda, na desnoj strani relacije (6.1), predstavljena je vertikalnom linijom *S1* za *M1* i *S2* za *M2*. Na osnovu leve strane relacije (6.1), tražnja je proporcionalna *P* (za dato *k* i *Y*), što je predstavljeno linijom D. Ravnoteža na tržištu novca postiže se u tački *A1* kada je ponuda *M1*, a u *A2* kada se ponuda poveća na *M2*.

Nominalni i realni devizni kursevi

◦ Iznos inostranog novca po jedinici domaće valute (britanska konvencija)

◦ Iznos domaćeg novca po jedinici evropske valute (evropska konvencija)

◦ Apresijacija / depresijacija

◦ Realni devizni kurs

$$\sigma = \frac{SP}{P^*} = \frac{P}{P^*/S}$$

◦ Paritet kupovne moći

$$\frac{\Delta S}{S} = \pi^* - \pi$$

Money supply

- In the period 2007–2021, total deposits in Montenegro, after a decrease in the period 2008-2010, continuously grow, reaching the level of €4.2 billion in 2021 (in 2007, the value of deposits was €2.1 billion).
- In the sectoral structure of deposits, on average in the period 2007-2021, household deposits are 39%, deposits from non-financial institutions are 30.2%, General government deposits make up 6.9% of total deposits on average, and non-resident deposits make up 19.57%. The value of deposits is on average at the level of 75% of GDP, with certain fluctuations during the period 2007-2021
- Demand deposits accounted for 68% of total household deposits in 2021 (32% in 2013). The share of time deposits decreased from 68% (2013) to 32% in 2021, with the largest share of time deposits for a period of 3-12 months (15.28%)

Structure of deposits by sectors, 2007–2021, balance at the end of the period, %

	Financial sector	Non-financial	General government	Citizens	Non-government and non-profit	Total residents	Total non-residents	Deposits/GDP
2007	2,53%	31,76%	10,63%	40,70%	0,92%	86,54%	13,46%	69,44%
2010	6,15%	28,51%	7,70%	41,23%	1,27%	84,86%	15,14%	57,27%
2011	4,57%	29,35%	5,14%	43,55%	1,16%	83,77%	16,23%	56,33%
2012	3,74%	29,17%	5,29%	43,64%	1,12%	82,96%	17,04%	63,12%
2015	1,74%	31,28%	5,77%	40,00%	1,45%	80,25%	19,75%	76,76%
2016	1,02%	33,40%	5,28%	38,61%	1,46%	79,77%	20,23%	81,57%
2017	0,81%	34,28%	5,64%	37,70%	1,43%	79,86%	20,14%	88,63%
2018	0,77%	31,78%	6,18%	38,38%	1,59%	78,69%	21,31%	89,30%
2019	0,92%	30,16%	6,76%	37,88%	1,68%	77,40%	22,60%	86,23%
2020	1,40%	30,09%	6,69%	37,18%	1,74%	77,09%	22,91%	98,79%
2021	1,01%	28,56%	6,59%	34,34%	1,49%	71,98%	28,02%	107,01%
Average	2,56%	30,27%	6,88%	39,37%	1,35%	80,43%	19,57%	75,36%

Loans

- Total loans in all sectors in Montenegro in the period 2007–2021, on yearly level are in range of €2.3–3.3 billion. The value of the loan fluctuates annually, and is on average at the level of 78% of GDP (2007-2021).
- In the structure of total loans, loans granted to the general government account for 5.7%, whereby the largest part of loans granted to the general government sector belonged to the central government, while more than 80% of the total loans granted belong to the household sectors (38.2%) and the non-financial sector (41.5%).
- The share of loans granted to the household sector increased from 31.7% (2007) to 42.6% (2021), while the share of loans granted to the non-financial sector decreased from 54% (2007) to 34.5% (2021). In the same period, the share of loans granted to non-residents increased from 10.8% to 14.1%

Structure of loans by sectors, 2007–2021, %

|	Financial sector	Non-financial	General government	Citizens	Non-government and non-profit	Total residents	Total non-residents	Loans/GDP
2007	0,94%	54,41%	1,78%	31,71%	0,31%	89,15%	10,85%	82,84%
2008	0,59%	55,97%	1,35%	34,85%	0,42%	93,18%	6,82%	91,65%
2009	0,22%	52,02%	2,65%	34,63%	0,24%	89,76%	10,24%	86,92%
2010	0,40%	48,53%	2,71%	34,16%	0,24%	86,05%	13,95%	80,57%
2011	0,72%	41,28%	5,31%	35,17%	0,25%	82,73%	17,27%	73,13%
2012	0,39%	39,54%	4,69%	34,23%	0,12%	78,96%	21,04%	74,63%
2013	0,41%	39,17%	6,68%	36,13%	0,17%	82,56%	17,44%	74,29%
2014	0,26%	38,54%	5,25%	37,41%	0,21%	81,68%	18,32%	71,57%
2015	0,21%	38,99%	4,54%	38,22%	0,17%	82,14%	17,86%	69,76%
2016	0,29%	38,56%	5,22%	41,84%	0,22%	86,13%	13,87%	68,62%
2017	0,25%	36,08%	7,14%	41,36%	0,13%	84,95%	15,05%	73,25%
2018	0,59%	35,23%	7,47%	42,68%	0,34%	86,30%	13,70%	75,62%
2019	0,90%	35,10%	8,41%	44,35%	0,33%	89,08%	10,92%	75,95%
2020	0,82%	35,11%	9,51%	44,13%	0,36%	89,93%	10,07%	92,53%
2021	0,59%	34,45%	7,83%	42,60%	0,36%	85,83%	14,17%	85,59%
AVG	0,51%	41,53%	5,37%	38,23%	0,26%	85,90%	14,10%	78,46%

Source: Author's calculation based on data from CBCG

The ratio of deposits and loans

- The ratio of total deposits and loans in Montenegro is average in the period 2007-2021. was at the level of 0.96, but changed during the mentioned period, in favor of deposits.

The ratio of deposits and loans in Montenegro
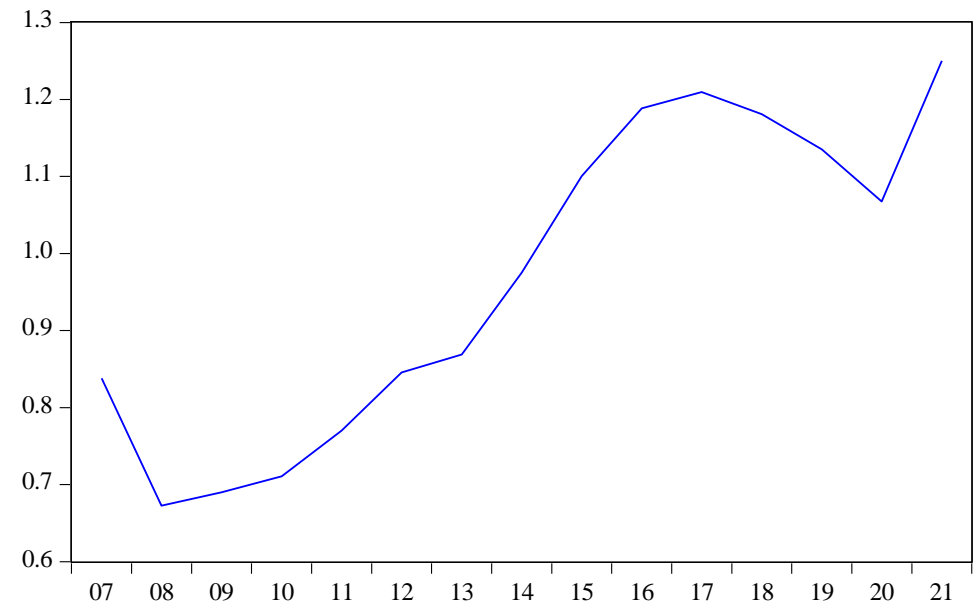
Source: Author's calculation based on data from CBCG

Interest rates

- Average weighted effective active interest rates in Montenegro have been continuously falling since 2006. The average total effective interest rate at the end of 2006 was 9.94%, and in 2016 it was 7.45%.
- Loans to the private sector in 2006 were approved at an average effective interest rate of 10.23%, while in 2021, the effective interest rate was 4.36%.
- A similar trend is visible in the changes in interest rates on loans granted to individuals, which were 12.16% in 2006, and 7.15% in 2021.
- Interest rates on loans granted to the general government decreased in the same period from 7.56% to 3.47%.
- The average weighted effective passive interest rates in Montenegro have been in constant decline since 2007 and have decreased from the level of 3.35% to 0.35% in 2021 . Passive interest rates are higher on deposits of citizens compared to deposits of legal entities. Thus, in 2021, the average effective passive interest rates amounted to 0.47% for individuals and 0.22% for legal entities.

Average weighted effective active interest rate

Average weighted effective passive interest rate
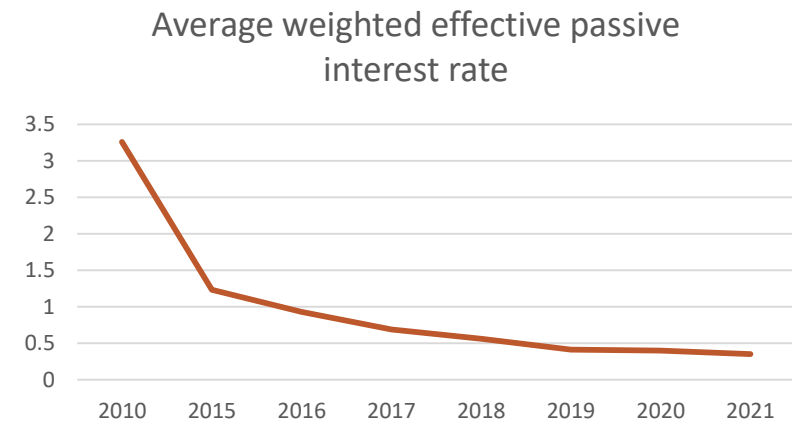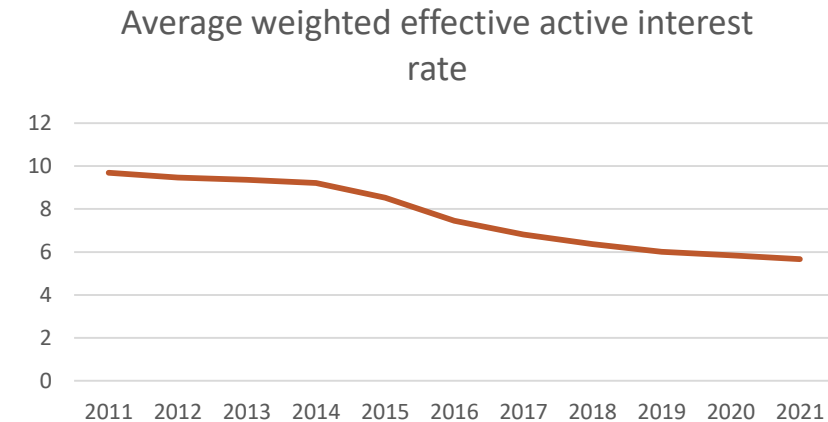
Materijali za čitanje

- Chari, V., V., and Patrick J. Kehoe. 2006. "Modern Macroeconomics in Practice: How Theory Is Shaping Policy." *Journal of Economic Perspectives*, 20 (4): 3-28.DOI: 10.1257/jep.20.4.3, https://www.aeaweb.org/articles?id=10.1257/jep.20.4.3

- Galí, Jordi, and Mark Gertler. 2007. "Macroeconomic Modeling for Monetary Policy Evaluation." *Journal of Economic Perspectives*, 21 (4): 25-46.DOI: 10.1257/jep.21.4.25, https://www.aeaweb.org/articles?id=10.1257/jep.21.4.25

- CBCG, radna studija: EKONOMSKA POLITIKA U DOLARIZOVANIM EKONOMIJAMA SA POSEBNIM OSVRTOM NA CRNU GORU, https://cbcg.me/slike_i_fajlovi/fajlovi/fajlovi_publikacije/radne_studije/ekonompolitika.pdf

Bacovic, M. 2019. "Dollarization in Montenegro: evidence after two decades of experience", Conference: 11th Economic and Finance Conference, Rome, DOI: 10.20472/EFC.2019.011.002, https://www.iises.net/proceedings/11th-economics-finance-conference-rome/table-of-content/detail?article=dollarization-in-montenegro-evidence-after-two-decades-of-experience

Materijali za čitanje

- Mankiw, N. Gregory, and Ricardo Reis. 2018. "Friedman's Presidential Address in the Evolution of Macroeconomic Thought." *Journal of Economic Perspectives*, 32 (1): 81-96.DOI: 10.1257/jep.32.1.81, https://www.aeaweb.org/articles?id=10.1257/jep.32.1.81

- Meese, Richard. 1990. "Currency Fluctuations in the Post-Bretton Woods Era." *Journal of Economic Perspectives*, 4 (1): 117-134.DOI: 10.1257/jep.4.1.117, https://www.aeaweb.org/articles?id=10.1257/jep.4.1.117

- McKinnon, Ronald I. 1988. "Monetary and Exchange Rate Policies for International Financial Stability: A Proposal." *Journal of Economic Perspectives*, 2 (1): 83-103.DOI: 10.1257/jep.2.1.83, https://www.aeaweb.org/articles?id=10.1257/jep.2.1.83

- Mann, Catherine, L. 2002. "Perspectives on the U.S. Current Account Deficit and Sustainability." *Journal of Economic Perspectives*, 16 (3): 131-152.DOI: 10.1257/089533002760278758, https://www.aeaweb.org/articles?id=10.1257/089533002760278758