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SUŠTINA I AKTUELNOST MANDEL- FLEMINGOVOG MODELA

Rezime

Dominantna preokupacija i opsesivna tema kreatora ekonomske politike je potraga za takvim modalitetima ekonomskog ponašanja koji će omogućiti da se simultano ostvare dva velika cilja svake otvorene ekonomije - unutrašnja i spoljna ravnoteža. Mehanizam za postizanje ove dve ravnoteže kao i implikacije po ekonomsku politiku elegantno su obuhvaćeni Mandel-Flemingovim modelom. Cilj ovog rada je da predstavi Mandel-Flemingov model sa svim pripadajućim specifičnostima, ukaže na njegov donekle kontroverzan razvoj kao i na suštinu i aktuelnost zaključaka koji iz njega proizilaze.

Ključne reči: Mandel-Flemingov model, fiskalna politika, monetarna politika, unutrašnja ravnoteža, spoljna ravnoteža, režimi deviznog kursa, mobilnost kapitala

JEL: A20, D5, E50, F41

Rad primljen: 15.10.2012.

Odobren za štampu: 11.02.2013.

SUBSTANCE AND RELEVANCE OF THE MUNDSELL-FLEMING MODEL

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Summary

Predominant preoccupation and the theme obsessing economic policy creators is the quest for such modalities of economic behaviour that will allow for simultaneous achievement of the two major targets of every open economy - internal and external equilibrium. Mechanisms for achievement of these two balances and their implications on economic policy are comprised in the Mundell-Fleming model. The objective of this work is to present Mundell-Fleming model in all its specificities, focusing on its rather controversial development, and the substance and relevance of conclusions that can be drawn.

Key words: Mundell-Fleming model, fiscal policy, monetary policy, internal equilibrium, external equilibrium, exchange rate regimes, capital mobility

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Uvod

Poslednjih nekoliko decenija svedoci smo činjenice da su nacionalne granice postale preuzak okvir za obavljanje ekonomskih aktivnosti. Danas, više nego ikada pre, događaji na svetskoj sceni utiču na ekonomske i političke odluke pojedinačnih zemalja. Sintagma "zatvorena ekonomija" uveliko je prevaziđena a otvorenost ekonomije prema međunarodnim finansijskim i realnim tokovima postala je *conditio sine qua non* dugoročnog održivog rasta i razvoja. Međutim, ne tako davno svet je još uvek bio mozaik velikog broja zatvorenih ekonomija u kome su trgovinske, finansijske pa čak i komunikacione veze između zemalja bile ograničene. U dotičnom ambijentu standardni Hiksov IS/LM model mogao je relativno uspešno da se koristi za analizu uticaja monetarne politike (promena LM krive) i fiskalne politike (promena IS krive) na uspostavljanje simultane robne i finansijske ravnoteže u privredi. Iz današnje perspektive najveća manjkavost originalnog IS/LM modela je upravo njegov fokus na pojedinačnu zatvorenu ekonomiju, koji je možda bio adekvatan u međuratnom periodu ali ni u kom slučaju ne odgovara aktuelnim trendovima. Navedenu slabost ispravili su Robert Mandel (*Robert Mundell*) i Markus Fleming (*Marcus Fleming*) kada su šezdesetih godina prošlog veka razvili makroekonomski model otvorene privrede - Mandel-Flemingov model.

Istorijski osvrt: Od Mandela i Fleminga do Mandel-Fleminga

*"Teorija je poezija nauke.
To je pojednostavljenje, suštinska apstrakcija,
preuveličavanje istine.
Kroz pojednostavljenja teorija stvara karikaturu
stvarnosti.
Karikatura nije pravi svet - ona ga ismeva.
Ipak, obratite pažnju na prave stvari u tom
ismevanju!
Karikatura se ruga realnosti ali njeni nedostaci je
osvetljavaju."
Mundell (1964, str. 421)*

Makroekonomija otvorene privrede nije novo polje teorijskih istraživanja. Njeni rudimenti mogu se pratiti unazad sve do

nekih merkantilističkih i klasičnih ideja. Međutim, formalni matematički modeli trgovinskih i kapitalnih tokova, uključujući i reakcije deviznih kurseva mnogo su novijeg datuma. Ranih šezdesetih godina prošlog veka radovi Markusa Fleminga i Roberta Mandela dali su ključan doprinos u ovom smislu kada su, nezavisno jedan od drugog, sistematski pristupili analizi uloge koju igra međunarodna mobilnost kapitala u određivanju delotvornosti alternativnih makroekonomskih politika pod različitim režimima deviznog kursa. Od ovih pionirskih koraka do danas Mandel-Flemingov model je nadograđivan na najrazličitije načine, ali je i dalje ostao "glavni radni okvir otvorene makroekonomije" (Frenkel, Razin, 1987, str. 1).

Kada se govori o Flemingovom doprinosu modelu koji danas označavamo kao Mandel-Flemingov (u daljem tekstu: MF model) misli se na njegov rad iz 1962. godine u kome je analizirao posledice odluke o režimu deviznog kursa na efikasnost fiskalne i monetarne politike. Značajno je napomenuti da je Fleming preliminarnu verziju navedenog rada objavio interno u okviru MMF-a već novembra 1961. godine. Taj preliminarni nacrt je bio gotovo identičan onom publikovanom sledeće godine u kvartalnom časopisu MMF-a osim što nije sadržao matematički apendiks (Boughton, 2003). Ekspanzivna monetarna politika, kako u dotičnom radu tvrdi, efikasnija je pod fluktuirajućim nego pod fiksnim deviznim kursom i to kako apsolutno tako i relativno u odnosu na fiskalnu akciju. Sa druge strane, prema Flemingu, neizvesno je da li će ekspanzivni efekat fiskalne politike meren rastom budžetskih izdataka ili snižavanjem poreza, biti veći ili manji pod fluktuirajućim odnosno fiksnim deviznim kursom (Fleming, 1962).

Sa druge strane, u literaturi se uobičajeno navodi (Wang, 2009; Boughton, 2003; Frenkel, Razin, 1987; *etc*) da je Mandel svoj doprinos MF modelu dao istraživanjima koja je izneo u seriji od pet članaka (Mundell 1960, 1961a, 1961b, 1963 i 1964). Svojim radom na dotičnu temu, ali i u oblastima monetarne dinamike i analize optimalnih valutnih područja, Robert Mandel je 1999. godine odlikovan Nobelovom nagradom za ekonomiju (Pantelić, 2011).

Kako sam Mandel navodi kada je počeo da piše nije imao nikakvu ideju o tome kakvi bi se

Introduction

During the last several decades, we are witnessing the fact that the national borders have become a frame too narrow for conducting economic activities. Nowadays, more than ever before, events taking place on the world stage are affecting economies and political decisions of individual countries. The syntagm “closed economy” has by far been surpassed, and an economy open to international financial and real flows became a *condition sine qua non* for a long-term sustainable growth and development. Not so long ago, however, the world was still a mosaic composed of a large number of closed economies where trading, financial, and even communication links between countries were restricted. In such an environment, Hick’s IS/LM model could rather successfully be applied on the analysis of the monetary policy impact (change in the LM curve) and fiscal policy focus (change in the IS curve) on the achievement of a simultaneous output and financial equilibrium in an economy. From the present day perspective, the major drawback of the original IS/LM model is actually its focus on a particular closed economy that may have been adequate during the period between the two world wars, but in no case can it be deemed adequate in the actual current trends. The drawback mentioned was corrected by Robert Mundell and Marcus Fleming when they developed, during the 1960s, the macroeconomic open economy model - known as the Mundell-Fleming Model.

Historical overview: From Mundell and Fleming, to Mundell-Fleming

*“Theory is the poetry of science.
It is simplification, the essential abstraction,
the exaggeration of truth.
Through simplification theory creates a
caricature of reality.
Through deduction the premises of the
caricature are translated
into empirical - and therefore refutable -
generalisation.
The caricature itself is not the real world - it
mocks it.
Yet mind true things by their mockeries!
The caricature mocks reality;*

The deductions from the caricature illuminate it.
Mundell (1964, p. 421)

Open market macroeconomy is not a new field of theoretic research. Its rudiments may be followed as far back as some of the mercantile and classic ideas. The formal mathematical trade and capital flow models, however, including reaction of exchange rates, are of a much later date. Early in the 1960s, works by Marcus Fleming and Robert Mundell gave a crucial contribution, in the sense that, irrespective of one another, they took a systemic approach to the analysis of the role played by the international capital mobility in determining efficient and beneficial alternative macroeconomic policies under different exchange rate regimes. From these pioneering steps, until this day, Mundell-Fleming model was upgraded in the most varied ways, yet it still remains “the main term of reference of any open macroeconomy” (Frenkel, Razin, 1987, p. 1).

When speaking of Fleming’s contribution to the model that we designate today as Mundell-Fleming model (hereinafter: MF model), we have in mind his work from 1962, where he analysed consequences that a decision on the exchange rate regime may have on the efficiency of fiscal and monetary policies. It is important to note that Fleming published a preliminary version of the said work internally, within the IMF, as early as November 1961. This preliminary draft was almost identical with the one to be published the following year, in the quarterly IMF journal, except for the absence from its contents of the mathematical appendix (Boughton, 2003). An expansionist monetary policy, as Fleming argues in the said work, under the flexible exchange rate, is more efficient than it is under the fixed exchange rate, both in absolute and in real terms, in respect to the fiscal action. According to Fleming, however, it remains uncertain whether the expansionist fiscal policy effects, measured in growth of budgetary expenditure or lowering of taxes, will be higher or lower under the flexible, i.e. under the fixed exchange rate (Fleming, 1962).

In the literature, on the other hand, what is usually quoted (Wang, 2009; Boughton, 2003; Frenkel, Razin, 1987; etc.) is that Mundell gave his contribution to the MF model through

sve zaključci mogli pojaviti (Mundell, 2001). U prvom od navedenih radova izneo je ideju da određeni instrument ekonomske politike treba da se usmeri ka onoj meti odnosno ka onom cilju nad kojim ima relativno najveći uticaj (Mundell, 1960). Usmeravanje monetarne politike, koje se u svojoj analizi prve dotakao, ka unutrašnjoj odnosno spoljnoj ravnoteži prema Mandelu zavisi od toga da li je devizni kurs fiksni ili fluktuirajući. U slučaju fiksnog deviznog kursa monetarna politika je usmerena ka spoljnoj ravnoteži dok se u slučaju fluktuirajućeg deviznog kursa on sam prilagođava kako bi ostvario spoljnu ravnotežu a monetarna politika može da se orijentise na unutrašnju ravnotežu (Mundell, 1960). U narednim radovima Mandel je proširio svoju teoriju i ukazao na alternativne *ad hoc* politike koje mogu biti iskorišćene za dostizanje spoljne ravnoteže u slučaju da se monetarna politika, pod režimom fiksnog deviznog kursa, iskoristi za dostizanje unutrašnje ravnoteže (Mundell, 1961a). Naime, nakon Drugog svetskog rata puna zaposlenost je označena kao primarni cilj ekonomske politike a monetarna politika kao osnovni instrument prilagođavanja. Ovo potonje je uticalo da se monetarna politika udalji od svoje primarne funkcije pri režimu fiksnog deviznog kursa koji je tada preovladavao ka novom zahtevu - unutrašnjoj ravnoteži a da pri tom nije razvijeno novo oružje za borbu sa neravnotežom platnog bilansa što konsekvntno dovodi do svojevrsnog vakuuma. U tim uslovima Mandel predlaže alternativne politike oličene u merama uvozne kontrole (kvote, carine) ali i mere stimulacije uvoza koje kreatori ekonomske politike mogu da iskoristite za dostizanje spoljne ravnoteže u slučaju kada zvanične rezerve postanu opasno niske (Mundell, 1961a). Daljom nadogradnjom svoje teorije Mandel je došao do zaključka da su *i* monetarna *i* fiskalna politika (dakle *i-i*) efikasnije za dostizanje ravnoteže pod režimom fluktuirajućeg deviznog kursa pri čemu je prednost ipak na strani monetarne politike (Mundell, 1961b) a zatim je dve godine kasnije učinio esencijalan zaokret uvodeći u model pretpostavku o savršenoj mobilnosti kapitala. U takvoj konstelaciji prilika, fiskalna politika postaje neefikasna za dostizanje unutrašnje ravnoteže pod režimom fluktuirajućeg deviznog kursa (Mundell, 1963). Očigledna protivrečnost

sa prethodnim zaključkom da su obe politike efikasne pod režimom fluktuirajućeg deviznog kursa, rezultat je upravo nove ekstremne pretpotavke ali i donekle izmenjene definicije fiskalne i monetarne politike.

Iako je Mandel naglasio da čuvenu pretpostavku o savršenoj mobilnosti kapitala ne treba shvatiti u bukvalnom smislu odnosno da su njegovi "zaključci crno-beli a ne svetlo-tamno sivi" kao stvarni svet (Mundell, 1963 str. 485) ubrzo su usledile i prve kritike (npr. McLeod, 1964) da je model nerealan, uzak i previše simplifikovan. Međutim, ovakva otežana percepcija Mandelovih ideja u vreme njihovog nastajanja ne iznenađuje previše budući da neke od polaznih pretpostavki kao što međunarodna integracija tržišta kapitala i fluktuirajući devizni kursevi nisu bili dominantna karakteristika svetskog ekonomskog ambijenta ranih šezdesetih godina kada je model nastajao. Naprotiv, većina valuta je u to vreme bila fiksirana u okviru Bretonvudskog sistema a trgovinska ograničenja nisu bila retkost, i to je upravo glavni razlog koji je Mandelove zaključke nekim njegovim savremenikima učinio dalekim ili iracionalnim. Na navedene kritike Mandel je ažurno odgovorio (Mundell, 1964) počevši citatom sa početka ove tačke.

Sinteza navedenih doprinosa Mandela i Fleminga je ono što danas nazivamo MF model. Donekle paradoksalno, pomenuta dva autora nisu sarađivala zajedno ni na jednom od radova na ovu temu, iako su u jednom mometu bili i bliske kolege u istraživačkom odseku Međunarodnog monetarnog fonda. Ipak, postoji jedan njihov zajednički rad, i to Fleming-Mandel (dakle ne Mandel-Fleming) ali se taj rad ne odnosi na makroekonomiju otvorene privrede (Fleming, Mundell, 1964).

Nije poznato da je Fleming ikada komentarisao nezavisnost svog rada niti neverovatan vremenski tajming u kome su on i Mandel publikovali svoje ideje. Sa druge strane, ne tako davno Mandel se ipak dotakao istorije MF modela, rekavši da je Fleming verovatno radio na modelu pre nego što su postali bliske kolege u MMF-u ali da Fleming ni na koji način nije zaslužan za njegove ideje (Mundell, 2001). Nakon toga je naveo da je Fleming pročitao najmanje četiri njegova rada te je stoga njegov rad "u velikoj meri subjektivno originalan"

research that he presented in a series of five articles (Mundell 1960, 1961a, 1962b, 1963, and 1964). For his work on the said topic, but also in the field of monetary dynamics and analysis of optimum currency areas, Robert Mundell was awarded, in the year 1999, the Nobel Prize for Economics (see: Pantelic, 2011).

According to Mundell himself, when he started writing, he had no idea at all of the conclusions that may emerge (Mundell, 2001). In the first of the said works he presented the idea that a given economic policy instrument should be focused on such a target i.e. objective, on which it has the greatest impact (Mundell, 1960). Channelling monetary policy, that he had first tackled in his analysis, towards internal i.e. external equilibrium, according to Mundell, depends on whether the exchange rate is fixed or floating. In case of a fixed exchange rate, monetary policy is channelled towards an external equilibrium, while in the case of a floating exchange rate it will itself strive to achieve external equilibrium, and the monetary policy can orient itself towards an internal equilibrium (Mundell, 1960). In the works that are to follow, Mundell expanded on his theory and pointed out at the alternative *ad hoc* policies that may be used for the achievement of external equilibrium in case monetary policy, under a fixed exchange rate regime, is used to attain internal equilibrium (Mundell, 1961a). Namely, after the Second World War, employment was designated as the primary target of the economic policy, with the monetary policy as the basic instrument for adjustment. This latter caused the monetary policy to depart from its primary function in the fixed exchange rate regime, which was then having a prevailing inclination towards a new necessity - internal equilibrium, at the time when no new weapon for fight against the balance of payment inequilibrium had yet been designed, and this inevitably led to a particular vacuum to emerge. In such circumstances, Mundell proposed alternative policies personified in the import control measures (quotas, customs duties), but also measures for import stimulation that the monetary policy creators may apply to attain external equilibrium in case official reserves were to fall dangerously low (Mundell, 1961a). Further upgrading of his theory led Mundell to

the conclusion that both the monetary and the fiscal policies (thus *together*) are more efficient for reaching equilibrium under the floating exchange rate regime, where the advantage is, nevertheless, on the side of the monetary policy (Mundell, 1961b). Two years later, he was to make an essential U-turn by introducing into the model the assumption of perfect capital mobility. In such a constellation of circumstances, fiscal policy becomes inefficient for reaching internal equilibrium under the floating exchange rate regime (Mundell, 1963). The obvious controversy with the previous conclusion, arguing that both of the policies are efficient under the floating exchange rate regime, is actually the result of a new extreme assumption, but also of an up-to-a point change in definition of the fiscal and monetary policies.

Although Mundell stressed that the famous assumption of perfect capital mobility should not be understood literally, i.e. that his "conclusions are black-and-white, and not light-or-dark grey" as the real world actually is (Mundell, 1963, p. 485), the first criticism was soon to arrive (for instance, McLeod, 1964), arguing that the model is unrealistic, narrow and over-simplified. Such a hardened perception of Mundell's ideas at the time of their inception is not too surprising as some of the initial assumptions, the likes of international capital market integration, and the floating exchange rates, were not predominant characteristics of the world economic environment in the early 1960s, when the model was evolved. Quite the opposite, most of the currencies at that time were fixed within the scope of Breton-Wood system, and trade restrictions were not infrequent, yet this was the main reason that made Mundell's findings appear far-fetched or irrational to some of his contemporaries. Mundell responded promptly to his critics (Mundell, 1964), starting with the quotation given at the beginning of this title.

The synthesis of contributions made by Mundell and Fleming is what we call today MF model. Rather paradoxically, these two authors did not cooperate together on any of the works published on this topic, although at a certain point in time they were close colleagues in the research department at the International Monetary Fund. Nevertheless, there is one work

(Mundell, 2001, str. 225). U kasnijoj verziji istog teksta (Mundell, 2002) ipak je pomirljivo zamenio tu poslednju rečenicu sledećom: "*Moj rad prethodi njegovom u publikaciji, ne neophodno i u koncepciji*". Ipak, kada je reč o pretpostavci o perfektnoj mobilnosti kapitala tada Flemingov (1962) rad prethodi Mandelovom (1963) iako je kod Fleminga to specijalan slučaj pre nego fokus celog rada. Toliko o kontroverzama.

Konačno, zanimljivo je kratko se osvrnuti i na evoluciju samog naziva - *Mandel-Flemingov* model. Naime, ubrzo nakon što su izložili svoje ideje, oba autora postala su veoma uticajna. U raznovrsnoj literaturi tokom naredne decenije obojica su navođena kao autori koji su značajno doprineli temi ali gotovo uvek uz neustaljeno *ad hoc* apostrofiranje jednog od autora. Prve objavljene reference na sintagmu "Mandel-Flemingov model" mogu se pronaći tek kod Dornbuša (Dornbusch, 1976) dok je udžbenik istog autora četiri godine kasnije odomacio ovo ime u nauci (Boughton, 2003). Ipak, MF model onako kako ga je video Dornbuš odnosi se samo na slučaj fluktuirajućih deviznih kurseva i perfektnu mobilnost kapitala što znači da je u izvesnom smislu moguće praviti razliku između MF modela sintetizovanog kod Dornbuša i generalizovanog MF modela sa različitim vidovima mobilnosti kapitala (Young, Darity, 2003). Iako pojedini autori i dalje insistiraju na ovakvoj oštroj distinkciji ipak se može reći da je danas opšte prihvaćeno da se o MF modelu govori kao o opštem modelu otvorene makroekonomije koji otvara prostor za analizu efikasnosti ekonomskih politika pod različitim režimima deviznog kursa ali i uvažavajući mogućnost različitog stepena mobilnosti kapitala. Upravo ovakav pristup sledimo i u ovom radu. Na kraju značajno je napomenuti da MF model svakako nije ostao imun na kritike o kojima će biti više reči u poslednjoj tački ovog rada.

MF model - ravnoteža na tržištu roba, novca i platnog bilansa

Kada su proizvodni resursi jedne zemlje u potpunosti uposleni i kada je nivo cena stabilan, zemlja se nalazi u stanju unutrašnje ravnoteže (Krugman, Obstfeld, 2009). U praktičnom smislu, međutim, potrebno je navedene

veoma striktne referentne tačke kao što su "puna zaposlenost" i "stabilnost cena" donekle relaksirati. U tom kontekstu može se reći da se unutrašnja ravnoteža odnosi na stanje pune zaposlenosti ili postojanja nezaposlenosti u visini od nekoliko procenata godišnje odnosno, kada je reč o stabilnosti cena, podrazumeva inflaciju koja ne prelazi dva do tri procenta godišnje (Salvatore, 2009). U slučaju kada resursi nisu u potpunosti iskorišćeni ili kada su prezaposleni, javljaju se teškoće koje umanjuju efikasnost privrede i generalno pomeraju nivo cena, uvodeći zemlju u stanje unutrašnje neravnoteže. Kreatori ekonomske politike u ovoj situaciji reaguju, koristeći politike prilagođavanja, i to pre svega monetarnu i fiskalnu politiku, kako bi ekonomiju pokrenuli u pravcu ponovnog uspostavljanja stabilnosti cena i pune zaposlenosti. Naravno, postoji i druga opcija. Ako se sačeka dovoljno dugo unutrašnja ravnoteža može biti obnovljena i bez intervencije ekonomske politike. Ipak, kako kaže Kejns - *u dugom roku smo svi mrtvi*. Dodatno, društveni troškovi takvog pasivnog prilagođavanja mogu biti previsoki. Kreatori ekonomske politike mogu da urade više nego da pasivno čekaju da tržišni mehanizam odgovori na neravnotežu ili još konkretnije oni mogu i moraju da reaguju odgovarajućom ekonomskom politikom sprečavajući prevelike fluktuacije proizvoda ali i obezbeđujući da novčana masa raste optimalnim tempom, nikako prebrzo niti presporo.

Postizanjem unutrašnje ravnoteže aktivnosti kreatora ekonomske politike u zatvorenoj ekonomiji u velikoj meri se završavaju. Međutim, otvorena ekonomija se razlikuje od zatvorene po tome što se cirkulacija roba, usluga i kapitala ne odvija samo u okviru nacionalnih granice već mnogo šire - internacionalno. Dakle, u jednoj otvorenoj ekonomiji stranci potražuju deo nacionalnog proizvoda (izvoz) dok je deo domaće agregatne tražnje zadovoljava inostranom proizvodnjom (uvoz). Ovo navodi na zaključak da je u otvorenoj ekonomiji potrebno voditi računa o još jednom aspektu ravnoteže - ravnoteži u ekonomskim transakcijama sa inostranstvom.

Kada je reč o spoljnoj ravnoteži, u literaturi se pod ovim pojmom najčešće podrazumeva ravnoteža tekućeg računa zemlje. Ipak, iako

that they have made together, and that is the Fleming-Mundell (hence not Mundell-Fleming), but that paper does not deal with open market macroeconomy (Fleming, Mundell, 1964).

It is not known whether Fleming had ever commented on the independence of his work, and neither on the incredible timing when he and Mundell published their ideas. Not so very long ago, however, Mundell did mention the MF model history, saying that Fleming was probably working on the model before they became close colleague at the IMF, but that Fleming is in no way deserving for his (Mundell's) ideas (Mundell, 2001). He continued by saying that Fleming had read at least four of his works, thus that his work is "to a great extent subjectively original" (Mundell, 2001, p. 225). In a later version of this same text (Mundell, 2002), he did amicably replace that last sentence with the following one: *"My work precedes his in publication, not necessarily as well in conception"*. When deliberating the assumption of perfect capital mobility, however, Fleming's work on this subject (1962) did precede the Mundell's one (1963), although in case of Fleming, it is a singular work that he presented, rather than the substance of his entire labour. Let this be so much said about controversies.

Finally, it is interesting to briefly examine evolution of the name itself - *Mundell-Fleming* model. Namely, soon after they have presented their ideas, both authors became very influential. In assorted literature over the following decade, both of them were quoted as authors who have significantly contributed to the topic, but almost invariably with inconsistent *ad hoc* emphasis placed on one of the authors. The earliest published references to the syntagm "Mundell-Fleming model" can be found as late as Dornbusch (Dornbusch, 1976), while the text book by the same author, published four years later, turned this into a household name in the realm of sciences (Boughton, 2003). Nevertheless, MF model, as perceived by Dornbusch, pertains only to the case of floating exchange rates and a perfect capital mobility, which means that in a certain sense, it is possible to draw a line between the MF model synthesised by Dornbusch, and the generalised MF model with various forms of capital mobility (Young, Darity, 2003). Although

some authors still insist on this strict distinction, it may be said that it is generally recognised today that the MF model is deemed to be a general model of an open macroeconomy, that is opening up the space for analysis of economic policy efficiency under different exchange rate regimes, but always respecting the option of a different degree of capital mobility. Actually it is this approach that we shall be following in this paper. Finally, it is important to mention that the MF model has certainly not remained immune to criticism that we shall be exploring in more detail in the last title of this paper.

MF model - Equilibrium in the product market, money market, and in the balance of payment

When production resources of a given country are fully employed and when the level of prices is stabilised, that country is in a state of internal equilibrium (Krugman, Obstfeld, 2009). In the practical sense, however, it is necessary for the said very strict reference points, such as 'full employment' and 'price stability', to be somewhat relaxed. In that context, it may be said that the internal equilibrium refers to the situation of full employment, or the presence of unemployment, amounting to several percentages annually, i.e. when speaking of price stability, inflation is assumed which does not exceed two to three percent annually (Salvatore, 2009). In case resources are not fully employed, or when they are over-employed, difficulties may appear lowering efficiency of the economy and generally shifting the price levels, leading the country to a state of internal inequilibrium. Economic policy creators, in this situation, are reacting by using the policy of adjustment, primarily monetary and fiscal policies, in order to set the economy in motion in the direction of a reinstated position of price stability and full employment. There is, of course, another option. If a sufficiently long time has elapsed, internal equilibrium may return even without any intervention by the economic policy. Nevertheless, as Keynes presumes - *over a long-term, we may all be dead*. In addition, social costs of such a passive adjustment may be too high. Economic policy creators can do more than just passively awaiting for the market

je ova definicija prikladna pod određenim okolnostima, ona se ne može primenjivati kao opšte pravilo. Tvrdoglavo insistiranje na ravnoteži tekućeg računa zemlje, na primer, ne ostavlja zemlji mogućnosti za značajnije dobitke od intertemporalne trgovine (Krugman, Obstfeld, 2009). Iz ovog razloga kreatori ekonomske politike mogu definisati određeno ciljno stanje tekućeg računa i proglasiti ga za stanje kome teže odnosno koje se uklapa u njihovu percepciju postizanja spoljne ravnoteže (Kovačević, 2011). Praktično to znači da i manji suficit odnosno manji deficit tekućeg računa može biti ciljno stanje spoljne ravnoteže ukoliko omogućava da se tokom vremena ostvaruju trgovinski dobici bez rizikovanja da se pojave makroekonomski problemi koji nastaju usled velikih spoljnih neravnoteža, naročito deficita.

Modelska, mere ekonomske politike u zatvorenoj ekonomiji usmerene na postizanje unutrašnje ravnoteže posmatraju se uz pomoć klasičnog Hiksovog IS-LM modela. Ukratko, IS kriva reflektuje negativni odnos između kamatne stope i nivoa realnog nacionalnog dohotka na tržištu dobara i usluga odnosno pokazuje sve kombinacije kamatne stope i nacionalnog dohotka u kojima je robno tržište u ravnoteži, u značenju jednakosti štednje i investicija (engl. *savings, investment - odatle IS*). LM kriva je u funkciji prikazivanja stanja na tržištu novca odnosno pozitivnog odnosa između kamatne stope i, opet, realnog nacionalnog dohotka. U svakoj tački duž LM krive postoji jednakost tražnje za novcem i ponude novca (engl. *liquidity, money supply - odatle LM*), tako da je novčano tržište u ravnoteži. Model podrazumeva da su cene određene egzogeno. Posmatranjem IS i LM krive u jedinstvenom grafikonu mogu se analizirati interakcije tržišta dobara i tržišta novca, u uslovima datog nivoa cena, kao i efekti fiskalne i monetarne politike u procesu uspostavljanja simultane robne i finansijske ravnoteže u zatvorenoj ekonomiji.

Međutim, analiza situacije u otvorenoj ekonomiji, zahteva uključivanje međunarodnih faktora u osnovni IS-LM model. Ovo se postiže upotrebom krive bilansa plaćanja (u daljem tekstu: BP kriva) koja pokazuje različite kombinacije kamatne stope i realnog nacionalnog dohotka, uz dati nivo deviznog

kursa, pri kojima je platni bilans u ravnoteži. Budući da formalno matematičko izvođenje BP krive prevazilazi opsege ovog rada, u nastavku, sledeći Eicher et al. (2009, str. 510-511), u istom cilju biće prezentovan jedan intuitivan pristup. Izaberimo prvo jednu tačku u okviru kamatna stopa - realni nacionalni dohodak u kojoj je platni bilans u ravnoteži i to tako da su i tekući i kapitalni račun ponaosob u ravnoteži. Sada zamislimo da je u ekonomiji došlo do iznenadnog rasta nacionalnog dohotka i posmatrajmo promene u komponentama platnog bilansa. U okviru tekućeg bilansa najznačajnija stavka je neto izvoz koji varira inverzno sa dohotkom iz razloga što je povezanost izvoza sa domaćim dohotkom neznatna ali je zato uvoz direktno uslovljen domaćim dohotkom, u smislu da rast domaćeg dohotka povlači rast uvoza. Naime, kako raste domaći dohodak potrošači kupuju veću količinu svih proizvoda i usluga uključujući i inostrane. Konsekventno, sa rastom domaćeg dohotka neto izvoz kao razlika izvoza (koji je u odnosu na domaći dohodak egzogen odnosno determinisan van modela) i uvoza (koji je sa domaćim dohotkom pozitivno korelisan) opada. Rezultat je deficit tekućeg bilansa. Kako bismo ponovo imali ravnotežu platnog bilansa deficit u tekućem delu mora biti neutralisan suficitom u kapitalnom delu bilansa. Budući da je kapital motivisan da se useljava u ekonomije u kojima su prinosi od investiranja visoki, *trik je da se kamatna stopa podigne dovoljno visoko* da rezultirajući kapitalni prilivi pokriju deficit tekućeg računa i ponovo se uspostavi ravnoteža platnog bilansa.

Dakle, višem nivou realnog nacionalnog dohotka odgovara viša kamatna stopa što upućuje na pozitivan nagib BP krive. Međutim, za kreatore ekonomske politike je mnogo značajnije da saznaju *za koliko* treba da poraste kamatna stopa kako bi se ponovo uspostavila ravnoteža. Drugim rečima, njih interesuje *nagib* BP krive odnosno ugao koji ona zaklapa sa x-osom.

Na nagib BP krive presudno utiče *stepen mobilnosti kapitala*. Ukoliko je mobilnost kapitala niska logično je da u slučaju rasta dohotka kamatna stopa mora da poraste više kako bi se održala ravnoteža platnog bilansa. U tom slučaju BP kriva je relativno strma. Sa druge strane, u slučaju relativno visoke mobilnosti

mechanism to respond to the inequilibrium, or more concretely, they can and must react with an adequate economic policy to prevent excessive fluctuation of output, but also to provide for the money mass to grow at an optimum pace, never too quickly, and neither too slowly.

When an internal equilibrium is attained, activities of economic policy creators in a closed economy are completed. An open economy, however, is a different story from the closed one, as the circulation of goods, services and capital is not taking place only within the scope of national borders, but much broader - internationally. Hence in an open economy foreigners are demanding one part of the national product (export), while one part of the domestic aggregate demand is satisfied with imported products (import). This leads to the conclusion that in an open economy it is necessary to take care of yet another equilibrium aspect - equilibrium in the cross-border economic transactions.

When speaking of an external equilibrium, literature on this subject most often designates this term to imply equilibrium in the country's current account. Nevertheless, although this definition is appropriate under certain circumstances, it can not be applied as a general rule. Stubborn insistence on the country's current account equilibrium, for instance, does not give the country an opportunity to make substantial gains from inter-temporal trade (Krugman, Obstfeld, 2009). For this reason, economic policy creators can define a certain targeted state of the current account, proclaiming it the state that is actually targeted, i.e. the one fitting their perception that an external equilibrium is attained (Kovacevic, 2011). In practical terms, this means that even a small surplus, or a small current account deficit may be the targeted state of equilibrium, if it allows for the achievement, over time, of the trade gains without the risk of emerging macroeconomic problems which may occur as a result of high external inequilibrium, especially an incurring deficit.

In the modelling sense, economic policy measures, in a closed economy, directed towards achievement of internal equilibrium, are assessed with the aid of a classic Hicks IS-LM model. In short, IS curve reflects negative

relationship between interest rate and the real output in the goods and services market, i.e. it shows all the combinations of the interest rate and the domestic product where the product market is in equilibrium, in the sense of parity between savings and investments - hence IS. The LM curve is in the function of presenting situation on the money market, i.e. positive relationship between interest rate and, again, real domestic product. In every point of the LM curve there is parity between liquidity demand and money supply - hence LM represents equilibrium in the real and monetary sector. The model designates that pricing is exogenous. Study of the IS and LM curves in a single graph may give us an analysis of the interaction between product market and money market, in the condition of the given level of prices, as well as the effects of fiscal and monetary policies in the process of simultaneous output and financial equilibrium in a closed economy.

Analysis of a situation in an open economy, however, requires incorporation of international factors into the basic IS-LM model. This is done by using the balance of payment curve (hereinafter: BP curve) which depicts different combinations of the interest rate and the real domestic product, with the given level of exchange rate, where the balance of payment is in an equilibrium. Since the formal mathematical extrapolation of the BP curve surpasses the scope of this paper, further in this text, following Eicher et al. (2009, p. 510-511) to that same end, an intuitive approach will be presented. Let us firstly select one point within the range of interest rates - real domestic product where balance of payment is in the equilibrium in such a way that both the current account and the capital account respectively are in the equilibrium. Let us now imagine that the chosen economy had experienced a sudden growth of domestic product and let us observe the changes in the components of the balance of payment. Within the current balance of payment the most important item is net export which varies inversely with the income because the link between export and national income is insignificant, but import is directly impacted by the national income as the growth of domestic income induces growth of import. Namely, when domestic income grows, consumers start

kapitala i mali porast kamatne stope pokrenuće kapitalne fondove koji su potrebni za pokriće deficita tekućih transakcija. BP kriva je tada relativno ravna. U specijalnom slučaju savršene mobilnosti kapitala kada i minimalna promena kamatne stope dovodi do "poplave" kapitala nagib BP krive teži nuli odnosno ona postaje horizontalna, paralelna sa x osom. Razume se, u odsustvu bilo kakve mobilnosti kapitala nagib BP krive teži beskonačnom čineći samu krivu vertikalnom linijom paralelnom sa y osom.

Uključivanjem BP krive u IS-LM okvir stvara se mogućnost za posmatranje simultano sva tri aspekta ravnoteže u otvorenoj ekonomiji - ravnoteže na tržištu roba, novca i platnog bilansa. Iako možda na prvi pogled deluje jednostavno, dodavanjem samo jedne krive otvara se mnogo širi prostor za analizu velikog broja slučajeva sa krajnjim zaključkom da se efekti monetarne i fiskalne politike u otvorenoj ekonomiji *značajno razlikuju* od onih u zatvorenoj. Pokazaće se da efekti ekonomske politike u otvorenoj ekonomiji predominantno zavise od režima deviznog kursa (fiksni ili fluktuirajući) i stepena mobilnosti kapitala (niska, visoka ili savršena).

Fiskalna *versus* monetarna politika u MF modelu uz režim fiksnog deviznog kursa

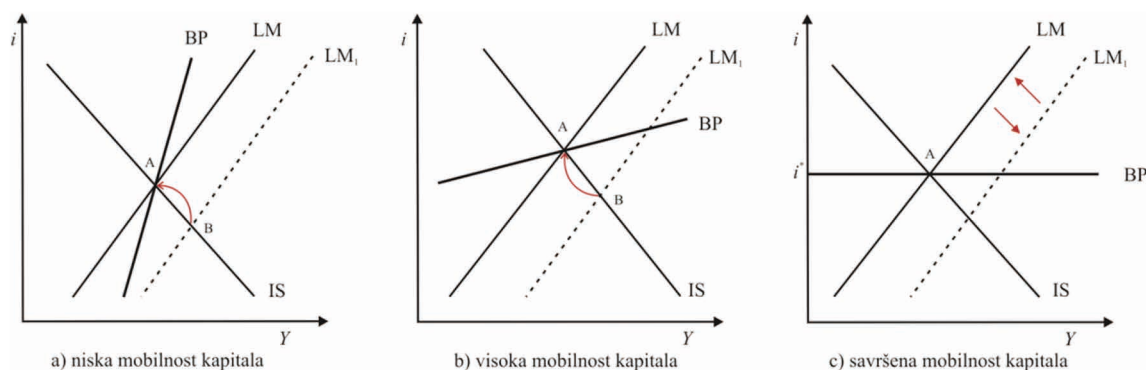
U ovoj tački ispituje se efikasnost fiskalne i monetarne politike za dostizanje simultane unutrašnje i spoljne ravnoteže u situaciji kada se polazi iz tačke u kojoj se ekonomija nalazi ispod nivoa pune zaposlenosti, uz napomenu

da se scenario ne razlikuje previše ni u slučaju polaska iz unutrašnje ali i spoljne neravnoteže, na primer u izrazu deficita. Analiza se odvija u režimu fiksnog deviznog kursa što znači da navedene ekonomske politike neće direktno uticati na pomeranje BP krive. Konačno, efikasnost monetarne i fiskalne politike razmatra se u sva tri scenarija mobilnosti kapitala (niska, visoka i savršena mobilnost).

Analiza iz ove tačke ključna je za razumevanje funkcionisanja sveta u periodu od kraja Drugog svetskog rata pa sve do 1971. kada je sistem fiksnih kursa bio na svom vrhuncu kao i za razumevanje iskustava zemalja Evropske unije pri nastojanjima da očuvaju svoje kurseve na putu ka zajedničkoj valuti. Konačno, analiza je takođe relevantna i za zemlje koje imaju režim fluktuirajućeg deviznog kursa u meri u kojoj *upravlja*ju tim fluktuiranjem (Salvatore, 2009).

Polazimo iz tačke A (grafikon br. 1) u kojoj je ekonomija u stanju ravnoteže. Međutim, pretpostavimo da se u ovoj tački ekonomija nalazi ispod svog potencijalnog nivoa dohotka što se manifestuje nezaposlenošću proizvodnih resursa. Ovakvo stanje zabrinjava kreatore ekonomske politike i oni se odlučuju da preduzmu neku ekonomsko-političku akciju. Mogućnosti koje im stoje na raspolaganju su ekspanzivna monetarna i ekspanzivna fiskalna politika. Razmotrimo prvo situaciju u kojoj kreatori ekonomske politike ne žele fiskalnu ekspanziju i odlučuju se da unutrašnju ravnotežu pokušaju da dostignu samostalno merama ekspanzivne monetarne politike. Celishodno je na samom početku priložiti grafičke prikaze.

Grafikon br. 1. Efekti ekspanzivne monetarne politike u režimu fiksnog deviznog kursa pri različitim stepenu mobilnosti kapitala



Izvor: Standardni prikaz MF modela kao kod: Eicher et al. (2009), Salvatore (2009), Dunn, Mutti (2000), Wang (2009), Kovačević (2011), Miljković (2008), etc.

buying larger quantities of all products and services, including foreign ones. Consequently, with the growth of domestic income, net export as the difference between export (which in respect to the domestic income is exogenous, i.e. determined outside of the model) and import (which has a positive correlation with the domestic income) is falling. The result is current balance deficit. In order to reinstate balance of payment equilibrium, deficit in the current part must be neutralised by a surplus in the capital part of the balance. Since capital is motivated to venture into economies where investment returns are high, *the trick is to raise interest rate high enough* so that the resulting capital inflows can cover current account deficit, and the equilibrium of the balance of payment can be established again.

Therefore, a higher level of real domestic product is accommodated by a higher interest rate, which points out at the positive slope of the BP curve. However, economic policy creators find it much more important to know just *how much* the interest rate should be raised in order to reinstate equilibrium. In other words, they are interested in the *slope* of the BP curve, i.e. in the angle that it makes with the x-axis.

The slope of the BP curve has a crucial influence on the *degree of capital mobility*. If the capital mobility is low it is logical to assume that in case of income growth interest rate must grow even higher in order to sustain the balance of payment equilibrium. In that case, BP curve is relatively steep. On the other hand, in case of relatively high capital mobility even a small growth in the interest rate will set in motion capital funds that are necessary to cover current transactions deficit. BP curve in that case is rather flat. In the special case of perfect capital mobility, when even a minimum change in the interest rate causes a “deluge” of capital, the slope of the BP curve tends towards zero, i.e. it becomes horizontal, parallel to the x-axis. It stands to reason, of course, that in the absence of any such capital mobility the slope of the BP curve tends towards infinite, making the curve itself a vertical line parallel to the y-axis.

Incorporation of the BP curve into the IS-LM framework creates an opportunity to observe simultaneously all of the three equilibrium aspects in an open economy - equilibrium in

the product market, in the money market, and in the balance of payment. Although at the first glance it may appear to be simple, the addition of only one curve opens up a much broader scope for analysis of a large number of cases, with the ultimate conclusion that the effects of monetary and fiscal policies in the open economy *substantially differ* from the ones in the closed economy. It will be revealed that the economic policy effects in the open economy predominantly depend on the exchange rate regime (fixed or floating), and the degree of capital mobility (low, high or perfect).

Fiscal versus monetary policy in the MF model with the fixed exchange rate regime

In this part of the work we shall examine the efficiency of fiscal and monetary policies in attaining simultaneous internal and external equilibrium, in a situation when the basic premise is that the economy is below the level of full employment, noting that this scenario will not differ greatly even in the case we should start from internal but also external inequilibrium, for example, in the sense of deficit. The analysis is done in the fixed exchange rate regime which means that the said economic policies will not have a direct impact on the shift in the BP curve. Finally, efficiency of monetary and fiscal policies is assessed in all of the three capital mobility scenarios (low, high, and perfect capital mobility).

The analysis presented here is of crucial importance for understanding how the world has functioned in the period from the end of the Second World War and up to the year 1971, when the system of fixed exchange rates was at its apex, but also for understanding the experience that European Union countries had in their attempts to preserve their domestic exchange rates, on the road towards their common single currency. Finally, this analysis is also relevant for the countries with the floating exchange rate regimes to the extent to which they are *managing* the floating rate (Salvatore, 2009).

We shall start from point A (Graph 1) in which the economy is in the state of equilibrium. However, let us assume that in this point the economy is below its potential level of income,

Porast ponude novca pomera krivu LM na novi nivo (desno i dole) gde postoji niži nivo kamatne stope, koji kroz porast investicija i proces multiplikacije dovodi dohodak na potencijalni nivo (na grafikonu br. 1 nalazimo se u tački B). Međutim, deo porasta nacionalnog dohotka odlazi i na povećanje uvoza što vodi deficitu tekućeg bilansa. Istovremeno pad kamatne stope motiviše kapital da se preseli u inostranstvo gde su prinosi od investiranja, u izrazu kamatne stope, viši čime se i kapitalni segment platnog bilansa pogoršava. Deficit platnog bilansa dovodi do porasta tražnje za inostranim valutama - uvoznici razmenjuju domaću valutu za stranu kako bi platili robu i usluge koje su uvezli iz inostranstva dok vlasnici kapitala takođe kupuju stranu valutu kako bi mogli da investiraju u inostranstvu, što stvara pritisak na depresijaciju nacionalne valute. Međutim, budući da se nalazimo u režimu fiksnog deviznog kursa, ukoliko ne želi devalvaciju nacionalne valute, centralna banka je primorana da interveniše na deviznom tržištu odnosno da otkupljuje ekcesnu ponudu domaće valute upotrebom deviznih rezervi. Jasno je da ovo nije dugoročno održivo rešenje. Dva su razloga za to. Prvi je očišćen u činjenici da upotreba deviznih rezervi dovodi do smanjivanja novčane mase u ekonomiji. Ukoliko centralna banka ne sterilizuje ovaj efekat preduzimanjem kompenzatornih operacija na otvorenom tržištu, redukcija novčane mase će vratiti krivu LM na početan nivo odnosno efekat monetarne ekspanzije će se *de facto* istopiti. Ukoliko se centralna banka odluči da sterilizuje efekte povećanog korišćenja deviznih rezervi na novčanu masu kupovinom obveznica na otvorenom tržištu, ekonomija još neko vreme može da ostane u tački B. Međutim budući da nisu nepresušan izvor finansiranja devizne rezerve moraju se u nekom momentu istrošiti. Onog momenta kada špekulanti prepoznaju da se taj momenat bliži, igra je završena i zemlja je najčešće primorana da napusti fiksni devizni kurs odnosno da sprovede drastičnu devalvaciju (slučaj sa Meksikom i još nekoliko azijskih zemalja devedesetih godina prošlog veka). Nakon toga po pravilu sledi inflaciono-devalvaciona spirala čime se ekonomski problemi samo usložnjavaju a prilagođavanje tada zahteva korenite, često nepopularne, ekonomske reforme.

Iako ne postoje značajnije razlike u mehanizmu

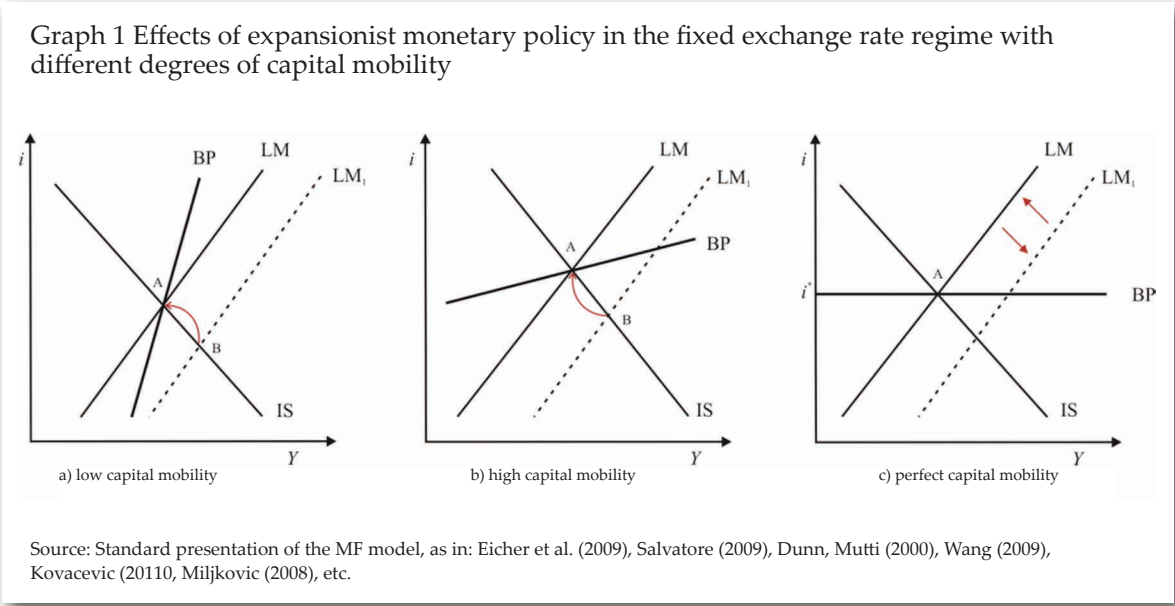
prilagođavanja između slučaja relativno niske mobilnosti kapitala (grafikon 1a) i slučaja relativno visoke mobilnosti kapitala (grafikon 1b) razlike ipak postoje u brzini prilagođavanja (Eicher et al., 2009). Pri nižoj mobilnosti kapitala odliv kapitala iz zemlje zbog pada kamatne stope je sporiji dok se pri relativno višoj mobilnosti kapitala on seli znatno brže. Brži odliv kapitala relativno ranije dovodi do deficita platnog bilansa, devizne rezerve se brže troše, strategija sterilizacije u ovim uslovima ne nailazi na opravdanje budući da bi morala da bude izuzetno obilna što još više apostrofira njenu održivost, a sve to u krajnjoj instanci kroz mehanizam prilagođavanja brže vraća LM krivu na početnu poziciju (Kovačević, 2011).

Ostaje slučaj savršene mobilnosti kapitala u značenju da investitori mogu slobodno da sele kapital iz jedne ekonomije u drugu bez ikakvih dodatnih troškova i rizika. Na taj način, budući da se razlike u kamatnim stopama eliminišu tokovima kapitala, realne kamatne stope su iste u svim ekonomijama (i^*). U ovom scenariju BP kriva je horizontalna odnosno paralelna sa x osom (grafikon 1c). Pogledajmo sada efekte monetarne ekspanzije u ovom specijalnom slučaju. LM kriva se pomera u desno, ekonomija se seli u tačku B u kojoj je dohodak na potencijalnom nivou ali je kamatna stopa niža. Međutim, ovo je, kako se to popularno kaže u literaturi (Miljković, 2008), samo hipotetička unutrašnja ravnoteža. Razlog je u činjenici da u svetu savršene mobilnosti kapitala čak i minimalna promena kamatne stope dovodi do neograničenog odliva kapitala, koji kroz već opisani mehanizam vrši gotovo trenutni pritisak na povratak LM krive na početnu poziciju. Pojedini autori (Eicher et al., 2009) zaključuju da bi se, u ovom slučaju moglo reći da se LM kriva faktički ni ne pomera sa prvobitne pozicije i da *nema čak ni privremeno dejstvo na rast nacionalnog dohotka* koje je ipak moguće u slučajevima nesavršene mobilnosti kapitala ali uz žrtvovanje ravnoteže platnog bilansa.

Praktična implikacija ove analize je zapravo činjenica da monetarna politika u režimu fiksnog deviznog kursa pri visokom stepenu mobilnosti kapitala postaje potpuno neefikasna za pokretanje ekonomije u pravcu potencijalnog dohotka. Štaviše, režim fiksnih deviznih kurseva u

which is manifested in unemployment of production resources. Such a situation is the matter of concern for the economic policy creators and they decide to undertake an economic policy action. The options that they have available are expansionist monetary policy and expansionist fiscal policy. Let us firstly examine the situation in which economic policy creators do not wish to have fiscal expansion and decide to try and attain internal equilibrium autonomously through measures of expansionist monetary policy. It is necessary to give here, at the very beginning, the graphic presentations of this case.

while holders of capital are also buying foreign currency in order to be able to invest abroad, which creates a pressure on depreciation of the national currency. However, as we are in the fixed exchange rate regime, if the central bank is not willing to devalue national currency, it will be forced to intervene with foreign currency on the foreign exchange market, i.e. it will have to purchase from its foreign currency reserves the excess domestic currency supply. Clearly, this is not a long-term sustainable solution. There are two reasons for this. The first one is to be found in the fact that the use of foreign exchange reserves is leading to the fall in the



Growth in money supply moves the LM curve on to a new level (to the right and downwards) where there is a lower level of interest rate, which through the growth in investments and the multiplication process brings income to a potential level (on Graph 1 we are at point B). However, one part of growth in the national income goes also to the growth of imports, which leads to the current balance deficit. Concurrently, the fall of interest rate motivates capital to move abroad, where returns on investments, expressed in the interest rate, are higher, leading to the deterioration in the capital segment of the balance of payment. Balance of payment deficit causes the growth in foreign currency demand - importers exchange local currency for the foreign one in order to pay for goods and services that they have imported from abroad,

money supply in the economy. If the central bank fails to sterilise this effect by undertaking compensation operations on the open market, reduction in the money supply may return the LM curve to its starting level, i.e. the effect of monetary expansion will *de facto* melt away. If the central bank is to decide to sterilise effects of increased use of foreign exchange reserves on the money supply, by purchasing bonds on the open market, the economy shall for a certain period of time remain in the point B. However, as the foreign exchange reserves are not an endless source of financing, at a certain point in time they will be exhausted. The very moment speculators recognise that such a moment is near at hand, the game will be over and the country most often forced to abandon the fixed exchange rate regime, i.e. forced to implement a drastic devaluation of its currency

kome se domaća valuta vezuje za drugu valutu ili korpu valuta *vezuje monetarne politike zemalja* učesnika u ovakvom aranžmanu, pri čemu je ova veza naročito ograničavajuća ako dotične zemlje imaju bliske finansijske i trgovinske konekcije. Najveća odnosno ekonomski najjača zemlja će po pravilu biti u mogućnosti da vodi monetarnu politiku kako želi, dok će ostale zemlje u principu moći samo da prate dotičnu politiku. Problem nastaje kada najjača zemlja u sistemu počne da vodi monetarnu politiku u pravcu koji ne odgovara ostalima.

Ilustrativan primer u ovom kontekstu je odluka Velike Britanije da napusti Mehanizam deviznih kurseva (European Exchange Rate Mechanism, ERM) Evropskog monetarnog sistema u leto 1992. godine (Dunn, Mutti, 2000). Naime, Velika Britanije se početkom devedesetih godina prošlog veka nalazila u recesiji i bila joj je potrebna ekspanzivna monetarna politika. Međutim, sve dok se funta nalazila u sistemu ERM u kome je bila fiksirana za ostale evropske valute uključujući i nemačku marku, Britanija nije imala prostora da primeni monetarnu ekspanziju koja je bila neophodna njenoj privredi. Otežavajuća okolnost bila je činjenica da se Nemačka, koja je bila vodeća zemlja sistema zahvaljujući svojoj ekonomskoj snazi ali i prestižu centralne banke, u to vreme suočavala sa inflacionim pritiscima usled ujedinjenja Istočne i Zapadne Nemačke i shodno tome primenjivala restriktivnu monetarnu politiku. Špekulanti su prepoznali da je ovakva situacija neodrživa i nakon serije ozbiljnih intervencija, Britanija je bila prinuđena da napusti ERM. Odluka da se funti dopuste fluktuacije stvorila je preko potrebnu nezavisnost centralnoj banci Engleske.

Razmotrimo sada alternativu - upotrebu ekspanzivne fiskalne politike u cilju postizanja simultane unutrašnje i spoljne ravnoteže na višem nivou dohotka. Startujemo ponovo iz tačke A u kojoj je nacionalni dohodak ispod svog potencijalnog nivoa. Fiskalna ekspanzija, kroz proces multiplikacije, povećava nacionalni dohodak, što dalje dovodi do povećane tražnje za novcem a budući da je ponuda novca određena egzogeno sledi rast kamatne stope. U zatvorenoj ekonomiji više kamatne stope mogu da obeshrabre privatnu potrošnju,

naročito investicionu i da na taj način redukuju ekspanziju privrede. U pitanju je čuveni efekat istiskivanja (engl. *crowding out effect*), koji je sam po sebi donekle kontroverzan, budući da u ekonomskoj teoriji ne postoji saglasnost oko njegovog postojanja. Zapravo, klasično-monetaristička doktrina naročito insistira na značaju ovog fenomena dok u kejnzijanskoj teoriji istiskivanje ne postoji (tzv. nulti scenario istiskivanja).

U otvorenoj ekonomiji, za razliku od zatvorene, moguće su različite varijante, budući da viša kamatna stopa podstiče priliv kapitala iz inostranstva što popravljajući kapitalni segment platnog bilansa dok istovremeno rast dohotka i porast uvoza koji sledi dovodi do pogoršanja tekućeg računa platnog bilansa. Kako bi se utvrdio neto efekat ovih promena potrebno je da znamo da li su kapitalni prilivi dovoljni da kompenzuju deficit u trgovinskim transakcijama ili ne, a to presudno zavisi od stepena mobilnosti kapitala.

U slučaju niskog stepena mobilnosti kapitala (grafikon 2a) porast kamatne stope dovodi do umerenog priliva kapitala što kreira samo relativno manji suficit u kapitalnom bilansu, koji je nedovoljan da kompenzuje srazmerno veći deficit u trgovinskim transakcijama. Nepokriveni deficit platnog bilansa manifestuje se većom tražnjom od ponude na deviznom tržištu što dalje, budući da smo i dalje u režimu fiksnog deviznog kursa, primorava centralnu banku da interveniše kako bi odbranila postavljeni paritet. Upotreba deviznih rezervi, slično kao i u primeru monetarne ekspanzije, ima za posledicu kontrakciju novčane mase i *dalji rast* kamatne stope, čime se efekat fiskalne ekspanzije na nacionalni dohodak umanjuje. U literaturi (Dunn, Mutti, 2000) se navodi da je čak moguće da efekat istiskivanja nastao na ovaj način bude i veći od slučaja u zatvorenoj ekonomiji. Centralna banka naravno može na kratak rok da izbegne monetarnu kontrakciju sterilizacijom efekta smanjivanja deviznih rezervi na novčanu masu preduzimajući kompenzatorne operacije na otvorenom tržištu. Međutim, kako je već naglašeno, budući da devizne rezerve nisu neiscrpan izvor finansiranja, na duži rok ovakva strategija je neodrživa.

(case of Mexico and some Asian countries in the 1990s). Thereupon, what follows as a rule is an inflationary-devaluation spiral which only multiplies economic problems and the adjustment in that case demands robust and often unpopular economic reforms.

Although there are no significant differences in the *mechanism* of adjustment between the cases of rather low capital mobility (Graph 1a) and that of rather high capital mobility (Graph 1b), differences are still present in the *speed* of adjustment (Eicher et al., 2009). In case of low capital mobility, capital outflow from the country because of the fall in the interest rate is slower, while in case of high mobility capital is relocating considerably faster. Faster capital outflow brings about an earlier deficit to appear in the balance of payment, foreign currency reserves are exhausted faster, sterilisation strategy in such circumstances is not justified as it would have to be extremely voluminous, which even further stresses its sustainability, and all this in the ultimate instance, through the mechanism of adjustment, is restoring faster the LM curve to its starting position (Kovacevic, 2011).

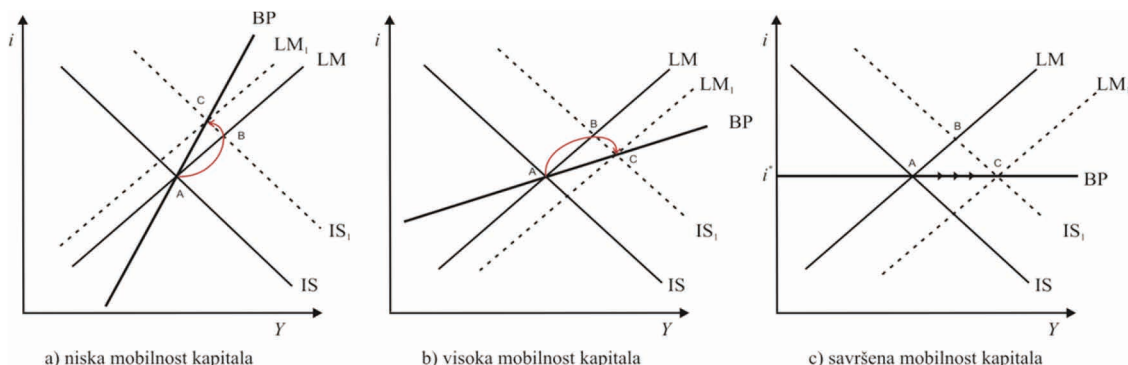
What remains is the case of perfect capital mobility meaning that investors may freely move capital from one economy to the other without any additional costs and risks. In this way, since the differences in interest rates are eliminated through capital flows, the real interest rates are the same in all the economies (*i*). In this scenario, the BP curve is horizontal, i.e. parallel to the x axis (Graph 1c). Let us see now the effects of monetary expansion in this special case. LM curve is shifting to the right, economy is moving into the point B where income is at a potential level, but the interest rate is lower. However, this is what is generally called in literature (Miljkovic, 2008), only a hypothetical internal equilibrium. The reason for this is the fact that in the world of perfect capital mobility even a minimal change of the interest rate causes an unlimited capital outflow, which through the above described mechanism, makes an almost instant pressure on the return of LM curve to its starting position. Some authors (Escher et al., 2009) conclude that in this case it could be said that the LM curve, in actual fact, has not even moved from its initial position, and that *it does not have*

even a temporary effect on the growth of the national income, which is nevertheless possible in cases of imperfect capital mobility, but balance of payment equilibrium is sacrificed.

Practical implication of this analysis is actually the fact that monetary policy in the fixed exchange rate regime, with the high degree of capital mobility, becomes totally inefficient for setting economy in motion in the direction of potential income. Even more so, *the fixed exchange rate regime*, where the domestic currency is pegged to another currency or a currency basket, *connects monetary policies of countries* participants in such an arrangement, and this link becomes especially limiting if the respective countries are having tight financial and trade connections. The largest, i.e. economically the strongest country in such a constellation, as a rule, will be able to lead the monetary policy at its wish, while all the other countries in principle will be able only to follow the policy imposed. Problems emerge when the strongest country in the system starts to conduct monetary policy in the direction inconvenient for the others partakers.

An illustrative example in this context is the decision of Great Britain to abandon European Exchange Rate Mechanism - ERM of the European monetary system, in the summer of 1992 (Dunn, Mutti, 2000). Namely, Great Britain, in the early 1990s, was in recession and it needed an expansionist monetary policy. However, for as long as the pound sterling was within the ERM system and was fixed to the other European currencies, including German mark, Britain did not have the opportunity to apply monetary expansion which was essential for its economy. Aggravating circumstance was the fact that Germany, being the leading country in the system thanks to its economic power, but also thanks to the prestige of its central bank, was faced at that time with the inflationary pressures resulting from the unification between East and West Germany, hence they were implementing restrictive monetary policy. Speculators recognised that such a situation was not sustainable and after a series of serious interventions, Britain was forced to abandon the ERM. The decision to allow pound sterling to float produced the dearly needed independence for the central bank of England.

Grafikon br. 2. Efekti ekspanzivne fiskalne politike u režimu fiksnog deviznog kursa pri različitom stepenu mobilnosti kapitala



Izvor: Standardni prikaz MF modela kao kod: Eicher et al. (2009), Salvatore (2009), Dunn, Mutti (2000), Wang (2009), Kovačević (2011), Miljković (2008), etc.

U slučaju kada je integracija tržišta kapitala nepotpuna ali je još uvek dovoljno visoka da krivu BP učini ravnijom od krive LM, međunarodne reperkusije čine fiskalnu politiku prilično moćnom u svetu fiksnih deviznih kurseva (grafikon 2b). Naime, nakon inicijalnog rasta kamatne stope usled fiskalne ekspanzije, visoka mobilnost kapitala rezultuje njegovim većim prilivom od obima koji je potreban za finansiranje deficita tekućeg bilansa što vodi suficitu platnog bilansa. Centralna banka je opet primorana da interveniše ali ovaj put tako što kupuje višak ponude inostrane valute u zamenu za domaću. Devizne rezerve se povećavaju, novčana masa u opticaju raste odnosno kamatne stope padaju (dakle *efekat istiskivanja* je u ovom slučaju izbegnut). Desna promena LM krive je dodatni impuls za rast nacionalnog dohotka ka potencijlnom nivou, shodno intencijama kreatora ekonomske politike. Dakle, fiskalna ekspanzija i indukovana monetarna ekspanzija pokazuju značajnu efikasnost u uslovima visoke mobilnosti kapitala, uz fiksni devizni kurs.

U situaciji savršene mobilnosti kapitala, odnosno horizontalne BP krive (grafikon 2c), fiskalna ekspanzija ima maksimalan učinak na rast nacionalnog dohotka. Razlog je u tome što inicijalni rast kamatne stope usled fiskalne ekspanzije podstiče neograničen priliv kapitala čime platni bilans trenutno ulazi u zonu suficita. Centralna banka je, opet trenutno, primorana da interveniše čime se LM kriva pomera gotovo istovremeno sa promenom IS krive a ekonomija duž krive BP klizi ka svom potencijalnom

nacionalnom dohotku.

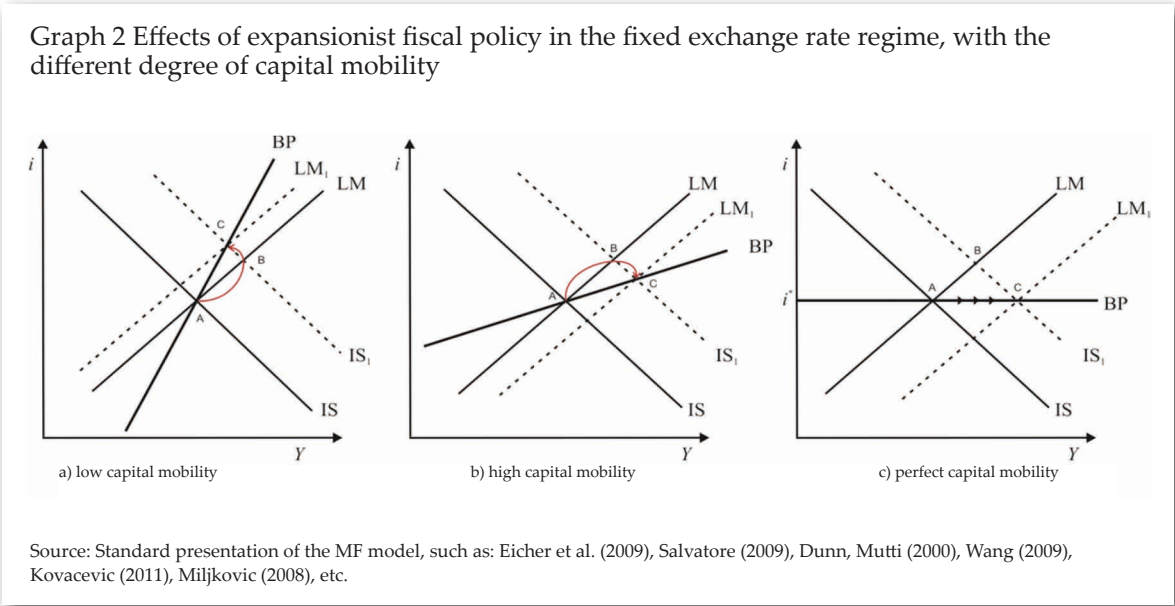
Uvažavajući sve prethodno rečeno može se zaključiti da je kombinacija fiksnog deviznog kursa i otvorene ekonomije učinila monetarnu politiku veoma slabim alatom za ekspanziju privrede. Dakle, jedna otvorena ekonomija koja želi da se ekonomskom politikom izbori protiv nezaposlenosti i približi potencijalnom nivou nacionalnog dohotka, u režimu fiksnog deviznog kursa mora da primeni ekspanzivnu fiskalnu politiku a zatim da dozvoli neophodno monetarno prilagođavanje. Ipak, krajnji efekat na nivo nacionalnog dohotka nije jednoznačan. Ukoliko kapitalne transakcije dominiraju u platnom bilansu a kapitalni tokovi su visoko elastični, što u principu važi za visoko razvijene industrijske zemlje, efekat fiskalne ekspanzije na nacionalni dohodak biće veoma jak. Sa druge strane, ukoliko je integracija tržišta kapitala veoma ograničena a u platnom bilnsu dominiraju trgovinski tokovi, efekat fiskalne politike biće relativno slab. Ovaj drugi slučaj je naročito karakterističan za zemlje u razvoju i tranziciji. Praktična implikacija navedenih zaključaka je teza da u svetu fiksnih deviznih kurseva visoko razvijene industrijske zemlje nisu nemoćne u neutralisanju poslovnih ciklusa primenom ekonomske politike. Monetarna politike u ovoj situaciji neće postići mnogo ali je zato fiskalna ekspanzija veoma moćna. Sa druge strane, zemlje u tranziciji i razvoju, u režimu fiksnih deviznih kurseva, suočavaju se sa velikim ograničenjem ekonomske politike budući da ni monetarna, ali u ovom slučaju ni fiskalna politika, ne mogu

Let us now examine the alternative solution - the use of expansionist fiscal policy for purpose of attaining simultaneous internal and external equilibrium at a higher level of income. Let us start from point A where national income is below its potential level. Fiscal expansion, through the process of multiplication, increases national income, which in turn leads to a higher money demand, and as the money supply is determined exogenously, what follows is the interest rate growth. In a closed economy, higher interest rates can discourage private spending, especially the investment one, and in that way reduce economic expansion. It is the case here of the notorious *crowding out effect*, which in itself is rather controversial, as in the economic theory there is no consensus even about its very existence. In actual fact, classic monetarist doctrine especially insists on the importance of this phenomenon, while in the Keynesian theory crowding out effect theory does not exist (the so called zero crowding out scenario).

In the open economy, as opposed to the closed economy, different variants are possible, since the higher interest rate boosts foreign capital inflow, which improves capital segment of the balance of payment, while at the same time, income growth and import growth which follows, causes deterioration in the current account of the balance of payment. In order to determine net effect of these changes, we must know whether capital inflows are sufficient to

compensate for the deficit in trade transactions or not, yet this crucially depends on the degree of capital mobility.

In the case of a low degree of capital mobility (Graph 2a), interest rate growth brings about a moderate capital inflow which creates only a small surplus in the capital balance, which is not sufficient to compensate the proportionally higher deficit in trade transactions. Balance of payment deficit, which is not covered, is manifested through a higher demand than supply on the foreign exchange market, which in turn forces the central bank, as we are in the fixed exchange rate regime, to intervene in order to defend the set parity. The use of foreign currency reserves, similar to the case of monetary expansion, has as the consequence contraction of the money supply and *further growth* of interest rate, where the effect of fiscal expansion on national income is decreasing. In literature (Dunn, Mutti, 2000) it is stated that it is even possible that the effect of crowding out created in this way may become even higher in case of a closed economy. Central bank, of course, can avoid in a short-term, monetary contraction through sterilisation of effects caused by reduction of foreign currency reserves on the money supply by undertaking compensation operations on the open market. However, it was already stated, since foreign currency reserves are not an endless source of financing, that this strategy is not sustainable in any long-term perspective.



značajnije da utiču na rast nacionalnog dohotka. Ovo ostavlja nerazvijene zemlje sa veoma malo autonomije u segmentu makroekonomske politike ukoliko insistiraju na zadržavanju režima fiksnog deviznog kursa. Upravo ovaj nedostatak nezavisne makroekonomske politike u situaciji kada su ekonomije postajale sve otvorenije, u literaturi (Dunn, Mutti, 2000) se navodi kao jedan od glavnih razloga za raspad Bretonvudskog sistema fiksnih deviznih kurseva i rastuće popularnosti režima fluktuirajućeg kursa, naročito među zemljama u razvoju i tranziciji. Drugim rečima, priča o slomu Bretonvudskog sistema zapravo je priča o neuspešnim pokušajima zemalja da pomire ciljeve unutrašnje i spoljne ravnoteže, u skladu sa pravilima tog sistema (Krugman, Obstfeld, 2009)

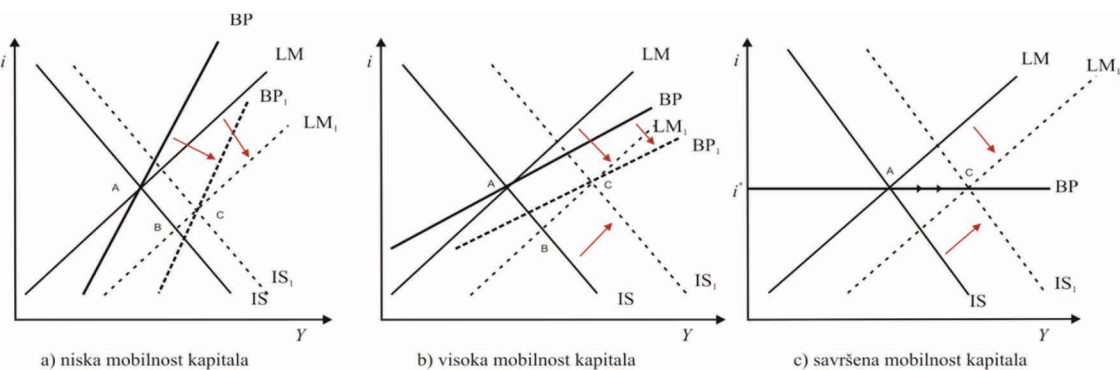
Fiskalna *versus* monetarna politika u MF modelu uz režim fluktuirajućeg deviznog kursa

Jedan od najupečatljivijih efekata promene režima deviznog kursa u pravcu fluktuirajućeg je svakako povećanje nezavisnosti u vođenju monetarne politike. U režimu fluktuirajućeg deviznog kursa platni bilans više nije ograničenje koje limitira efikasnost ove ekonomske politike, dok prilagođavanje deviznog kursa dodatno

pojačava uticaj monetarne politike na privredu.

Početni impuls ekspanzivne monetarne politike isti je u oba razmatrana režima deviznog kursa. Porast ponude novca redukuje kamatne stope što vodi rastu nacionalnog dohotka kroz indukovani rast investicija ali i odlivu kapitala, jer se sada profitabilnije može investirati u inostranstvu. Višak ponude domaće valute stvara pritisak na depresijaciju nacionalne valute. U režimu fiksnog deviznog kursa centralna banka interveniše kako bi odbranila postavljeni paritet što vodi laganom gubitku deviznih rezervi. Međutim, u režimu fluktuirajućeg deviznog kursa rezon je potpuno drugačiji. Pomenuta neravnoteža u ponudi i tražnji na deviznom tržištu vodi promeni deviznog kursa u pravcu depresijacije. Nema intervencija centralne banke, gubitka deviznih rezervi ni indukovane kontrakcije novčane mase. Inicijalna monetarna ekspanzija u režimu fluktuirajućeg deviznog kursa dakle ostaje netaknuta. Pored toga, depresijacija će povećati izvoz (domaća roba je sada jeftinija i kupuju je kako domaći tako i inostrani kupci) što daje dodatni impuls rastu nacionalnog dohotka, i vodi desnoj promeni IS krive. Ipak, na konačan efekat monetarne ekspanzije presudno utiče stepen mobilnosti kapitala. Razmotrimo opet sva tri slučaja.

Grafikon br. 3 Efekti ekspanzivne monetarne politike u režimu fluktuirajućeg deviznog kursa pri različitom stepenu mobilnosti kapitala



Izvor: Standardni prikaz MF modela kao kod: Eicher et al. (2009), Salvatore (2009), Dunn, Mutti (2000), Wang (2009), Kovačević (2011), Miljković (2008), etc.

In the case when capital market integration is incomplete, yet it is still sufficiently high to make BP curve flatter than LM curve, international repercussions make fiscal policy considerably powerful in the world of fixed exchange rates (Graph 2b). Namely, after the initial growth of interest rate due to fiscal expansion, high capital mobility results in its higher inflow than the volume which is necessary for financing current balance deficit, which leads to surplus in the balance of payment. Central bank is again forced to intervene, but this time in the way that it buys surplus in the foreign currency supply in exchange for the domestic currency. Foreign currency reserves are increasing, money supply in circulation is growing, i.e. interest rates are falling (hence *the crowding out effect* in this case is avoided). Shift to the right of the LM curve is an additional impulse for growth of the national income towards a potential level, in accordance with the intentions of the economic policy creators. Therefore, fiscal expansion and induced monetary expansion show a significant efficacy in the situation of high capital mobility, together with the fixed exchange rate.

In the case of perfect capital mobility, i.e. horizontal BP curve (Graph 2c), fiscal expansion has a maximum effect on the growth of national income. The reason for this is that the initial interest rate growth due to fiscal expansion instigates an unlimited capital inflow, thus leading balance of payment instantly into the surplus zone. Central bank, again instantly, is forced to intervene thus inducing the LM curve to shift almost simultaneously with the change in the IS curve, and the economy along the BP curve slides towards its potential national income.

Taking into consideration all the above stated, it may be concluded that the combination between a fixed exchange rate and an open economy has rendered monetary policy a very feeble tool for economic expansion. Hence, an open economy wishing to use economic policy to fight unemployment and come closer to its potential national income level, in the fixed exchange rate regime must apply expansionist fiscal policy, and thereupon allow the necessary monetary adjustment. Nevertheless, the ultimate effect on the level of national income is not unambiguous. If capital

transactions are predominant in the balance of payment and capital flows are highly flexible, that in principle applies for highly developed industrial countries, fiscal expansion effect on the national income will be very strong. If capital market integration is very limited, on the other hand, and in the balance of payment trade flows are predominant, fiscal policy effect will be relatively weak. This latter case is especially characteristic for developing countries, or countries in transition. Practical implication of the said conclusions is the thesis that in the world of fixed exchange rates highly developed industrialised countries are not incapable of neutralising business cycles when they apply economic policies. Monetary policy in this situation will not have much effect, yet fiscal expansion remains very powerful. On the other hand, countries in transitions with the fixed exchange rates, are faced with a large number of economic policy restrictions, as neither monetary, and in this case nor a fiscal policy can have a significant impact on the growth of national income. This *leaves undeveloped countries with very small autonomy in the segment of macroeconomic policy* if they are to insist on hold on to *the fixed exchange rate regime*. It is actually this absence of an independent macroeconomic policy, in the situation when economies were opening up, that is stated in literature (Dunn, Mutti, 2000) as one of the main reasons for the collapse of the Breton-Wood fixed exchange rates system and the growing popularity of the floating exchange rate regime, especially amongst the developing and countries in transition. In other words, the story about the fall of the Breton-Wood system is actually a story of failed attempts by countries to reconcile targets for internal and external equilibrium, in accordance with the rules of that system (Krugman, Obstfeld, 2009).

Fiscal versus monetary policy in the MF model, with the floating exchange rate regime

One of the most outstanding effects of the exchange rate regime change in the direction of the floating one is certainly a broader independence in conducting monetary policy. In the regime of the floating exchange rate,

U scenariju niske mobilnosti kapitala (grafikon 3a) inicijalni pad kamatne stope usled monetarne ekspanzije dovodi do relativno sporijeg odliva kapitala što utiče na srazmerno manje pogoršanje platnog bilansa. Kako bi se obnovila spoljna ravnoteža domaća valuta depresira (desna promena BP krive) što dalje utiče na poboljšanje trgovinskog bilansa. Budući da je pri niskoj mobilnosti kapitala zahevana depresijacija za očuvanje ravnoteže nije bila velika, konsekvantno nije usledilo ni veliko pomeranje IS krive. Dakle, efekat monetarne politike na ekspanziju privrede u uslovima niske mobilnosti kapitala je skroman ali i to je, kako se popularno kaže (Eicher et al., 2009), opet bolje od scenarija pri režimu fiksnog deviznog kursa u kojem taj efekat praktično ni ne postoji.

Kada je reč o situaciji relativno visoke mobilnosti kapitala, put ka simultanoj unutrašnjoj i spoljnoj ravnoteži u smislu mehanizma je identičan, međutim krajnji efekat na nacionalni dohodak je izraženiji. Naime, usled visoke mobilnosti, pad kamatne stope podstiče veći odliv kapitala u inostranstvo što znači da će i deficit platnog bilansa biti veći. Konsekvantno, depresijacija nacionalne valute potrebna za ponovno uspostavljanje ravnoteže mora da bude srazmerno veća. Sledi sve veća atraktivnost domaćeg izvoza na međunarodnom tržištu i jača desna promena IS krive (grafikon 3b). Poredeći slučaj relativno niske i relativno visoke mobilnosti kapitala, interesantno je zapaziti da je inicijalna monetarna ekspanzija u oba slučaja uticala na jednak rast nacionalnog dohotka. Međutim, dodatni rast dohotka prouzrokovao depresijacijom domaće valute znatno je veći u slučaju visoke mobilnosti kapitala (Kovačević, 2011).

U slučaju savršene mobilnosti kapitala, efekat monetarne politike na ekspanziju privrede je maksimalan (grafikon 3c). U ovom slučaju rast ponude novca *teži* da smanji kamatnu stopu (Salvatore, 2009) ali budući da su kapitalni tokovi toliko intenzivni odmah kreće i depresijacija nacionalne valute što vodi istovremenom pomeranju krivih IS i LM odnosno ekspanziji bez ikakvog povećanja kamtne stope.

Dakle, fluktuirajući devizni kurs u otvorenoj ekonomiji pojačava efekte monetarne politike za razliku od fiksnog deviznog kursa koji ih je ograničavao. Ilustrativan primer koji

se u literaturi navodi (Dunn, Mutti, 2000) je slučaj Kanadske monetarne politike krajem devedesetih godina prošlog veka. Naime, Kanadski dolar je snažno depresirao sredinom 1998. godine a zatim je već početkom 1999. godine počeo ubrzano da se oporavlja što je viđeno kao pretnja rastu izvoza i generalno ekonomskom rastu. Iz tog razloga centralna banka Kanade je 4. maja 1999. redukovala kamatnu stopu za 25 baznih poena i objavila da to radi zbog skorašnje snažne apresijacije nacionalne valute. Posledica je bila depresijacija kanadskog dolara od 30 baznih poena *u samo jednom danu*. Dakle, fluktuirajući devizni kurs je centralnoj banci Kanade omogućio da postigne tačno efekat koji želi, što bi bilo nemoguće u režimu fiksnog deviznog kursa.

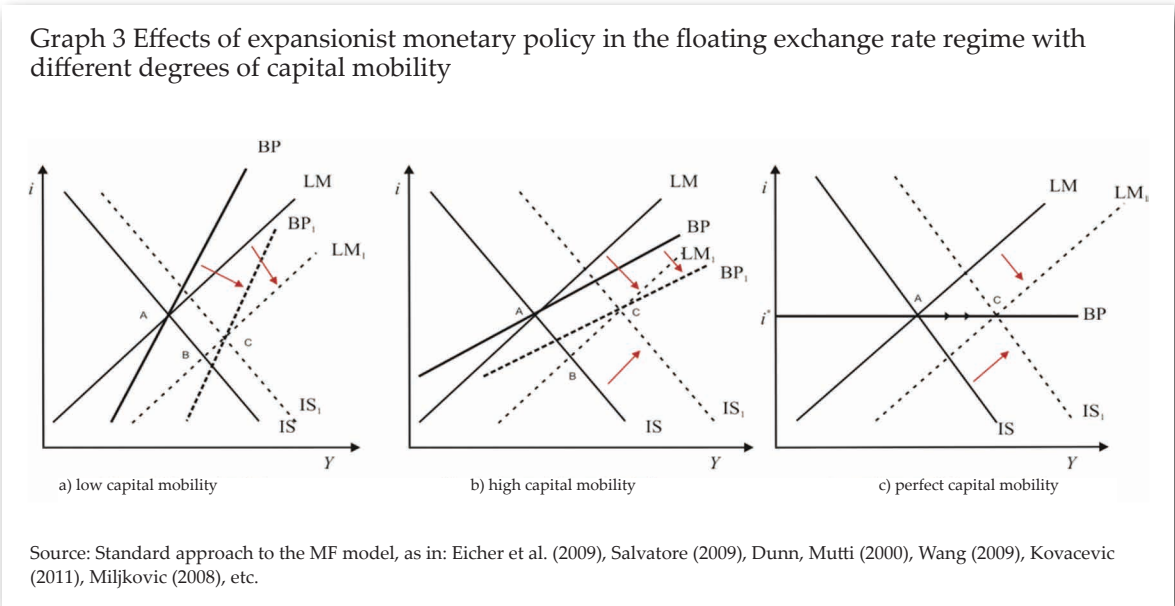
Zaključak da fluktuirajući kurs značajno povećava efikasnost monetarne politike ipak nije bez problema. Pre svega, potrebno je da kretori ekonomske politike budu spremni da prihvate implikacije potencijalno velikih promena deviznog kursa. Ukoliko je povećana volatilnost iz nekog razloga za njih neprihvatljiva, centralna banka će morati da osmisli svoju politiku u pravcu stabilizacije kursa pre nego u pravcu dostizanja idealnog nivoa nacionalnog dohotka. Ako izbegavanje volatilnosti deviznog kursa postane dominantan cilj centralne banke, monetarna politika nije mnogo efikasnija od scenarija pri fiksnom deviznom kursu.

Kada je reč o fiskalnoj ekspanziji, inicijalni impulsi su identični kao i u režimu fiksnog deviznog kursa. Rast nacionalnog dohotka vodi rastu tražnje za novcem usled čega dolazi do porasta kamatne stope. Viša kamatna stopa privlači kapitalne fondove što vodi suficitu kapitalnog računa platnog bilansa. Sa druge strane, viši nacionalni dohodak se delom troši i na uvoz, što utiče na pogoršanje stanja u tekućem delu platnog bilansa. Ključno pitanje je - šta se u krajnjoj instanci dešava sa platnim bilansom? Ako on uđe u zonu suficita uslediće apresijacija nacionalne valute i *vice versa*, eventualni deficit platnog bilansa vodi depresijaciji nacionalne valute. Na ovaj neto efekat koji će opredeliti pravac kretanja nacionalne valute, u smislu apresijacije odnosno depresijacije, presudno utiče stepen mobilnosti kapitala. Razmotrimo još jednom sva tri slučaja - nisku, visoku i savršenu mobilnost kapitala.

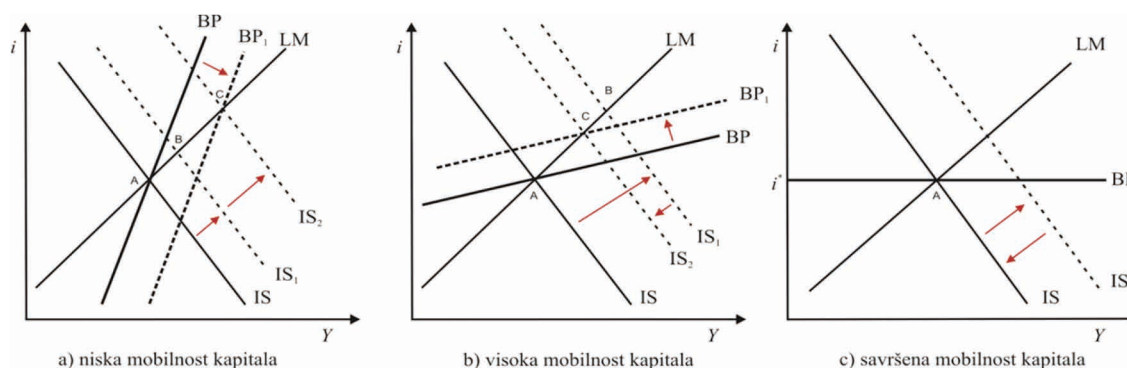
balance of payment is no longer a constraint limiting the efficacy of this monetary policy, and the exchange rate adjustment additionally intensifies the impact that the monetary policy exerts on the economy.

The initial impulse of expansionist monetary policy is the same in both of the examined exchange rate regimes. The growth in the money supply reduces interest rates, which leads to the growth of national income through an induced growth of investments, but also capital outflow, as the cross-border investments now become more profitable. Surplus domestic currency supply is creating pressure on the national currency depreciation. Under the regime of the fixed exchange rate, central bank intervenes in order to defend set parity which leads towards a gradual loss of foreign currency reserves. However, under the

regime of the floating exchange rate, rationale is completely different. The said inequilibrium in the supply and demand on the foreign exchange market leads to the change in the exchange rate towards depreciation. There is no intervention by the central bank, no loss of foreign exchange reserves is incurred, and neither is any induced contraction of the money supply present. Hence the initial monetary expansion in the floating exchange rate regime remains intact. In addition, depreciation will increase exports (domestic goods are now cheaper and are purchased both by domestic and foreign buyers), which gives an additional boost to the growth of the national income, and leads the IS curve to shift to the right. Nevertheless, the final effect of monetary expansion is unfalteringly impacted by the degree of capital mobility. Let us examine again all of the three cases at hand.



Grafikon br. 4. Efekti ekspanzivne fiskalne politike u režimu fluktuirajućeg deviznog kursa pri različitom stepenu mobilnosti kapitala



Izvor: Standardni prikaz MF modela kao kod: Eicher et al. (2009), Salvatore (2009), Dunn, Mutti, (2000), Wang (2009), Kovačević (2011), Miljković (2008), *etc.*

U uslovima niske mobilnosti kapitala, kao što je već više puta naglašeno, priliv kapitala zbog rasta kamatne stope neće biti dovoljan da anulira deficit u u trgovinskim transakcijama što rezultira deficitom platnog bilansa. Pogoršanje platnog bilansa dovodi u nesklad ponudu i tražnju za nacionalnom valutom a upravo taj nesklad je, u odsustvu intervencija centralne banke, okidač za depresijaciju nacionalne valute (desna promena BP krive). Što je manja mobilnost kapitala to je potrebna veća depresijacija kako bi se ponovo uspostavila narušena ravnoteža platnog bilansa. Međutim, slabljenje nacionalne valute utiče na rast tražnje za domaćim izvozom budući da je on nakon depresijacije cenovno konkurentniji, što stvara dodatni impuls za ekspanziju privrede (IS kriva se pomera još jedan put, u istom pravcu). Dakle, fiskalna politika je u režimu fluktuirajućeg deviznog kursa uz nisku mobilnost kapitala u mogućnosti da utiče na rast nacionalnog dohotka pri čemu je inicijalni efekat fiskalne ekspanzije dodatno povećan usled depresijacije nacionalne valute.

U uslovima visoke mobilnosti kapitala, konačan rezultat fiskalne ekspanzije značajno se razlikuje. Nakon inicijalnog rasta kamatne stope, poboljšanje kapitalnog dela platnog bilansa, usled visoke mobilnosti kapitala, premašuje pogoršanje u segmentu trgovinskih transakcija što rezultira suficitom platnog bilansa. Dolazi do neravnoteže na deviznom tržištu ali ovaj put i izrazu veće tražnje od ponude domaće valute.

Ishod ovog nesklada je apresijacija nacionalne valute (leva promena BP krive) sa negativnim reperkusijama na konkurentnost domaćeg izvoza i sledstveno na domaću proizvodnju. Privreda dospeva u stanje nove ravnoteže tek nakon leve promene IS krive koja delimično neutrališe efekat inicijalne fiskalne ekspanzije (grafikon 3b). Porast mobilnosti kapitala je, dakle, u režimu fluktuirajućeg deviznog kursa učinio efekte fiskalne ekspanzije veoma skromnim. Podsećanja radi, sasvim suprotno se desilo u režimu fiksnog deviznog kursa.

I konačno, sledeći logiku da rast mobilnosti kapitala u režimu fluktuirajućeg deviznog kursa smanjuje efikasnost fiskalne politike, nije teško zaključiti da će u specijalnom slučaju savršene mobilnosti kapitala fiskalna politika biti potpuno neefikasna. Rezon je jasan - fiskalna ekspanzija vrši pritisak na kamatnu stopu ali i njena najmanja promena u odnosu na svetsku kamatnu stopu podstiče masivan priliv kapitala. Rastuća tražnja za nacionalnom valutom rezultira njenom apresijacijom koja traje sve dok prethodno opisani procesi prilagođavanja ne vrate IS krivu na njenu početnu poziciju odnosno kamatnu stopu na svetski nivo (grafikon 4c).

Zaključak je da u zemljama u razvoju i tranziciji koje još nisu u potpunosti integrisane u međunarodno tržište kapitala, i fiskalna i monetarna politika u režimu fluktuirajućeg deviznog kursa mogu biti prilično efikasne. Posebno je bitna okolnost što u ovom slučaju

In the low capital mobility scenario (Graph 3a), the initial fall of the interest rate due to monetary expansion leads to a relatively slower capital outflow, which in turn impacts a proportionally lower deterioration of the balance of payment. In order to restore external equilibrium, domestic currency depreciates (shift to the right of the BP curve), and this further leads to the improvement of the trade balance. As the low capital mobility requires depreciation for preservation of equilibrium yet it is not a very high one, consequently neither has a big shift in the IS curve occurred. Hence, the monetary policy effect on economic expansion, in the case of low capital mobility, is modest, but even this is, as commonly phrased (Eicher et al., 2009), better than the fixed exchange rate regime scenario where such an effect is practically non-existent.

When speaking of the situation where relatively high capital mobility prevails, the road towards simultaneous internal and external equilibrium, in terms of mechanism, is identical. However, the ultimate effect on the national income is more vigorous. Namely, due to high mobility the fall in the interest rate instigates high capital outflow abroad, which means that the balance of payment deficit will be higher. Consequently, national currency depreciation, necessary to restore equilibrium, must be proportionally higher. What follows is an enhanced attraction of domestic export on the international market and a stronger shift to the right of the IS curve (Graph 3b). Comparing the case of a relatively low, and the case of relatively high capital mobility, it is interesting to note that the initial monetary expansion in both cases impacted an equal growth of the national income. However, additional income growth caused by depreciation of the domestic currency is substantially higher in the case of high capital mobility (Kovacevic, 2011).

In case of perfect capital mobility, the effect of monetary policy on economic expansion is at its maximum (Graph 3c). In this case, the growth of money supply *tends* to lower the interest rate (Salvatore, 2009), but as the capital flows are so intense, national currency depreciation is immediately set in motion which in turn leads to the simultaneous shift of the IS and LM curves, i.e. to the expansion without any

interest rate raise.

Therefore, the floating exchange rate in an open economy is boosting monetary policy effects, opposite to the fixed exchange rate which has a restricting result. An illustrative example, quoted in the literature (Dunn, Mutti, 2000), is the case of the Canadian monetary policy of the late 1990s. Namely, Canadian dollar suffered robust depreciation in the mid-1998, in order to start a very speedy recovery as early as the beginning of 1999, which was deemed to be a threat to the growth of exports and generally to the economic growth. For this reason, Central Bank of Canada reduced, on 4 May 1999, interest rate for 25 basis points and announced that it is doing so because strong appreciation of the national currency is to be expected shortly. As a consequence, what ensued was the depreciation of the Canadian dollar for 30 basis points *during one day alone*. Therefore, floating exchange rate allowed Central Bank of Canada to achieve precisely the effect that it desired, which would have been impossible in the fixed exchange rate regime.

The conclusion that the floating exchange rate significantly boosts monetary policy efficacy is, nevertheless, not free from all problems. First of all, it is necessary for the economic policy creators to be ready to accept implications of potentially high changes in the exchange rate. If a higher volatility is to be unacceptable for them for some reason, central bank would have to conceive its policy in the direction of the exchange rate stabilisation rather than in the direction of reaching an ideal level of the national income. If the avoidance of the exchange rate volatility is to become a predominant target of the central bank, monetary policy will not be more effective than the scenario of the fixed exchange rate.

When speaking of fiscal expansion, the initial impulses are identical to the ones in the fixed exchange rate regime. The growth of national income is leading to the growth in money demand which in turn leads to the growth of the interest rate. Higher interest rate attracts capital funds, which leads to the surplus in the capital account of the balance of payment. On the other hand, higher national income is in part spent also on the imports, which impacts deterioration of the balance in

nema pretnje po devizne rezerve nakon ekspanzivne ekonomske politike, što je za ove zemlje posebno značajno. Nakon svega rečenog ne iznenađuje previše što su se mnoge manje razvijene zemlje opredelile baš za fluktuirajuće devizne kurseve.

Sa druge strane, fluktuirajući devizni kurs i visoka mobilnost kapitala značajno slabe ekspanzione efekte samostalne fiskalne politike. Ipak, prethodni scenario može biti izbegnut ukoliko nakon fiskalne ekspanzije usledi kooperativna mera monetarne politike. Dakle, ukoliko nakon fiskalne ekspanzije centralna banka poveća ponudu novca u dovoljnoj meri da se izbegne rast kamatne stope, fiskalna ekspanzija će imati uticaja na nacionalni dohodak. Ovo praktično znači da u zemljama u kojima su kapitalni tokovi visoko mobilni, a takvi su većinom u visoko razvijenim i finansijski integrisanim industrijskim zemljama, centralna banka ima konačnu reč u kreaciji ukupne makroekonomske politike - kako monetarne tako i fiskalne.

U navedenom kontekstu u izvesnom smislu može se tumačiti i činjenica da je pre izbijanja aktuelne svetske ekonomske krize, u velikom broju zemalja a naročito među onim razvijenima, fiskalna politika definitivno bila zapostavljeno dete porodice ekonomskih politika. Njena uloga je uglavnom bila svođena na automatske stabilizatore, dok je svaka diskreciona fiskalna mera posmatrana sa dubokim podozrenjem (Arestis, 2011). Ovaj koncept koji umanjuje značaj fiskalne politike dok naglašava doprinose monetarne politike postao je poznat kao *novi makroekonomski konsenzus*. Međutim, sa izbijanjem svetske finansijske krize koja je brzo prerasla u ekonomsku krizu, pokazalo se da fiskalna politika ima jednu uspavanu lepotu. Konkretno, kada je svet postao svestan da tržište svojim samostalnim delovanjem neće moći da reši nastale ekonomske probleme, svaka država posegnula je za svojevrsnom strategijom oporavka. U duhu tzv. novog makroekonomskog konsenzusa monetarna politika odabrana je kao prva linija odbrane. Monetarne mere za stabilizaciju povećale su likvidnost finansijskog sistema injekcijama sredstava, dok su centralne banke širom sveta snizile referentne kamatne stope. Međutim, efikasnost monetarne politike je limitirana kada

se osnovna kamatna stopa približi nuli a upravo se to desilo krajem 2008. odnosno početkom 2009. godine. Sa monetarnom politikom koja je dolaskom do tzv. nulte granice (engl. *zero bound*) postala neefikasna i ekonomskim sistemom pred kolapsom, fiskalna politika se pokazala kao veoma moćan, zaboravljeni alat. Širom sveta osmišljavani su stabilizacioni fiskalni paketi koji bi podržali agregatnu tražnju i spasli ekonomiju od dramatičnog pada. Zapravo iz današnje perspektive može se reći da je fiskalna politika u poslednjih nekoliko godina doživela svojevrsnu renesansu.

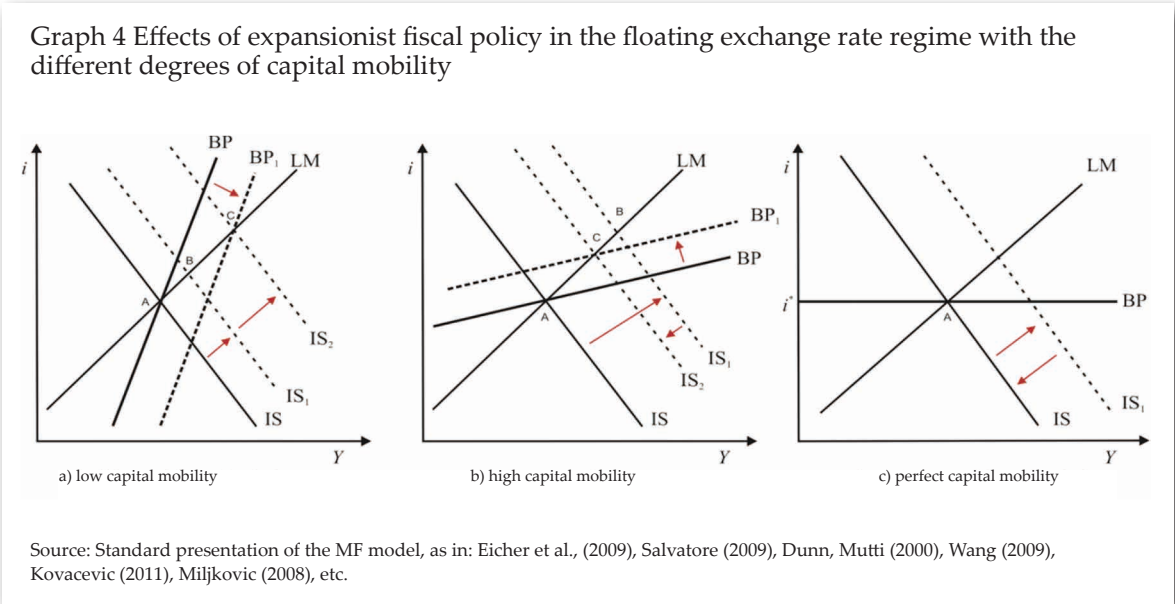
Kritike MF modela i njegova nadogradnja

Prva velika kritika MF modela odnosi se na njegov vremenski horizont koji je *de facto* kratkoročan budući da pretpostavka o fiksnim cenama iz pozadine modela u dugom roku nije održiva. Sagledavanje realnih posledica ekonomske politike na privredu zahteva napuštanje ove pretpostavke odnosno prihvatanje činjenice da su cene, iako kratkoročno možda fiksne, dugoročno svakako podložne fluktuacijama. U slučaju kada se i cenama dozvole fluktuacije na putu ka potencijalnom nivou nacionalnog dohotka, utočište se nalazi u modifikaciji MF modela posredstvom mehanizma agregatne ponude i tražnje. Pri tome, kada je reč o AS-AD modelu u otvorenoj ekonomiji treba imati u vidu da se kriva agregatne ponude (AS) u otvorenoj ekonomiji ne razlikuje od one u zatvorenoj ekonomiji dok je kriva agregatne tražnje (AD) u otvorenoj ekonomiji *ravnija* od svog pandana u zatvorenoj ekonomiji iako su obe negativnog nagiba. Takođe, treba obratiti pažnju da inflacija pogađa i scenario u okviru IS-LM-BP dijagrama budući da svaki rast cena znači da se realna količina novca u opticaju smanjuje, što se očituje levom promenom LM krive. Konkretno, ukoliko se za primer uzme slučaj monetarne ekspanzije pri fluktuirajućem deviznom kursu u uslovima relativno visoke mobilnosti kapitala (grafikon 3b) i pretpostavi da postoji rast cena pre dostizanja željenog nivoa dohotka, LM kriva bi se nakon inicijalne desne promene pomerila još jedan put, ovaj put u levo, gde bi u presečištu preostale dve krive

the current part of the balance of payment. The crucial question is - what is to happen in the final instance with the balance of payment? If it enters into the surplus zone, what will follow is appreciation of the national currency, and *vice versa*, an eventual balance of payment deficit leads to the depreciation of the national currency. This net effect which will determine trend of movement of the national currency in terms of appreciation i.e. depreciation, will be under the crucial influence of the degree of capital mobility. Let us examine, once again, all of the three cases - the case of low, the case of high, and the case of perfect capital mobility.

of economy (IS curve shifts one more time in the same direction). Hence, fiscal policy in the floating exchange rate regime, with low capital mobility, is able to result in growth of the national income, where the initial effect of fiscal expansion is additionally enhanced through depreciation of the national currency.

In case of high capital mobility, the final result of fiscal expansion is significantly different. After the initial growth of interest rate, the improvement of the capital part of the balance of payment resulting from the high capital mobility exceeds deterioration in the segment of trade transactions, which results in



In the case of low capital mobility, as already stated, capital inflow resulting from the interest rate growth will not be sufficient to annul deficit in the trading transactions, which in turn will result in the balance of payment deficit. Deterioration of the balance of payment leads to a disproportion between national currency supply and demand, and such a disproportion actually, in the absence of central bank intervention, will act as a trigger for the national currency depreciation (shift to the right of the BP curve). The lower the capital mobility remains, the greater depreciation is needed for restoring again the disturbed balance of payment equilibrium. However, weakening of the national currency boosts the growth in demand for domestic export as it becomes more competitive in price after depreciation, which creates an additional impulse for expansion

the balance of payment surplus. An imbalance occurs on the foreign exchange market but this time also in the expression of higher demand than the supply of domestic currency. The result of this imbalance is appreciation of the national currency (shift to the left of the BP curve), with negative repercussions on the competitiveness of the domestic exports and consequently on the domestic production. The economy reaches the state of new equilibrium only after the shift to the left of the IS curve, which moderately neutralises the effect of initial fiscal expansion (Graph 3b). Hence the growth in capital mobility in the floating exchange rate regime has made the effects of fiscal expansion very modest. Let us recall that the case was completely opposite in the fixed exchange rate regime.

Finally, following the logic that capital mobility growth in the floating exchange rate

nastala dugoročna ravnoteža. Dakle, monetarna ekspanzija je i dalje efikasna ali rast dohotka u ovom slučaju je manji i pri tom dolazi na račun povećanja cena.

Sledeća ozbiljna kritika MF modela odnosi se na činjenicu da on ne razdvaja tokove od fondova, budući da se LM kriva zasniva na novčanim fondovima dok se BP kriva bazira na tokovima kapitala (Salvatore, 2009). U tom smislu model pretpostavlja da rast kamatne stope dovodi do kontinuiranog priliva kapitala koji finansira platnobilansni deficit dok je u realnosti verovatnije da će taj priliv biti jednokratno odnosno da će se okončati nakon što investitori prilagode svoj portfolio.

U literaturi se navodi još nekoliko nedostataka osnovnog MF modela. Činjenica da se model bazira na statičnim očekivanjima svakako je jedan od njih. Kako bi se prevazišlo ovo ograničenje Dornbuš (Dornbush, 1976) uvodi u model sofisticiranija, racionalna očekivanja. Ovo proširenje donekle menja ishod koji predviđa osnovni MF model u smislu pojave efekta *premašaja deviznog kursa* odnosno činjenice da nakon monetarne ekspanzije devizni kurs depresira više u kratkom roku u odnosu na njegovu dugoročnu ravnotežu. Od značaja je naglasiti da Dornbuš svoju analizu smestio u ono što naziva "*Mandel-Flemingov svet*" (Dornbush, 1976, str. 1173) koji po njemu podrazumeva *isključivo* fluktuirajuće devizne kurseve i savršenu mobilnost kapitala. Dodatno polazi se od realne konstatacije da postoji različita brzina prilagođavanja cena ravnoteži na robnom i novčanom tržištu pri čemu je u ovom potonjem slučaju prilagođavanje ravnoteži daleko brže. U tim uslovima, identično kao kod MF modela, monetarna ekspanzija vodi snižavanju kamatne stope i uzrokuje depresijaciju valute. Međutim, u Dornbušovoj verziji, tada počinje proces prilagođavanja na robnom tržištu koji podrazumeva da na putu ka dugoročnoj ravnoteži mora doći do rasta cena, pada realne ponude novca i rasta kamatne stope. Budući da, na osnovu nepokrivenog pariteta kamatne stope, do rasta kamatne stope može doći samo ako se očekuje promena deviznog kursa u smeru apresijacije, Dornbuš zaključuje da tekuća depresijacija mora biti veća od očekivane ravnotežne vrednosti deviznog kursa. Upravo ta razlika između očekivane

depresijacije nacionalne valute i stvarne depresijacije otvara prostor za anticipiranje buduće apresijacije u cilju uspostavljanja simultane robne i finansijske ravnoteže. Dakle, nakon monetarne ekspanzije, a usled različite brzine procesa prilagođavanja cena na robnom i finansijskom tržištu, nacionalna valuta će u kratkom roku depresirati više u odnosu na dugoročni ravnotežni devizni kurs.

Na kraju važno je istaći i jednu praktičnu mogućnost koju nam nudi osnovni MF model. To je mogućnost svojevrstne analize troškova i koristi (engl. *cost-benefit analysis*) prilikom donošenja odluke o optimalnom režimu deviznog kursa. U tom smislu u MF svetu savršene mobilnosti kapitala ali i rigidnih cena, izbor režima deviznog kursa treba da zavisi od vrste šokova koji dominantno pogađaju konkretnu ekonomiju. Ukoliko su ti šokovi prevashodno realni optimalan je fluktuirajući devizni kurs. Sa druge strane, ukoliko su šokovi dominantno monetarni, pravi izbor je fiksni devizni kurs. Međutim, savremeni pristup režimima deviznih kurseva polazi od činjenice da su poremećaji na tržištu kapitala bar jednako važni ako ne i važniji od poremećaja na tržištu roba, naročito u zemljama u razvoju u kojima veliki deo populacije nema pristup tržištima kapitala (Lahiri et al., 2007). Ukoliko se, iz tog razloga polazne MF pretpostavke zamene i umesto od savršenih tržišta kapitala i tržišta roba bez poremećaja pođe se od savršenih tržišta roba i segmentiranog tržišta kapitala, čuvena MF tvrdnja se "*izvorće naglavačke*" - fluktuirajući devizni kursevi su sada potrebni u prisustvu monetarnih šokova dok su fiksni devizni kursevi optimalni u prisustvu realnih šokova. Stoga, Lahiri i saradnici (Lahiri et al., 2007) zaključuju da optimalan režim deviznog kursa treba da zavisi ne samo od vrste šoka koji pogađa ekonomiju (realni *versus* monetarni), kao što je to naglašeno u osnovnom MF modelu, već i od vrste poremećaja (poremećaji tržišta roba *versus* poremećaji na tržištu kapitala).

Konačno, bitno je naglasiti da MF model ne omogućava značajniju analizu efekata makroekonomskih politika na blagostanje. Ovakva razmatranja u MF modelu su uglavnom ograničena na efekte promene dohotka zanemarujući socijalne implikacije promenljivih kao što su, na primer, potrošnja

regime decreases fiscal policy efficacy, it is not hard to conclude that in the special case of perfect capital mobility fiscal policy will be totally inefficient. The reason is clear - fiscal expansion exerts pressure on the interest rate, but even the slightest change in the interest rate, in respect to the world interest rate, causes a massive capital inflow. The growing national currency demand results in its appreciation which persists for as long as the described processes of adjustment do not return the IS curve to its initial position, i.e. the interest rate to the world level (Graph 4c).

The conclusion is that in the developing countries and those in transition, which are not as yet fully integrated in the global capital market, both the fiscal and the monetary policies in the floating exchange rate regime can be rather effective. Especially important is the circumstance that in this case there is no threat to the foreign currency reserves after the expansionist economic policy is implemented, which is of special importance for these countries. After all the deliberations presented hereinabove, it does not come as a great surprise that many of the less developed countries have actually decided in favour of the floating exchange rates.

Floating exchange rate, on the other hand, and high capital mobility substantially weaken expansionist effects of an autonomous fiscal policy. Nevertheless, the previous scenario can be avoided if after the fiscal expansion what is to follow is the cooperative monetary policy measure. Hence, if after the fiscal expansion central bank is to increase the money supply to an adequate level in order to avoid interest rate growth, fiscal expansion will have its impact on the national income. This practically means that in the countries where capital flows are very mobile, and those prevail mostly in the highly developed and financially integrated industrial countries, central bank will have the final say in the creation of the aggregate macroeconomic policy - both monetary and the fiscal one.

It is in this context, in a certain sense, that it is also possible to interpret the fact that prior to the eruption of the world economic crisis, in a large number of countries, and especially amongst the developed ones, fiscal policy definitely remained a neglected child in the

family of economic policies. Its role was mostly reduced to the automatic stabilisers, while every discretionary fiscal measure was viewed with profound mistrust (Arestis, 2011). This concept, which downgrades the importance of fiscal policy while accentuates contributions made by the monetary policy, became known as *the new macroeconomic consensus*. However, with the eruption of the world financial crisis which was soon to grow into an economic crisis, it was revealed that the fiscal policy does embody certain charm of a sleeping beauty. In concrete terms, when the world became aware of the fact that the market, through its autonomous action, will not be able to resolve economic problems at hand, every country reached for its own particular recovery strategy. In the spirit of the so-called new macroeconomic consensus, monetary policy was chosen to be the first line of defence. Monetary stabilisation measures were boosting liquidity of the financial system through injections of funds, while central banks throughout the world lowered the reference interest rates. However, the efficiency of the monetary policy remains limited when the basic interest rate is close to zero, and that is exactly what happened in late 2008, i.e. at the beginning of the 2009. With the monetary policy which had, with the advent of the *zero bound*, become inefficient, and an economic system facing the collapse, fiscal policy proved itself to be a very powerful, yet forgotten, tool. Throughout the world, stabilisation fiscal packages were hastily designed that would support aggregate demand and save economy from a dramatic collapse. It is actually from the present day perspective that we can say that the fiscal policy, during the last several years, has experienced its particular renaissance.

Criticism of the MF model and its upgrading

The first criticism of the MF model pertains to its time horizon which is *de facto* a short-term one, since the assumption on fixed prices imbued in the model is not sustainable in the long-term. Assessment of real effects that the economic policy will have on the economy requires this assumption to be abandoned, i.e. the fact to be accepted that prices, although

ili slobodno vreme. Iz ovog razloga neki autori (npr. Obstfeld, 2001) ukazuju da je MF model u izvesnom smislu prevaziđen i razvijaju potpuno novi okvir makroekonomskih zavisnosti, ali ovaj put polazeći od mikroekonomskih osnova i činjice da svi agenti u ekonomiji deluju tako da optimiziraju svoj položaj. Ostaje da se vidi da li će ovaj novi okvir, tzv. nova otvorena makroekonomija (engl. *new open macroeconomics*) u budućnosti uspeti da potisne MF model. Ipak, sama činjenica da autori aktivni u ovoj oblasti (npr. Obstfeld (2001, 2002), Lane (2001), van Hoose (2004), Corsetti (2007), *etc.*) i dalje koriste MF model kao relevantan reper u odnosu na koji upoređuju svoje rezultate, u svakom slučaju predstavlja svojevršno svedočanstvo o trajnom uticaju i aktuelnosti originalnog MF modela.

Zaključak

Iako je tada prodiranje međunarodne dimenzije u zatvorenu ekonomiju još uvek bilo u povelju, pionirski koraci koje su Mandel i Fleming napravili šezdesetih godina prošlog

veka u pravcu analize efekata ekonomske politike u otvorenoj ekonomiji pri različitim režimima deviznog kursa i dalje čine jezgro međunarodne makroekonomije. MF model pokazuje da prilagođavanje privrede na putu iz neravnotežnog u neko novo ravnotežno stanje dominantno opredeljuje režim deviznog kursa ali i stepen mobilnosti kapitala. U tom smislu model se veoma uspešno koristio za analizu ekonomskih politika u Bretonvudskom sistemu kada trgovinska ograničenja nisu bila retkost, dok je jednako aktuelan i danas, u eri fluktuirajućih deviznih kurseva i međunarodne integracije tržišta kapitala. Postavke modela i zaključci koji iz njega proističu su u tolikoj meri upečatljivi i intuitivni da i danas predstavljaju podlogu za veliki broj ekonomsko-političkih odluka ali i standard za poređenje predviđanja novijih modela. Model, kako je ukazano u poslednjoj tački ovog rada, ipak nije ostao imun na kritike od kojih su neke motivisale dalja istraživanja. Međutim, svako značajno odstupanje od prognoza osnovnog MF modela i dalje se pažljivo ispituje.

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perhaps fixed over short-term, certainly experience fluctuations over long-term. In case prices would also be allowed to fluctuate on their road to a potential national income level, refuge to be found is in the modification of the MF model, through the mechanism of aggregate supply and demand. In such a situation, when speaking of the AS-AD model in an open economy, it should be borne in mind that the aggregate supply curve (AS) in the open economy does not differ from the one in the closed economy, while the aggregate demand curve (AD) in the open economy is even more *smooth* than is its opposite number in a closed economy, although both have a negative slope. It should also be noted that the inflation affects the scenario given within the IS-LM-BP diagram, as any price growth indicates that the real money supply in circulation is falling, as reflected through the shift to the left of the LM curve. In concrete terms, if we are to take as an example the case of monetary expansion in the floating exchange rate regime, in the circumstances of a rather high capital mobility (Graph 3b), and we are to assume that there is price growth before the desired level of income is attained, the LM curve, after its initial shift to the right, would have to shift one more time, this time to the left, where in the intersection of the other two curves a long-term balance would be established. Hence, monetary expansion remains efficient, but the growth of income in this case is lower and achieved at the expense of price growth.

Another serious criticism of the MF model pertains to the fact that it does not distinguish flows from funds, as the LM curve is based on money funds, while the BP curve is based on capital flows (Salvatore, 2009). In this sense, the model assumes that the interest rate growth would cause a continuous capital inflow to ensue and finance the balance of payment deficit, while in reality, what is more probable is that this will be a single, one-off inflow that will end once the investors have adjusted their portfolio.

In literature, several other shortcomings of the basic MF model are quoted. The fact that the model is based on static expectations is certainly one of them. In order to overcome this constraint, Dornbusch (Dornbusch, 1976)

introduced into the model more sophisticated rational expectations. This expansion, up to a point, does change the outcome predicted by the basic MF model in terms of emergence of the *exchange rate overshoot*, i.e. the fact that after monetary expansion exchange rate depreciates more over short-term than in respect to its long-term equilibrium. It is important to note that Dornbusch positioned his analysis in what he calls "*Mundell-Fleming's world*" (Dornbusch, 1976, p. 1173) which in his mind comprises *exclusively* floating exchange rates and perfect capital mobility. In addition, he starts from the real argument that there is a different pace of price adjustment to the equilibrium established on the product and money markets, where in this later case equilibrium adjustment is by far a faster one. In such circumstances, identical with the case of the MF model, monetary expansion leads towards lowering of the interest rate and causes currency depreciation. However, in the Dornbusch version, it is at this point that the process of adjustment begins on the product market, which implies that on the road towards long-term equilibrium, what has to happen is the price growth, fall in real money supply, and interest rate growth. Since on the basis of the interest rate parity which is not covered, interest rate growth may be expected only if the change in the exchange rate is anticipated in terms of appreciation, Dornbusch concludes that the current depreciation must be higher than the forecasted balancing value of the exchange rate. Actually, it is this difference between the expected depreciation of the national currency and the real depreciation that is opening up space for anticipation of the future appreciation, aimed at setting up a simultaneous product and financial equilibrium. Therefore, after monetary expansion has taken place, yet due to the different pace of price adjustment process on the product and financial markets, national currency will experience higher short-term depreciation in respect to the long-term balancing exchange rate.

Finally, it is important to note also one practical option offered by the basic MF model. It is the option for a specific *cost-benefit analysis* to be made when deciding on the optimum exchange rate regime. To that end, in the MF world of perfect capital mobility, but also

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of rigid prices, the selection of the exchange rate regime should depend on the types of shocks which are predominantly impacting given economy. If these shocks are mainly of a genuine and real provenance, the optimum choice is the floating exchange rate. On the other hand, if the shocks are predominantly of a monetary nature, the right choice is the fixed exchange rate. However, the modern approach to the exchange rate regimes starts with the fact that the capital market turbulences are at least as important, if not more important, than the turbulences in the product market, especially in the developing countries where a large part of population has no access to the capital markets (Lahiri et al., 2007). If for this reason the initial MF assumptions are replaced and instead of starting from perfect capital markets and product markets without turbulences, we are to start from perfect product markets and a segmented capital market, the famous MF claim is being “turned on its head” - floating exchange rates are now necessary in the presence of monetary shocks, while the fixed exchange rates remain optimal in the presence of real shocks. Thus Lahiri and associates (Lahiri et al., 2007) conclude that the optimum exchange rate regime should depend not only on the type of shocks affecting an economy (real *versus* monetary), as emphasised in the basic MF model, but also on the type of turbulence (product market turbulence *versus* capital market turbulence).

Finally, it is important to note that the MF model does not allow for any substantial analysis of the macroeconomic policy effects on welfare. Such deliberations in the MF model are mostly limited to the effects of income change, while disregarding social implications of the variables, such as for example, consumption or leisure time. For this reason, some of the authors (for instance, Obstfeld, 2001) point out that the MF model is, up to a certain point, outdated and they venture into developing a completely new framework of macroeconomic dependencies, but this time starting from microeconomic arguments and the fact that all the agents present in an economy act in quest of

optimising their own position. It remains to be seen whether this new framework, the so-called *new open macroeconomics*, will be able in future to suppress the MF model. Nevertheless, the fact alone that the authors active in this field (for instance, Obstfeld (2001, 2002, Lane (2001), van Hoose (2004), Corsetti (2007), etc) still continue to use the MF model as a relevant benchmark for comparing their respective results, in any case serves as a particular testimony to a resilient and long-lasting relevance of the original MF model.

Conclusion

Although, at that time, the advent of international dimension in closed economy was still in its infancy, the pioneering steps undertaken by Mundell and Fleming in the 1960s, in the direction of economic policy effects analysis in the open economy, under different exchange rate regimes, still remain the core of international macroeconomics. The MF model demonstrates that the adjustment of an economy in its transition from the state of inequilibrium into a new state of equilibrium predominantly depends on the exchange rate regime, but also on the degree of capital mobility. In that sense, model was very successfully applied for analysis of economic policies in the Breton-Wood system, when trade constraints were not infrequent, yet it remains just as relevant today, in the era of floating exchange rates and global integration of the capital market. Model hypothesis and conclusions deriving there from are so striking and impressive, yet intuitive that even today they serve as basis for a large number of economic and political decisions made, but also stand as benchmark standard for comparison of projection powers of the more recent models. As stated in the last title of this paper, the model did not remain immune to criticism, some of them serving as motivation for further research to be conducted. However, any significant deviation from the prognostics made by the basic MF model is still being carefully investigated.