**PENELITIAN PROFESSORSHIP**

**UNIVERSITAS LAMPUNG**

**( LAPORAN )**

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**EFEKTIFITAH MODEL PENGELOLAAN UTANG DI INDONESIA DENGAN MENGGUNAKAN MODEL FISCAL RULE DALAM MENGHADAPI KRISIS EKONOMI ?**

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| 8. | Kontribusi mendasar pada Ekonomi Publik dan Fiskal  Kontribusi penelitian berupa pengembangan model pengelolaan utang di Indonesia yang tahan krisis yang mampu menjaga fiscal sustainability dan pertumbuhan ekonomi jangka panjang dalam rangka melengkapi persyaratan menuju Guru Besar yang saat ini masih dalam proses kelengkapan administrasi untuk diajukan ke Dikti |
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RINGKASAN

Krisis ekonomi akibat pandemi Covid-19 telah berjalan lebih dari 1 tahun dan telah menyebabkan pertumbuhan ekonomi di semua negara berkontraksi tajam bahkan beberapa negara mengalami resesi. Krisis ekonomi yang sifatnya global ini menurunkan permintaan agregat yang akhirnya berdampak pada turunnya sumber-sumber penerimaan negara.Untuk menghadapi krisis akibat pandemi ini dan krisis ekonomi lainnya, setiap negara akan melakukan berbagai upaya untuk meningkatkan penerimaan negara agar bisa melewati masa -masa krisis ini. Salah satu upaya yang dilakukan melalui utang pemerintah, baik utang dalam negeri maupun luar negeri. Namun ketidak hati-hatian dalam mengelola utang ini bisa mengakibatkan negara menghadapi kondsi ekonomi yang lebih sulit bahkan bisa terjebak pada debt trap. Untuk itu diperlukan model management utang yang bisa mempertahankan kekokohan fiskal, memberikan ruang fikcal *(fiscal space*) yang cukup sehingga mampu menjaga kesinambungan fiskal (*fiscal sustainability)* dan mencipatkan pertumbuhan ekonomi jangka panjang.Salah satu model pengelolaan utang yang dipergunakan selama ini di Indonesia adalah model Maastricht Treaty, yaitu menjaga utang negara tetap stabil di bawah 60% PDB, sementara dalam kondisi krisis saat ini, negara harus terus menambah utangnya untuk bisa melewati masa masa sulit itu. Untuk itu perlu ada kebijakan lain yang bisa menjaga agar terjadi sustainability fiskal dan pertumbuhan ekonomi yang stabil dalam jangka panjang itu. Penelitian ini akan menginvestigasi beberapa modelmodifikasi pengelolaan utang yang akan diuji tingkat efektifitasnya untuk bisa diterapkan ketika menghadapi masa krisis dan masa recovery yang lebih cepat dan pertumbuhan ekonomi yang stabil jangka panjang.

**Abstrak**

Pada saat krisis ekonomi,negara membutuhkan pembiayaan yang besar untuk melewati masa-masa krisis itu. Salah satu upaya yang dilakukan adalah menambah utang pemerintah, namun ketidak hati-hatian dalam mengelola utang mengakibatkan perekonomian terjebak pada *debt trap*. Konsep pengelolaan utang dan defisit anggaran yang berorientasi jangka panjang (*steady state) yang* diterapkan di Indonesia adalah model defisit penyetabil utang, yaitu model dengan menetapkan tingkat utang dan defisit anggaran pada tingkat tertentu. Pertanyannya seberapa efektifkah model pengelolaan utang tersebut mampu menciptakan pertumbuhan ekonomi jangka panjang karena secara empiris negara negara yang menganut konsep ini sedang mengalami masalah fiskal dan juga menuju ketidakstabilan perekonomian. New Concensus Economy adalah pemikiran model keseimbangan umum yang memuat 6 pasar dalam suatu perekonomian terbuka, semua agent rasional dan mengandung intertemporal choices serta ada unsur kaidah kebijakan di dalamnya. Dengan memasukkan kaidah Debt Stabilizing Deficit (DSD) ke dalam model keseimbangan tersebut diperoleh hasil bahwa, dalam jangka panjang ,penerapan DSD ini mampu menurunkan tingkat kesenjangan output, ada kenaikan harga-harga umum, menurunkan tingkat suku bunga, penguatan nilai tukar domestik sehingga kondisi neraca perdagangan menjadi lebih baik. Sementara, dalam jangka pendek, penerapan kaidah DSD ini tidak signifikan mempengaruhi pembentukan harga, suku bunga, nilai tukar dan variasi dalam neraca perdagangan. Temuan lainnya adalah jika dilakukan penambahan tingkat utang pada besaran tertentu namun masih di bawah 60% PDB, kebijakan ini masih mampu meningkatkan kinerja perekonomian. Tingkat harga adalah variabel yang paling cepat menyesuaikan kembali menuju keseimbangan, sedangkan tingkat suku bunga membutuhkan waktu lebih lama kembali menuju keseimbangan semula.

**Keywords: Debt Management , Fiscal Rule, Maastricht Treaty, Mashab MNC**

# BAB 1.

# PENDAHULUAN

**1.1.Latar Belakang Masalah**

Krisis ekonomi saat ini telah membawa beberapa negara maju menghadapi masalah fiskal yang berat yaitu beban utang pemerintah yang tinggi dan defisit anggaran yang tidak terkendali. Bahkan beberapa negara di kawasan Uni Eropa seperti Portugal, Yunani, Spanyol Italia cenderung mengalami gagal bayar (*default*) yang selama ini negara-negara tersebut menerapkan konsep *Maastricht Treaty* dalam mengelola utang dan defisit anggarannya di mana batas maksimal rasio utang pemerintah sebesar 60 persen PDB dan batas maksimal defisit anggaran 3 persen PDB. Tujuan diterapkannya jenis kaidah fiskal ini agar pemerintah melakukan disiplin fiskal yang merupakan 1 dari 10 prinsip dalam Washington Consensus. Pemerintah menahan laju agresifitas pemerintah dalam berutang yang bertujuan untuk mempertahankan kekokohan fiskal dan memberikan ruang fikcal *(fiscal space*) yang cukup sehingga mampu berperan dan menuju kesinambungan fiskal (*fiscal sustainability).*

Indonesia telah melewati beberapa periode masa krisis ekonomi dengan hasil dan waktu recovery yang berbeda beda. Namun secara umum Indonesia mampu melewatinya. Krisis ekonomi pertama melanda Indonesia pada tahun 1962- 1965. Krisis ekonomi ini dipicu oleh faktor internal yaitu tingginya utang negara pada saat itu yang dikuti oleh tingginya inflasi. Utang pemerintah saat ini banyak dipergunakan untuk mendanai proyek proyek mercusuar yang dilakukan dengan pencetakan uang. Saat itu Indonesia bisa melaluinya. Krisis ekonomi kedua melanda Indonesia terjadi pada periode tahun 1970-1980. Krisis ekonomi kedua ini dipicu oleh adanya *miss management*di negara negara maju dalam mengelola utangnya, diikuti dengan tingginya inflasi, neraca perdagangan yang mengalami jurang defisit akibat pertukaran nilai tukar yang tidak seimbang. Sekali lagi Indonesia bisa melewatinya. Krisis ekonomi selanjutnya terjadi tahun 1982 yang juga disebabkan akibat dampak skandal subprime mortgage yang menyebabkan terganggunya sistem keuangan negara adi daya. Kali ini Indonesia masih bisa melewatinya. Krisis ekonomi terus berlanjut dan krisis ekonomi terparah di Indonesia terjadi tahun 1997 akibat membengkaknya utang pemerintah akibat terpresianya nilai tukar dolar USA yang semula 1 $ dihargai Rp 2.500 lalu meroket menjadi Rp14.500 /$. Rasio utang pemerintah saat itu mencapai 89 persen PDB, sehingga menekan pertumbuhan ekonomi hingga mencapai minus 13,2 persen. Krisis ekonomi kembali terulang pada tahun 2008, dimana saat itu seluruh sistem perbankan di Indonesia colapse menggangu sistem keunagan secara menyeluruh yang menyebbakan banyaknya phk.Walaupun tersendat sendat dan membutuhkan waktu yang lama, perekonomian Indonesia akirnya bisa melewatinya dan kembali pulih. Krisis ekonomi akan terus ada sepanjang masa, untuk itu diperlukan suatu model strategi pengelolaan ekonomi akiobat krisis melalui model pengelolaan utang pemerintah.

Dasar hukum pengelolaan utang pemerintah di Indonesia hingga saat ini adalah UU No 17 tahun 2003 tentang Keuangan Negara yang dioperasionalisasikan dengan Peraturan Pemerintah No 23 Tahun 2003 tentang Pengendalian Jumlah Kumulatif Defisit APBN dan APBD dan Jumlah Kumulatif Pinjaman Pemerintah Pusat dan Daerah serta Peraturan Menteri Keuangan No. 95/PMK.02/2007 tentang Pedoman Pelaksanaan dan Mekanisme Pemantauan Defisit APBN, APBD dan Pinjaman. Pada PP No 23 Tahun 2003 pasal 5 dinyatakan bahwa batas maksimal utang pemerintah yaitu sebesar 60 persen PDB dengan target defisit anggaran maksimal 3 persen PDB. Model pengelolaan utang ini merupakan penerapan konsep *Maastricht Treaty* yang dipergunakan di negara-negara Uni Eropa yang secara empiris saat ini negara-negara tersebut mengalami masalah fiskal dan juga menuju ketidakstabilan perekonomian.

Belajar dari pengalaman-pengalaman tersebut, diperlukan suatu alternatif lain konsep atau modifikasi model pengelolaan utang dan defisit anggaran di Indonesia yang mampu mewujudkan *fiscal sustainability dan ,*stabilitas perekonomian jangka panjang. Hal ini mendukung pendapat Abdurohman dan Ika (2012) yang menyatakan kelemahan penerapan model kaidah fiskal ini yakni kaidah ini belum cukup memberi petunjuk kepada pemerintah kapan anggaran pemerintah harus defisit, berimbang atau surplus. Selama PDB suatu negara meningkat, maka utang pemerintah dapat terus meningkat, dan prinsip ini dibenarkan sepanjang rasio utang pemerintah belum melebihi 60 persen PDB. Permasalahannya adalah, jika pemerintah tidak bisa mengendalikan agresifitas fiskal, dikhawatirkan akan mengancam keberlanjutan fiskal dan mempengaruhi kinerja perekonomian dalam jangka panjang. Beban utang yang tinggi akan mengurangi ruang fiskal (*fiscal space*) atau keleluasaan pemerintah mengalokasikan anggarannya. Secara empiris kelemahan konsep pengelolaan utang seperti ini telah membawa negara-negara Uni Eropa menuju ketidakstabilan fiskal. Indonesia menggunakan kebijakan utang seperti yang dipergunakan beberapa negara yaitu Model Mastricht Treaty. Pertanyaannya adalah masih efektifkah model pengelolaan utang selama ini ketika menghadapi krisis ekonomi akibat pandemit covid-19 yang berdampak menyeluruh di semua negara tanpa terkecuali apakah perlu ada modifikasi ?

1.2. **Permasalahan**

Krisis ekonomi yang melanda Indonesia memerlukan strategi pengelolaan utang yang baik. Pemerintah dapat terus melakukan penambahan utang selama PDB meningkat namun hingga maksimum 60% PDB. Utang yang tinggi dan tidak terkendali akan membebani anggaran negara yang akan mengganggu ruang fiskal (*fiscal space*), perekonomian dan kesinambungan fiskal. Untuk itu diperlukan suatu studi untuk menginvestigasi model pengelolaan utang yang efektif dengan pengelolaan utang melalui model Maastricht Treaty yang dikombinasikan dengan kebijakan fiscal rule yang dapat menjamin ruang fiskal, kesinambungan fiskal dan pertumbuhan ekonomi jangka panjang, sehingga Indonesia bisa terhindar dari mengalami gagal bayar seperti yang dialami negara-negara Uni Eropa yang menggunakan hanya konsep Maastricht Treaty. Perekonomian yang stabil jika seluruh pasar yang ada bekerja secara optimal secara bersama-sama, mulai dari pasar barang, pasar uang,monetery rule, neraca perdagangan. Salah satu pemikiran ekonomi terkini yang memasukkan fiscal rule atau kaidah fiskal yang juga mengedepankan pronsip rasionalitas agent dan menggunakan intertemporal choices adalah pemikiran Makroekonomika Konsensus Baru (MKB). Pemikiran ini dipilih karena sesuai dengan kondisi yang dihadapi perekonomian di Indonesia saat ini dimana para agen ekonomi menghadapi kondisi harga dan upah yang kaku (*sticky*), agen menggunakan nalarnya untuk membuat keputusan yang optimal melalui keputusan antarwaktu (*intertemporal choices)* yang bersifat *forward looking.* Beberapa model makro banyak dibahas dalam pemikiran ini*.* Salah satu model yang menggunakan fiskal rule (kaidah fiskal) adalah *Model Are*stis, Model Tcerhvvena dll. Studi ini mencoba memodifikasi model yang ada dengan menambahkan variabel defisit penyetabil utang dalam setiap persamaannya dan menambahkan satu persamaan lain yaitu persamaan kebijakan fiskal, sehingga keseimbangan umum akan lebih lengkap.

Dalam pemikiran MKB ini ada beberapa model pengelolaan utang yang bercirikan model persamaan antar waktu yang dinamis dan terkointegrasi. Penelitan ini ingin menguji efektifitkah penerapan kebijakan utang model Masstricht Treaty yang dikombinasikan dengan model Fiscal Rule, yaitu suatu bentuk kebijakan fiskal yang menggunakan kaidah fiskal. Model kombinasi pengelolaan utang ini merupakan model terbaru dengan pendekatan mashab Makro Ekonomi Konsensus Baru yang menganalisis dampaknya secara general pada lima pasar secara bersama-sama.

1.3..**Tujuan Penelitian**

Tujuan peneltian ini adalah untuk memilih beberapa model pengeloaan utang yang efektif yang ada dalam pemikiran New Consesnus Makro Economic yang dipadukan dengan Model Maastricht Tretay yang dipergunakan selama ini di Indonesia. Setelah diketahuinya model pengelolaan utang terbaik melalui penerapan defisit penyetabil utang, lalu model tersebut diuji efektifitasnya dengan cara mengestimasi pengaruhnya pada keseluruhan pasar dalam perekonomian melalui indikator makro ekonomi yaitu kesenjangan output, tingkat harga dalam negeri, suku bunga domestik, nilai tukar, neraca transaksi berjalan dan defisit primer anggaran. Model yang baik ketika pola respon terhadap indikator indikator makro ekonomi tersebut dapat mengembalikan ke model awal dalam waktu yang tidak lama ( recovery tercepat).

**1.4. Kontribusi Penelitian**

Studi ini mempunyai kontribusi, yaitu berupa pengembangan model empiris penerapan kebijakan fiskal bersifat kaidah dalam kerangka pemikiran Makroekonomi Konsensus Baru, serta kontribusi kebijakan, khususnya ditujukan kepada otoritas fiskal berupa alternatif lain konsep pengelolaan defisit anggaran dan utang pemerintah yang dapat mewujudkan kesinambungan fiskal dan pertumbuhan ekonomi dalam jangka panjang.

**1.5. Luaran Penelitian**

Luaran wajib

1. Laporan Penelitian.
2. Artikel ilmiah ini terpublished di jurnal internasional terindeks scopus untuk melengkapi persyaratan dalam proses pengajuan Guru Besar.

Luaran tambahan:  
a. Makalah dipresentasikan dalam pertemuan ilmiah internasional

**BAB II**

**TINJAUAN PUSTAKA**

Salah satu konsep pengelolaan utang dan defisit anggaran yang berorientasi jangka (*steady state)* adalah defisit penyetabil utang, yaitu konsep kaidah fiskal yang menjaga tingkat defisit anggaran yang mampu menjaga utang pemerintah stabil. Konsep menjaga utang tetap stabil ini dikenal dengan defisit penyetabil utang yang modelnya diperkenalkan Favero dan Monacelli (2005). Keunggulan konsep ini menurut Rahmany (2009) dan Mitchell *et al*., (1999) salah satunya adalah dapat mencapai keberlanjutan fiskal. Secara teoritis dan empiris ditemukan bahwa defisit anggaran berpengaruh terhadap kinerja makro ekonomi. *Ballassone (2005*), misalnya menemukan bahwa peningkatan defisit anggaran akan meningkatkan permintaan agregat dan mendorong pertumbuhan ekonomi. *Sargent dan Wallace (1981)* menyatakan dalam jangka panjang, defisit anggaran mempengaruhi inflasi, namun tidak dalam jangka pendek. Metin (1998) menemukan di Turki bahwa ketika defisit anggaran meningkat telah meningkatkan inflasi dan menurunkan pendapatan nasional. Cebula *(1997)* menjelaskandalam jangka panjang*,* defisit anggaranmempengaruhi suku bunga , tetapi tidak dalam jangka pendek. Demikian juga Laubach (2005) menemukan jika terjadi kenaikan sebesar 1 persen defisit anggaran akan menyebabkan kenaikan suku bunga jangka panjang sebesar 25-30 basis poin. Hubungan antara defisit anggaran dan suku bunga diteliti Beare (1978). Ia menemukan bahwa :kenaikan defisit anggaran melalui penjualan obligasi akan meningkatkan suku bunga dalam negeri. Burney (1992) dan Bernheim (1988) menemukan defisit kembar atau twin deficit, yaitu kondisi perekonomian dimana ketika terjadi kenaikan defisit anggaran akan mendoromg kenaikan nilai tukar riil domestik. Mengamati adanya hubungan defisit anggaran dengan beberapa indikator ekonomi makro, agar konsep defisit anggaran tersebut dapat diterapkan dalam perekonomian di Indonesia, maka perlu dilakukan penelitian implikasi penerapan konsep defisit penyetabil utang terhadap kinerja makro ekonomi di Indonesia.

Penelitian pengaruh kebijakan fiskal di Indonesia selama ini baru menerapkan kebijakan fiskal bersifat diskresi, antara lain dilakukan Suhartoko (2013), Maryatmo (2004, Rahutami (2003), belum menggunakan kebijakan fiskal kaidah (*rule*). Pengaruh Kebijakan Fiskal lebih banyak diteliti menggunakan dasar pemikiran Keynesian Baru, seperti yang dilakukan Favero and Monocelli (2005), Hubbard, *et al*., (2012), Giese and Wagner (2005), Wijoyo (2011), Rahutami (2003), Maryatmo (2004) dengan menggunakan 3 persamaan dalam perekonomian tertutup. Studi ini menggunakan pemikiran Makroekonomika Konsensus Baru (MKB) dengan 6 persamaaan tunggal yang diterapkan dalam perekonomian terbuka. Walaupun Suhartoko (2013) telah menggunakan pemikiran MKB namun Suhartoko menggunakan model persamaan Giese and Wagner (2005), sebaliknya penelitian ini menggunakan model Arestis (2009) yang dimodifikasi, yang dianalisis dalam perekonomian terbuka. Penelitian sebelumnya menganalisa model dengan beberapa persamaan menggunakan metode persamaan simultan seperti yang dilakukan Arestis (2009), Tcherneva (2008), Rahutami (2003), Maryatmo (2004), sedangkan dalam disertasi ini menggunakan pendekatan OLS biasa untuk menganalisis modelnya dan model jangka pendek dibentuk menggunakan model *Vector Error Correction Model* (VECM). VECM menurut Gujarati dna Porter (2009:789) merupakan salah satu pengembangan dari model VAR dan SVAR yang a-theory, sementara VECM dibangun berdasarkan teori. Keunggulan lainnya model VAR, SVAR dan VECM ini adalah selain mudah juga dapat disetimasi dengan menggunakan model *Two Stage Least Square* (TSLS).

Pemikiran ekonomi yang melandasi studi ini menggunakan pemikiran Makroekonomika Konsensus Baru (MKB). MKB merupakan perkembangan terakhir pemikiran makro ekonomi terbaru yang merupakan konvergensi dua pemikiran yaitu Keynesian Baru dan Teori Siklus Bisnis. Selain pertimbangan di atas, dasar pertimbangan lainnya menggunakan pemikiran tersebut antara lain sebagai berikut. Aspek-aspek yang melekat pada pemikiran MKB relatif sesuai dengan perekonomian di Indonesia. *Pertama*, pelaku ekonomi saat ini menghadapi pasar persaingan yang tidak sempurna dimana konsep ini merupakan pemikiran Keynesian Baru. *Kedua,* perekonomian di Indonesia sering mengalami kejutan (shock) terutama dari kejutan sisi penawaran (*supply shock)* antara lain berupa bencana alam*,* perubahan tehnologi, gangguan distribusi barang, demonstrasi buruh yang merupakan inti dari Teori Siklus Bisnis Riil. *Ketiga,* pelaku ekonomi akan membuat keputusan secara rasional sebagai cerminan perilaku optimisasi dengan menggunakan semua pengalaman masa lalu dan informasi masa yang akan datang yang dimilikinya dan ini merupakan salah satu prinsip Teori Siklus Bisnis Riil. *Keempat,* fenomena yang kita temui saat ini, pelaku ekonomi menghadapi harga yang lengket (*sticky)*, yaitu kondisi harga yang bisa berubah tetapi lambat. *Kelima,* penerapan kebijakan moneter di Indonesia saat ini menerapkan kebijakan kaidah moneter untuk menjaga stabilisasi harga melalui penetapan target suku bunga (r) dan inflasi.

Pemikiran Makroekonomika Konsensus Baru (MKB) yang dipergunakan dalam penelitian ini merupakan konvergensi antara pemikiran Keynesian Baru dan Teori Siklus Bisnis Riil. Istilah MKB secara konsep sama dengan pemikiran *New Neoclassical Synthesis* (NNS), hanya saja penggunaan istilah MKB dipergunakan oleh Tcherneva (2008) dan Arestis (2009), sementara istilah NNS dipergunakan oleh Goodfriend dan King (2002), Zouache (2004) dan Gieshe and Wagner (2007).

KLASIK BARU

KEYNESIAN BARU

**SINTESA NEOKLASIK BARU (1997)**

**MAKROEKONOMIKA KONSENSUS BARU**

KLASIK

KEYNES

KEYNESIAN

**SINTESA NEO KLASIK**

TEORI .SIKLUS BISNIS

Sumber: Insukindro (2012)

Gambar 1. Pemikiran Makroekonomi Konsensus Baru Diantara Pemikiran Ekonomi Lainnya

**Makroekonomika Konsensus Baru (MKB)**

Kerangka kerja pemikiran NNS awalnya dipergunakan Giese dan Wagner (2007) dengan membangun model IS-LM-IA dalam suatu perekonomian tertutup dalam nuansa dominasi kebijakan moneter. Perekonomian diasumsikan terdiri dari tiga blok, yaitu blok keuangan, blok investasi dan blok konsumsi dan persediaan. Pada perkembangan selanjutnya, Tcherneva (2008) memasukkan peran kebijakan fiskal secara tegas dalam model IS-LM-IA dengan alasan untuk menyelamatkan perekonomian yang pada saat itu mengalami jerat likuiditas di mana tingkat suku bunga sudah mencapai tingkat terendah dan tidak mampu memperbaiki perekonomian. Tcherneva lalu menambahkan variabel pengeluaran pemerintah pada persamaan IS tersebut. Perkembangan pemikiran ini selanjutnya dilakukan Arestis (2009) dengan kembali membangun model IS-LM-IA dengan mengurangi peran kebijakan fiskal, kebijakan fiskal hanya dimasukkan dalam besaran intersep pada persamaan IS.

Secara prinsip, pemikiran MKB seperti diistilahkan Tcherneva dan Arestis sama dengan pemikiran NNS. Pemikiran MKB mengandung dua unsur utama dalam analisisnya yakni optimisasi antara waktu. Pentingnya peran pemerintah dalam bentuk kebijakan fiskal berasal dari pemikiran Keynesian Baru, sementara penetapan harga yang menerawang ke depan (*forward looking price setting*) merupakan inti dari pemikiran Teori Siklus Bisnis. Kedua unsur ini dimasukkan ke dalam model yang dinamis untuk menjelaskan fluktuasi ekonomi riil. Para pelaku ekonomi menghadapi pasar persaingan tidak sempurna atau pasar tidak lengkap yang menghadapi harga kaku (*sticky).* Harga kaku ini mengindikasikan harga mengalami penyesuaian namun lambat. Goodfriend dan King (1997) menjelaskan mekanisme transmisi kebijakan moneter ini melalui dua jalur. Jalur pertama yaitu jalur permintaan agregat dan jalur kedua melalui penggelembungan *(mark-up*). *Pertama,* melalui jalur permintaan agregat dilakukan ketika otoritas moneter merubah stok uang dan kebijakan ini akan mempengaruhi tingkat harga barang dan tambahan biaya. Walaupun harga diasumsikan dalam kondisi kaku tidak mudah berubah, namun perusahaan akan tetap merubah harga outputnya. Perubahan harga dan tambahan biaya ini akan mempengaruhi permintaan agregat. *Kedua*, melalui penggelembungan. Ketika terjadi kenaikan inflasi akan terjadi penggelembungan harga, dan penggelembungan ini dianggap sebagai pajak yang menimbulkan distorsi dalam perekonomian.

**Model Giese dan Wagner (2007)**

Model Giese dan Wagner (2007) meliputi beberapa periode waktu yaitu saat ini dan yang akan datang yang diwakili oleh variabel asa. Jika terjadi kejutan inflasi atau output maka pengaruhnya akan diantisipasi dengan perubahan asamengasumsi kan harga-harga fleksibel dan perekonomian dalam kondisi tidak dalam pengerjaan penuh. Model Giese dan Wagner menggunakan 3 persamaan dasar yaitu pertama, persamaan kurva IS yang bersifat menerawang ke depan *(forward looking*). Ketiga persamaan model Giese dan Wagner (2007). adalah sebagai berikut.

Kurva IS : 

Kurva MP : 

Kurva IA : 



**Model Tcherneva (2008)**

Perbedaan mendasar model Tcherneva (2008) dengan model Giese dan Wagner (2007) adalah memasukkan secara tersurat variabel kebijakan fiskal dalam model persamaan IS berupa pengeluaran pemerintah (g). Sama seperti model Giese dan Wagner, ke tiga pasar dalam model Tcherneva adalah pasar barang yang menerawang ke depan yang mewakili permintaan agregat, Kurva Phillip Keynesian Baru yang mewakili kurve penawaran agregat dan persamaan kebijakan moneter yang bersifat Taylor Rule. Penerapan Taylor Rule ini mengimplikasikan otoritas moneter menjaga agar target utamanya yaitu inflasi aktual (, mendekati atau sama dengan target inflasi aktual yang dicapai melalui penyesuaian suku bunga. Secara lengkap persamaan model Tcherneva (2008) adalah sebagai berikut.

Persamaan IS:  (2.6)

Persamaan NKPC  (2.7)

Persamaan Taylor Rule  (2.8)

**Model Arestis (2009)**

Perbedaan model Arestis dengan model Giese dan Wagner dan Tcherneva (2008), adalah pertama, dalam model Arestis meniadakan kembali peran kebijakan fiskal dan kebijakan fiskal hanya terlihat pada besaran  pada persamaan kesenjangan output. Kedua, otoritas moneter menggunakan instrumen suku bunga kebijakan untuk mengendalikan suku bunga pasar jika inflasi aktual lebih tinggi atau lebih rendah dari target inflasi. Untuk menurunkan inflasi agar mendekati target inflasi, otoritas moneter akan menaikkan suku bunga melalui perubahan suku bunga kebijakan, atau sebaliknya. Ketika inflasi yang terjadi sama dengan inflasi yang ditargetkan, maka tidak terjadi kesenjangan output. Model Arestis (2009) terdiri dari 6 persamaan reduced forms sebagai berikut.





3. 4. 5.

6. 

Variabel-variabel yang ada dalam persamaan Arestis (2009) adalah sebagai berikut.

adalah konstanta yang mewakili posisi fiskal

adalah permintaan agregat domestik

 adalah permintaan agregat dunia

R adalah suku bunga nominal domestik

 adalah suku bunga nominal dunia

P adalah tingkat inflasi domestik

 adalah tingkat inflasi dunia

P\* adalah target inflasi

 adalah suku bunga riil dalam keseimbangan

adalah kurs riil



 adalah kurs nominal

CA adalah neraca transaksi berjalan

E adalah asa

 adalah kejutan stokastik

Dalam model Arestis tersebut, kebijakan fiskal hanya terlihat pada besaran  pada persamaan permintaan agregat. Untuk memperjelas peran kebijakan fiskal dalam perekonomian, maka persamaan Arestis (2009) ini dimodifikasi dengan menambahkan variabel defisit penyetabil utang yang menjaga utang tetap stabil dan menambah persamaan defisit primer anggaran. Model persamaan defisit primer anggaran yang dibentuk Favero dan Monacelli (2005) dipilih karena modelnya dinamis, menggunakan variabel kesenjangan output yang mengindikasikan perekonomian tidak stabil dan menerapkan kebijakan fiskal kaidah. Bentuk persamaan defisit primer anggaran setelah dilakukan penyeusian adalah  .Persamaan di atas mengindikasikan bahwa defisit primer anggaran dipengaruhi secara positif oleh kesenjangan output dan defisit penyetabil utang dan kesalahan penganggangu akibat kejutan kebijakan fiskal.

**Konsep *Steady State* Utang Pemerintah**

Jika tujuan utama kebijakan fiskal adalah kesinambungan fiskal maka utang pemerintah harus dijaga tetap stabil atau  dan konsep ini dijelaskan oleh Favero dan Monacelli (2005), Farmer (2002:311). Konsep defisit penyetabil utang adalah jenis kaidah fiskal yang mampu menciptakan kesinambungan, karena besarnya sasaran defisit ditetapkan pada tingkat yang terkendali dalam jangka panjang yang menjaga rasio utang pemerintah terjaga bahkan menurun sepanjang tahun. Penerapan kaidah ini akan memberikan kepercayaan kepada investor tingginya komitmen dan kapasitas negara dalam mengelola keuangan negaranya, meningkatkan stabilisasi kinerja fiskal keuangan pemerintah khususnya untuk kebijakan penyesuaian penerimaan dan belanja (Farmer, 2002:312) dan Blanchard *et al., (*2010).

Untuk menjelaskan konsep *steady state* utang pemerintah, Farmer (2002: 312) menggunakan persamaan kendala anggaran pemerintah yang lebih sederhana. Pembiayaan defisit anggaran dilakukan melalui penjualan obligasi pemerintah kepada masyarakat. Utang pemerintah periode ini ( adalah sebesar utang pemerintah tahun lalu ( ditambah dengan beban pembayaran bunga akibat utang tahun lalu (i) ditambah dengan defisit primer tahun ini (Volume penambahan utang yang bisa dilakukan pemerintah untuk membiayai defisit anggaran yang terjadi, jumlahnya terbatas sebesar beban bunga pembayaran utang yang dilakukan tahun lalu (  ) ditambah defisit anggaran yang terjadi pada tahun ini yaitu selisih pengeluaran pemerintah  dengan pajak  atau ditulis sebagai berikut.

 (2.48)

Jika diasumsikan pemerintah menggunakan konsep utang senantiasa dijaga stabil tiap tahunnya, maka jumlah utang pemerintah tahun ini sama dengan jumlah utang.

**BAB III**

**METODOLOGI PENELITIAN**

Metode yang digunakan dalam penelitian ini dimulai dari studi pustaka untuk menentukan model teoritis dan model empirik terbaik dengan memasukkan kebijakan kaidah fiskal di setiap model tersebut. Lalu diberikan schock, jika model persamaan kembali ke model awal dan kembali dalam waktui yang relatif singkat dibandingkan model lainnya, maka model tersebut dianggap efektif. Estimasi dilakukan setelah data ditransformasi, dengan melakukan uji kointegrasi. Uji kointegrasi dilakukan dengan pendekatan Kointegrasi Johansen. karena data tidak stasioner pada derajat level , maka diperlukan transformasi data pada derajat satu atau dinamakan model VAR *in difference.* Karena data berbeda-beda derajad stasioneritasnya namun memiliki kointegrasi, maka etimasi yang dipilih adalah menggunakan *Structure Cointegrated Vector Autoregresion* (SCVAR) (Garratt *et al.,*1999). Hasil estimasi SCVAR menghasilkan fungsi respon impuls dan dekomposisi varians yang berarti yang digunakan untuk menjelaskan pengaruh satu kejutan terhadap variabel lain dalam satu persamaan atau antar persamaan. (Harris *et al*, 2005)

**3.1.Penyesuaian dan Transformasi Data**

Setelah dilakukan pengumpulan data. selanjutnya dilakukan penyesuaian data terutama data yang menggunakan 4 variabel yang mengandung unsur ekspektasi, yaitu ekspektasi kesenjangan output , ekspektasi harga domestik E, ekspektasi harga luar negeri  dan ekspektasi nilai tukar rupiah . Untuk menentukan nilai keempat variabel ekspektasi tersebut digunakan metode *Auto Regressive Integrated Moving Average* (ARIMA) atau juga dikenal dengan metode *Box-Jenkins.*

**Model ARIMA**

Model *Autoregresive* (AR) digunakan ketika nilai prediksi variabel dependen () hanya dipengaruhi oleh nilai Y pada 1 periode sebelumnya ( ) atau kelambanan pertama. Persamaan model ini ditulis AR(1)., demikian seterusnya, ketika () dipengaruhi oleh nilai Y pada 2 periode sebelumnya ( , ) atau kelambanan pertama dan kedua, maka modelnya adalah (AR(2). Bentuk umum model *Autoregresive* (AR) menurut Gujarati dan Porter (2010: 776) adalah sebagai berikut.

 (3.1.)

Variabel-variabel yang ada dalam model tersebut adalah  merupakan variabel independen,  merupakan kelambanan (lag) Y,  merupakan residual dan  merupakan tingkat *Autoregresive* (AR).

Model *Moving Average* (MA) digunakan untuk memprediksi nilai Y yang hanya dipengaruhi oleh residu periode sebelumnya. Jika variabel Y hanya dipengaruhi oleh residu ( ) pada 1 tahun sebelumnya ditulis MA(1), pada tahun ke-2, ditulis MA(2) dan seterusnya. Bentuk umum model *Moving Average* (MA) dalam Gujarati dan Porter (2010:776) adalah sebagai berikut.

 (3.2)

Gabungan antara model *Auto Regresive* (AR) dan model *Moving Average* (MA) merupakan model yang memprediksi nilai variabel dependen Y yang dipengaruhi oleh Y actual pada periode-periode sebelumnya dan juga oleh residual Y pada periode-periode sebelumnya. Model gabungan yang lebih lengkap ini dikenal dengan model ARMA. Bentuk umum model ARMA (Gujarati dan Porter, 2010:776) adalah sebagai berikut.

 (3.3)

Selanjutnya menurut Gujarati dan Porter (2010:776), pada model ARIMA jika, data tidak stasioner dan harus dilakukan proses diferensiasi, misalkan hingga d kali dan kita mengaplikasikan model ARMA maka model ARIMA ditulis ARIMA (p,d,q), dimana p adalah tingkat AR, d adalah proses stasioneritas melalui proses diferensiasi sebanyak d kali dan q adalah tingkat MA. Misalkan ARIMA (2,1,2) artinya AR (2), data stasioneritas pada derajad level 1 dan tingkat MA pada level 2.Setelah didapatkan model terbaik berdasarkan diagnosa yang dilakukan, maka model tersebutlah yang digunakan untuk melakukan suatu peramalan jangka pendek

**3.2.Pengujian Stasioneritas**

Prinsip stasioneritas data merupakan prinsip dasar yang harus dipenuhi dalam uji ekonometrika terutama untuk model runtun waktu dinamis dan jika data belum stasioner maka harus dilakukan penurunan kembali, dan diestimasi kembali dengan data yang baru. Uji stasioner dilakukan menggunakan pendekataan *Augmented Dickey-Fuller* (ADF) dan *Phillips Perron*.

* + 1. **Uji *Augmented Dickey-Fuller* dan *Phillips Perron***

Hipotesis null baik untuk pendekatan ADF dan Phillips Perron sama, yaitu seri data berisi tren yang stokastik. Persamaan regresi dari uji ADF dapat dituliskan sebagai berikut

 (3.5)

Hasil estimasi dari uji ADF tersebut selanjutnya dibandingkan dengan nilai kritis MacKinnon untuk mendapatkan kesimpulan dari uji ADF.Apabila nilai uji ADF lebih kecil dibandingkan nilai kritis MacKinnon maka hipotesis nol uji akar unit dapat ditolak artinya variabel tersebut stasioner ( Enders, 2004:181).Sebaliknya, jika nilai uji ADF lebih besar dibandingkan dengan nilai kritis MacKinnon dalam derajat statistik tertentu maka hipotesis nol diterima, artinya variabel tersebut tidak stasioner.

**3.3. Uji Kointegrasi**

Uji kointegrasi bertujuan untuk melihat apakah sekelompok data yang berada pada derajat integrasi yang sama merepresentasikan hubungan jangka panjang tersebut.Dalam metode SCVAR keberadaan uji kointegrasi menjadi penting karena struktur dari variabel-variabel yang digunakan terlebih dahulu perlu diuji untuk melihat ada tidaknya hubungan jangka panjang.Dalam penelitian ini digunakan metode *Johansen’s Cointegration Test* untuk menganalisis apakah terdapat hubungan jangka panjang antar variabel yang diteliti.Gujarati dan Porter (2010: 762) menjelaskan kointegrasi antar variabel ini dengan menggunakan persamaan *purchasing power parity* sebagai berikut.

 (3.9)

 (3.10)

Walaupun  dan  secara individual adalah *I*(1), namun keduanya mempunyai trend stokastik, kombinasinya linier *I*(0). Persamaan (3.8) adalah regresi kointegrasi dan persamaan (3.9) adalah parameter kointegrasi.  dan  yang linier nampaknya terkointegrasi atau ada hubungan jangka panjang atau keseimbangan, namun dalam jangka pendeknya mungkin saja tidak mencapai keseimbangan.

**3.4.2. Model  *Structural Vector Autoregression* (SVAR)**

Berawal dari banyaknya kritik terhadap model *unrestricted* VAR yang dianggap ­a-teori, lahir metode SVAR yang dikembangkan oleh Sims pada tahun 1980-an. Model SVAR telah menjadi instrument standar untuk menginvestigasi pengaruh kejutan fundamental ekonomi terhadap variabel-variabel makroekonomi (Briiiggemann: 2006), namun model ini menurut Wesche(2006) masih banyak digunakan untuk menginvestigasi transmisi kejutan kebijakan moneter terhadap variabel-variabel ekonomi makro, belum banyak digunakan untuk menginvetigasi kejutan kebijakan fiskal pada variabel ekonomi makro. Keunggulan model SVAR menurut Enders (2004: 291) adalah pemberian restriksi pada model *unrescricted* VAR didasarkan pada hubungan teoritis yang kuat akan skema dengan bentuk urutan (ordering) variabel-variabel dalam sistem. Skema dari restriksi yang diberikan pada model *unrestricted* VAR didasarkan pada teori ekonomi yang kuat.. Hal tersebut berguna untuk memahami hubungan antara *forecast errors* dengan inovasi struktural dalam sebuah *n* variabel dalam sistem VAR. Lebih lanjut Enders (2004:292) menjelaskan model SVAR di mana diasumsikan terdapat dua variabel (*bivariate)* dalam persamaan VAR:

 (3.19)

 (3.20)

persamaan diatas dapat dibentuk ke dalam bentuk notasi matriks dan restriksi menjadi:

 (3.21)

 (3.22)

dengan melakukan *premultiplyingB-1* pada persamaan (3.17) maka diperoleh:

 (3.23)

yang disederhanakan menjadi:

 (3.24)

Dimana*et= B-1εt*, diperoleh matriks kovarian atau varian dari  sebagai berikut:

 (3.25)

Ketika nilai Σ adalah simetris, matriks tersebut hanya berisi (n2+n)/2 unsur yang berbeda. Hal tersebut digunakan untuk mengidentifikasi model struktural VAR yang akan diestimasi, dimana perlu digunakan (n2+n)/2 restriksi pada model struktural. Estimasi menggunakan model SVAR menghasilkan inovasi terstruktur pada *variance decomposition* dan *impulse responses.* Tujuan dari estimasi SVAR melakukan restriksi teori yang sesuai pada model VAR untuk memperoleh *non-recrusive orthogonalization* dari residual *e1t*dan *e2t* sehingga analisis *impulse responses* dan *variance decomposition* akan bermakna(Enders:2004:294).

**3.4.3. Model *Vector Error Correction Model (VECM)***

Model vektor koreksi kesalahan atau *Vector Error Correction Model (VECM)* disebut juga model SVAR yang terkointegrasi. Model VECM mensyaratkan data stasioner pada *I*(1) dan terkointegrasi yang didukung oleh dasar teori ekonomi yang kuat. Model VECM digunakan untuk mengamati aspek hubungan jangka pendek dan jangka panjang. Dalam jangka panjang variabel-variabel yang diamati dalam kondisi keseimbangan, sedangkan dalam jangka pendek memerlukan waktu penyesuaian dari satu keseimbangan ke keseimbangan lainnya. Sehingga model VECM selain dapat memperoleh gambaran kointegrasi antar variabel, mengamati proses menuju keseimbangan serta dapat juga mengamati kecepatan penyesuaian menuju keseimbangan, jika terjadi kejutan dalam perekonomian.

 (3.26)

 (3.27)

 adalah *error correction term* (ECT) yaitu residual yang stasioner yang diperoleh dari persamaan regresi yang terkointegrasi, yang memiliki varian yang konstan. Jika persamaan regresi kointegrasi mempunyai error yang stasioner atau I(0), maka persamaan VECM adalah:

 (3.28)

Hal terpenting dalam model VECM menurut Briiggemann (2006) adalah pengaruh fundamental kejutan pada sistem variabel yang dapat diinterpretasikan sebagai *error correction term* (ect) dari bentuk VECM terstruktur. Koefisien ect dalam model SVECM diharapkan signifikan yang mencerminkan bahwa variabel dalam persamaan jangka panjang terkointegrasi. Koefisien ect menunjukkan besarnya pengaruh kejutan masa lalu terhadap  (Briiggeman, 2006). Koefisien ect secara absolut harus lebih kecil dari satu yang artinya, setiap perubahan kejutan masa lalu sebesar satu unit akan menghasilkan perubahan  yang lebih kecil dari satu dan kejutan itu akhirnya akan hilang dan menuju keseimbangan kembali, sehingga

 (3.29)

Makin besar koefisien ect makin cepat proses menuju ke keseimbangan.

Data yang sudah ditransformasi dalam bentuk  , maka VECM setiap persamaan adalah sebagai berikut.

Permintaan Agregat (IS)

is(3.30)

Penawaran Agregat (IA)

IA

(3.31)

Kebijakan Moneter (MP)

MP

(3.32)

Nilai Tukar (E)

E

(3.33)

Neraca Transaksi Berjalan (*Current Account*)



(3.34)

Defisit Primer Anggaran (KF)

dt (3.35)

Definisi variabel-variabel yang ada dalam model persamaan adalah sebagai berikut.

 adalah kesenjangan output

 adalah suku bunga simpanan

 adalah suku bunga kebijakan

 adalah nilai tukar rupiah terhadap euro

 adaalah tingkat harga-harga di dalam negeri

adalah neraca transaksi berjalan

 adalah defisit penyetabil utang

 adalah defisit anggaran primer

 adalah selisih suku bunga di dalam negeri dengan suku bunga Eropa

 adalah selisih kesenjangan output dalam negeri dengan Eropa

 adalah ekspektasi kesenjangan output

 adalah ekspektasi harga barang di dalam negeri

 adalah ekspektasi nilai tukar rupiah terhadap mata uang euro

 adalah selisih antara ekspektasi harga –harga dalam negeri

dengan ekspektasi harga-harga di Eropa

 adalah *error correction term* masing-masing persamaan

 adalah konstanta masing-masing persamaan, di mana >0

adalah koefisien

elastititas variabel independen terhadap variabel dependen.

***3.4.4.1. Fungsi Respon Impuls***

Fungsi respon impulse menurut Pesaran (1998) adalah mengukur profil waktu dari pengaruh suatu kejutan tertentu kepada variabel lain dalam waktu pada nilai variabel ekspektasi masa depan (ekspektasi) dalam sistem dinamis. Fungsi respon impuls bersama-sama dengan dekomposisi varian disebut *innovation accounting* (Enders, 2004:280). Menurut Enders, kedua alat ini dapat digunakan untuk menganalisis hubungan diantara variabel-varaibel ekonomi. Kejutan dalam penelitian ini berupa penerapan defisit penyetabil utang terhadap persamaan kesenjangan output, penawaran agregat, nilai tukar , neraca transaksi berjalan, suku bunga dan kebijakan fiskal itu sendiri. Konsep defisit penyetabil utang adalah untuk membatasi atau memagari agresifitas pemerintah ketika melakukan pembiayaan defisitnya melalui utang. Pemerintah tetap dapat melakukan ekspansi fiskal melalui penambahan utang namun dibatasi sebesar utang tahun lalu sama dengan utang tahun lalu yang diperoleh dari pengalian selisih antara beban bunga membayar utang dengan pertumbuhan ekonomi. Dengan batasan ini diharapkan jumlah utang pemerintah tahun ini sama dengan tahun sebelumnya dan jika mungkin semakin menurun sehingga tercapai keberlanjutan fiskal. Skala ukuran kejutan defisit penyetabil utang sebesar 1 standar error, sementara permintaan agregat, inflasi, nilai tukar dan neraca transaksi berjalan diukur dengan satuan persen sedangan respon suku bunga diukur dengan satuan basis point. Garis horizon (0,0) adalah sebagai nilai garis dasar (*basis line*).

**3.4.4.2. Dekompisisi Varian**

Dekomposisi varian juga dihasilkan dalam estimasi SCVAR, yaitu mendekomposisikan variasi variabel endogen ke dalam komponen kejutan variabel-variabel endogen atau eksogen lain dalam sistem VECM. Dekompoisisi varian akan memberikan informasi mengenai proporsi dari pergerakanpengaruh kejutan ada sebuah variabel terhadap kejutan variabel lain pada periode saat inidan periode yang akan datang

**3.5. Simulasi Model**

Tahapan analisis selanjutnya dalam penelitian ini adalah melakukan simulasi terhadap besaran defisit penyetabil utang. Asumsi yang dipergunakan ketika melakukan simulasi adalah *pertama*, seluruh variabel yang ada dalam model kecuali besaran defisit penyetabil utang (DS) dianggap ceteris paribus atau konstan, *kedua,* besaran defisit penyetabil utang sebelum dilakukan simulasi dianggap sebagai *baseline rule*, *ketiga,* penambahan 1 standar deviasi dari besaran defisit penyetabil utang sudah dilakukan ketika akan memperoleh nilai repon impulse, maka pada simulasi ini defisit penyetabil utang ditambah sebesar 2 standar deviasi dari besaran target *baseline rule.* Penambahan 2 standard deviasi dari target *baseline rule* defisit penyetabil utang, sesuai dengan standar kesalahan dalam statistik. Tujuan simulasi dengan menambah 2 standar deviasi dari *base line* data ini untuk membandingkan kinerja ekonomi makro ketika beban utang pemerintah lebih besar dari base line namun tetap terjaga stabil tiap tahunnya.

**BAB IV**

**HASIL DAN PEMBAHASAN**

Diawali dengan uji akar unit terhadap data time series dan terdapat 13 un-stationer data. Untuk menghindari terjadinya spurious regression, data data yang tidak stasioner diolah dengan cara diturunkan ( differentiated) dengan menggunakan ADF and Phillip Peron test. Setelah semua data diturunkan pada level first difference dan hasilnya semua data stasioner. Hasilnya ditemukan bahwa setiap persamaan dalam model setidaknya memiliki 1 hubungan jangka panjang. Tabel 1 berikut ini menunjukkan bahwa semua data telah stasioner pada level first difference dan tehnik regresi siap digunakan untuk olah data selanjutnya untuk memprediksi.

**Table 1. Uji Akar Unit Menggunakan *ADF test***

|  |  |  |  |
| --- | --- | --- | --- |
| **Persamaan** | **Symbol** | **ADF Test** | |
| **I(0)** | **Prob** |
| Output Gap |  | -5.9494 | 0.0000 |
| Inflation Adjustment |  | -7.3768 | 0.0000 |
| Interest Rate (monetary policy) |  | -3.3493 | 0.0083 |
| Exchange Rate |  | -6.2113 | 0.0000 |
| Current Account |  | -4.1010 | 0.0024 |
| Primary Budget Deficit (fiscal policy) |  | -3.8266 | 0.0053 |

Dalam model jangka pendek perubahan pada variabel terikat tidak hanya digambarkan oleh perubahan pada variabel bebas tetapi oleh ketidakstabilan dari variabel di masa lalu. Untuk itu dilakukan uji kointegrasi dan hasilnya seluruh model persamaan tersebut terkointegrasi dengan nilai ECT antara 0 dan 1 dan signifikan pada d.f < 5 %. Artinya seluruh model persamaan jangka pendek pada 5 pasar itu yaitu pasar output (sektor rill), keseimbangan di pasar uang, nilai tukar, keseimbangan tingkat suku bunga, keseimbangan neraca perdagangan, kebijakan fiskal dapat mewakili model jangka panjangnya atau ECT rate coefficient semuanya significant ( C5,C9, C14, C19, C23, C26 ). Koefisien ECT menggambarkan kecepatan penyesuaian dari variabel jangka pendek untuk kembali ke posisi stabilita jangka panjang ketika terjadi kejutan (shock) pada variabel. Kondisi ini menunjukkan bahwa prediksi yang dihasilkan dari sistem persamaan adalah valid. Hasil dari estimasi jangka pendek dan jangka pendek tersaji pad aTable 2 berikut ini.

**Table 2. Hasil Estimasi Model Sistem Persamaan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |
|  | |  |  |  |  |
| Symbol | | Variable | Coefficient | t-Statistic | Prob. |
|  | |  |  |  |  |
| C(1) | | Drd | 0.000281 | 0.967050 | 0.0003 |
| C(2) | | Dds | -0.009729 | -1.276224 | 0.0041 |
| C(3) | | Dle | 0.604125 | 4.416884 | -1.1110 |
| C(4) | | dydf | 0.000800 | 6.376350 | 0.0012 |
| **C(5)** | | **ECT** | **-0.631834** | **-3.00985** | **0.000** |
| C(6) | | Dyd | -0.560857 | -0.310940 | -7,7164 |
| C(7) | | Dds | 0.000611 | 0.483559 | 0.1678 |
| C(8) | | dpgapf | 1.350913 | 10.57740 | 1,1698 |
| **C(9)** | | **ECT** | **-0.799272** | **-2.247073** | **0.0056** |
| C(10) | | Dyd | -117.5666 | -2.657332 | -6,0861 |
| C(11) | | dpdf | -0.514832 | -0.252241 | 0.7876 |
| C(12) | | Dds | -0.024702 | -0.777399 | -0.1012 |
| C(13) | | Drs | 0.694354 | 8.772610 | 0.8749 |
| **C(14)** | | **ECT** | **-1,2187** | **-7.885031** | **0.0000** |
| C(15) | | drgap | 0.0040 | 1.820438 | -0.0101 |
| C(16) | | Dds | 0.0021 | 8.259227 | -0.0002 |
| C(17) | | Dca | -0.014557 | -2.551947 | 0.0015 |
| C(18) | | Dlef | 1,0716 | 1.110989 | 1,0107 |
| **C(19)** | | **ECT** | **-0.439018** | **-1.993447** | **0.0474** |
| C(20) | | dygap | 26.78273 | 0.704742 | -4,55221 |
| C(21) | | Dds | 0.002684 | 0.044817 | 0.0226 |
| C(22) | | Dle | -12.74393 | -2.511621 | 0.3230 |
| **C(23)** | | **ECT** | **-0.485222** | **-1.560056** | **0.0201** |
| C(24) | | Dyd | -131.4610 | -0.744458 | 42.0545 |
| C(25) | | Dds | 0.400393 | 3.283851 | 0.0041 |
| **C(26)** | | **ECT** | **-0.540523** | **-1.943347** | **0.0300** |
|  | |  |  |  |  |
|  |  | |  |  |  |

Berdasarkan hasil estimasi diperoleh bahwa ketika konsep Debt Stabilizing Deficit (Dds\*) diterapkan di Indonesia,seluruh variabel makro ekonomi di lima pasar bergerak sesuai dengan arah masing masing. Penerapan konsep Debt Stabilizing Deficit (Dds) model ini secara significant akan mengurangi kesenjangan output,menguatkan nilai tukar , menambah primary deficit dan meningkatkan defisit transaksi neraca perdagangan, tetapi tidak mempengaruhi pembentukan harga-harga umum dan suku bunga. Ketika konsep debt stabilizing deficit diterapkan dalam perekonomian , hal ini akan mendorong peningkatan pengeluaran pemerintah. Peningkatan pada pengeluaran pemerintah akan mendorong output aktual and menjauhi output potensial. Akibatnya output aktual mendekati output potensial sehingga kesenjangan output dalam perekonomian berkurang. Nilai ect pada persamaan kesenjangan output atau C5 pada Tabel I.6 diperoleh sebesar -0,6318, artinya jika ada kejutan yang menyebabkan tingkat kesenjangan output lebih tinggi dari tingkat output potensialnya menyebabkan terjadinya peningkatan kesenjangan output. Kondisi ini menyebabkan kesenjangan output mengalami penyesuaian sebesar 0,63 persen dari ketidakseimbangan masa lalu tersebut dalam setiap periode. Sehingga untuk mencapai keseimbangan yang baru dibutuhkan waktu 1,58 periode. Yu H (2017) menemukan bahwa ketika pemerintah Australia menerapkan kebijakan defisit anggaran maka terjadi penigkatan output yang diproksi dengan peningkatan GDP, akibatnya kesenjangan output negara itu berkurang. Berdasarkan studi Hshing,Y (2018) menemukan bahwa walaupun kebijakan fiskal ekspansi diimplementasikan, kebijakan ini akan efektif menstimulasi perekonomian. Perhatian berikutnya dibutuhkan untuk menguji kembali apakah ketika utang ditingkatkan sehingga melebihi batas atau debt threshold yang ditentukan undang undang apakah dapat menekan perekonomian atau sebaliknya sebelum mencapai batas optimal utang dapat terus ditingkatkan.

Peningkatan permintaan agregat akibat peningkatan pengeluaran pemerintah , walaupun dari hasil studi menunjukkan pengaruh yang tidak signifikan namun dalam harga harga umum mengalami peningkatan. Kenaikan tingkat harga harga umum ini menyebabkan kesenjangan inflasi yang makin melebar. Namun kondisi ini tidak berlangsung lama, karena Bank Central dengan otoritas moneternya segera menurunkan tingkat suku bunga untuk mengembalikan harga ke tingkat yang wajar. Penerapan Dds\* tidak mempengaruhi tingkat harga-harga umum dalam jangka pendek karena perusahaan tidak serta merta dapat merubah harga produknya ketika pemerintah meningkatkan defisit anggaranya., karena perusahaan khawatir jika menaikkan harga akan memunculkan biaya sosial yang lebih besar dari keuntungan karena kenaikan harga outputnya. Variabel ekspektasi konsumen terhadap harga perlu dipertimbangkan dalam kebijakan makro. Ekspektasi harga yang teralu tinggi dari konsumen akan meningkatkan harga aktual dan ditemukan bahwa jika terjadi kenaikan ekspektasi konsumen terhadap harga sebesar 1 % menyebabkan harga-harga aktual akan menigkat sebesar 1,16%. Ditemukan juga bahwa apabila terjadi kejutan (shock) maka harga harga umum akan bereaksi dan melalukan penyesuaian selama 1,26 periode untuk kembali ke keseimbangan semula.Nilai koefisien C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps5.jpg pada persamaan harga atau C9 pada Tabel 2 sebesar -0,7992, artinya jika ada kejutan yang membuat tingkat harga lebih tinggi atau lebih rendah dari tingkat harga keseimbangan, maka tingkat harga akan melakukan penyesuaian sebesar 0,79 atau persamaan harga membutuhkan waktu 1,26 periode untuk kembali ke keseimbangan setelah mengalami kejutan.

Demikian juga yang terjadi di pasar valuta asing yang diwakili oleh persamaan Curent Account menunjukkan bahwa ketika pemerintah menambah utang melalui konsep Debt Stabilizing Deficit ( Dds\*), di dalam negeri mengalami capital inflow . Kondisi capital inflow mendorong nilai tukar rupiah menguat (apresiasi). Penguatan nikai tukar domestik ini menyebabkan harga-harga harga barang barang impor relatif lebih murah dibandingkan harga barang barang ekspor. Kondisi ini menyebabkan penurunan kinerja ekspor dan menaikkan impor. Penurunan kinerja perdagangan luar negeri ini menyebabkan net export performance decreases sehingga terjadi penurunan pada foreign trade. Penurunan kinerja ekpor ini akan menekan current account menjadi deficit.

Persamaan suku bunga yang diterapkan di Indonesia mengadopsi penerapan monetery rule. Untuk mengendalikan harga dan nilai tukar otoritas moneter menetapkan target suku bunga tertentu. Dalam model keseimbangan Arestis ada 4 variabel yang menentukan suka bunga, yaitu kesenjangan output, ekspektasi harga , kebijakan fiskal dan monetary rule. Ketika kebijakan Debt Stabilizing deficit (D ds\*) diterapkan pada persamaan suku bunga diperoleh hasil bahwa kebijakan defisit ini tidak mempengaruhi suku bunga di Indonesia dan nilai the ECT juga tidak signifikan . Hal ini menunjukkan bahwa ppada persamaan suku bunga dibentuk dari kebijakan suku bunga atau penentuan suku bunga dilakukan melalui otoritas ( bunga sebagai variabel eksogen) atau dikenal dengan konsep Monetery Rule. Ketika debt stabilizing deficit konsep diimplementasikan, kebijakan ini tidak akan mempengaruhi tingkat suku bunga yang sudah ditetapkan dengan kebijakan. Bank sentral akan mengendalikan tingkat suku bunga tanpa memperhtikan kondisi defisit anggaran atau lainnya. Situasi ini menggambarkan pad akita bahwa ada masalah koordinasi yang perlu dibenahi ketika diterapkan secara bersama konsep monetary rule dan fiskal rule . Perlu peningkatan koordinasi antara kementrian keuangan dan penguasa moneter dalam hal ini Bank Sentral agar kinerja perekonomian lebih baik termasuk pertumbuhan ekonomi , variabel variabel ekonomi makro lainnya dan keberlangsungan fiskal atau fiscal sustainability. Dengan demikian terlihat bahwa kebijakan fiskakl kurang efektif diterpakan ketika perekonomian secara bersama menerapkan monetery rule. Situasi ini berbeda dengan hasil studi Moh’d Mahmoud Ajlouni (2018) yang menemukan bahwa penerapan pengeluaran defisit dalam jangka pendek akan meningkaytkan resiko pada suku bunga, masuknya modal asing ke dalam negeri , penawaran uang. Siklus bisnis dalam jangka panjang akan menstabilkan suku bunga.

Nilai koefisien C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps9.jpg pada persamaan suku bunga yang ditunjukkan oleh C14 Tabel I.6 sebesar -0,4187 artinya jika ada kejutan yang membuat tingkat suku bunga lebih tinggi atau lebih rendah dari suku bunga keseimbangan, maka suku bunga akan melakukan penyesuaian sebesar 0,41. Dengan demikian persamaan harga membutuhkan waktu 2,43 periode untuk kembali ke keseimbangan setelah mengalami kejutan.

Keseimbangan nilai tukar menurut Model Arestis dipengaruhi oleh transaksi berjalan, kebijakan fiskal, ekspektasi nilai tukar, selisih suku bunga dalam dan luar negeri. Hasil estimasi menunjukkan bahwa pada perilaku jangka panjang dari variabel pembentuk nilai tukar konsisten dengan teori, kecuali selisih suku bunga dalam dan luar negeri. Penearapan konsep Debt Stabilizing Deficit (Dds\*) di Indonesia akan mempengaruhi keseimbangan nilai tukar melalui jalur sektor moneter dan sektor riil seperti berikut. Ketika pemerintah menerapkan Dds\*, capital inflow sebagai salah satu sumber pembiayaan dalam negeri meningkat. Capital inflow ini akan medorong nilai tukar rupiah menguat (apresiasi). Jika terjadi peningkatan defisit anggaran 1 persen menyebabkan nilai tukar rupiah akan mengguat sebesar 0,0021 persen. Temuan ini sejalan dengan studi Maryatmo (2004). Exchange rate has also negative effect on the output gap. Appreciation of exchange rate in the long term significantly will increase the production cost, particularly manufactured production industry in Indonesia that still using imported raw material. When the cost of production increased, the national production level will decrease, output actual will go far from potential output. This condition resulting the output gap increased. Persamaan nilai tukar mempunyai nilai koefisien C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps10.jpg sebesar -0,4390 artinya jika ada kejutan yang membuat nilai tukar lebih tinggi dari tingkat tukar keseimbangan, maka akan terjadi penyesuaian nilai tukar sebesar 0,43 persen dari ketidakseimbangan masa lalu tersebut dalam setiap periode. Dikaitkan dengan lamanya waktu penyesuaian, dibutuhkan waktu selama 2,32 periode bagi nilai tukar untuk mencapai keseimbangan yang baru.

Keseimbangan dalam transaksi berjalan di Indonesia yang diwakili dalam Model Arsetis dipengaruhi oleh kesenjangan tingkat output, nilai tukar dan kebijakan fiskal. Berdasarkan hasil penelitian diperoleh hasil bahwa ketika pemerintah menerapkan konsep Debt Stabilizing Deficit (Dds\*) akan memperbaiki kondisi neraca transaksi berjalan di Indonesia menjadi surplus, tetapi tidak signifikan di jangka pendek. Hal ini terjadi karena adanya mekanisme transmisi yang cukup panjang yang menghubungkan antara kebijakan fiskal dan neraca transaksi berjalan. Sebaliknya nilai tukar rupiah baik jangka pendek dan jangka panjang mempengaruhi kondisi neraca transaksi berjalan melalui volume ekspor bersih.Temuan ini didukung oleh Reisen (1997) bahwa ada hubungan negatif antara nilai tukar dan neracata transaksi berjalan ketika dalam persamaan dimasukkan konsep debt stabilizing deficit. Sementara dari hasil studi ini juga menemukan bahwa terdapat hubungan negatif antara kesenjangan output dan neraca transaksi berjalan di Indonesia. Ketika tingkat kesenjangan output meningkat menyebabkan kesenjangan harga di dalam negeri dan luar negeri melebar akibatnya nilai tukar rill rupiah terhadap euro tertekan atau depresiasi. Depresi nilai tukar rupiah menyebabkan harga-harga barang ekspor relatif lebih murah dibandingkan harga harga barang impor, sehingga mendorong peningkatan volume ekspor. Akibatnya neraca transaksi berjalan di Indonesia mengalami surplus. Nilai koefisien C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps13.jpg persamaan neraca transaksi berjalan yang ditunjukkan oleh C 23 Tabel 2 sebesar -0,4852 artinya jika ada kejutan yang membuat neraca transaksi berjalan di Indonesia lebih tinggi dari neraca transaksi berjalan dalam kondisi keseimbangan, maka akan terjadi penyesuaian neraca transaksi berjalan sebesar 0,48 persen dari ketidakseimbangan masa lalu tersebut dalam setiap periode. Sehingga untuk mencapai keseimbangan neraca transaksi berjalan yang baru dibutuhkan waktu 2,08 periode.

Persamaan kebijakan fiskal yang diproksi dalam model diwakili oleh defisit primer anggaran dipengaruhi oleh kesenjangan output dan debt stabilizing deficit (ds\*) . Defisit primer adalah selisih antara penerimaan pajak dengan pengeluaran pemerintah sebelum dikurangi dengan beban pembayaran utang. Dalam jangka pendek dan jangka panjang hubungan antara kesenjangan output dengan kebijakan fiskal ini berbeda. Dalam jangka panjang ketika pemerintah meningkatkan defisit anggaran namun menjaga utang tetap stabil, maka defisit primer akan meningkat 0.4 persen. Tetapi dalam jangka pendek ketika defisit ditingkatkan sebesar Rp 1 trilyun akan mendorong defisit primer meningkat sebesar 131 %. Kondisi ini mengindikasikan betapa pentingnya kebijakan fiskal menutupi kebutuhan pembiayaan . Nilai koefisien C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps14.jpg pada persamaan kebijakan fiskal seperti ditunjukka oleh C26 Tabel 2 sebesar -0,5405, artinya jika ada kejutan yang membuat defisit primer lebih tinggi dari kondisi keseimbangan, maka akan terjadi penyesuaian pada defisit primer anggaran sebesar 0,54 persen dari ketidakseimbangan masa lalu tersebut dalam setiap periode. Untuk mencapai kembali keseimbangan defisit primer yang baru dibutuhkan waktu 1,85 periode.

Salah satu keunggulan dalam model keseimbangan NMC adalah adanya variabel ekspektasi. Variabel ekspektasi sangat dominan di dalam analisa rational ekspektasi. Ekspektasi nilai tukar rupiah misalnya terhadap euro baik dalam jangka panjang berpengaruh positif dan signifikan terhadap nilai tukar rupiah aktual. Ketika masyarakat memprediksi bahwa nilai tukar rupiah akan menguat pada periode t, ekspektasi masyarakat terhadap nilai tukar akan meningkat. Masyarakat akan beralih memegang rupiah dan melepas mata uang asing yang dimilikinya, akibatnya permintaan rupiah meningkat dan nilai tukar rupiah menguat atau sebaliknya ketika ekspektasi masyarakat terhadap nilai tukar melemah mendorong masyarakat masyarakat menjual rupaihnya, sehingga nilai mata uang rupiah tertekan. Dengan demikian, peningkatan ekspektasi nilai tukar akan mendorong nilai tukar aktual mengikuti arah yang sama dengan ekspektasinya. Demikian juga expectation konsumen on the domestic goods price encourages instantly when the government just informs the media to increase debt stabilizing deficit (Dds\*) or increase the oil price, rationale of subsidize, increase civil servant salary. When the expectation is too high, this expectation tends to encourage the economic actors to purchase goods real time that may trigger increase of the goods price. The increase of the goods price will encourage Central Bank (Bank of Indonesia) to play its role in stabilizing the price through interest rate policy that the market interest rate will increase. When the actual price increases, central bank will make some effort to hold the increase of this goods price by influencing that the interest rate decreases until the aggregate offering shifted to the right. To make a fiscal sustainability , it should be considered as the implementing of Fiscal Policy Rule. The expectation of the exchange rate has positive influence and significant on rupiah exchange rate on euro currency. The increase of the exchange rate expectation will encourage the actual exchange rate to follow the same direction of its expectation.In the long term there is negative relationship between domestic output gap and average output level in the European Union countries toward the current account in Indonesia. When the output gap is getting bigger and away from the potential output, the goods price tends to be even bigger. As the recovery economic crisis influence does ot complete that spread in some parts of developed country and Indonesia, this resulting the domestic demand on imported goods is not automatically significant.Yet, in the short term it is the opposite. In the long term, debt stabilizing deficit has positive influence on budget primary, output gap has relationship with budget primary deficit. In the short term when the output gap increases 1 trillion IDR, his will resulting the increase of demand, which primary deficit will increase the deficit by 131%. This condition indicates how important is the fiscal policy to address the requirement of financing because of the increase of demand.From the simulation, it indicates that when the shock occurs in the form of adding and subtracting of the magnitude of 1 % of debt stabilizing deficit from data base line debt stabilizing deficit, response pattern of output gap equation, price, interest rate, exchange rate, current account, and budget primary deficit have the same pattern with response pattern before simulation is conducted which is return to the equilibrium. If debt stabilizing deficit is added 1 % those five equations indicate that the curve position is below the curve before simulation is conducted. When the magnitude of debt stabilizing deficit subtracted 1 % base line, curve position is above the curve position before simulation is conducted where the its coefficient higher compared to simulation earlier for all equations. It means that it is important for government to keep the debt stable.

**Diskusi**

Penambahan utang dengan konsep Debt Stabilizing Deficit masih efektif dilakukan pemerintah, sepanjang syarat rasio utang dan syarat deifist anggara tetap dijaga yaitu masing masing di bawah 60% dan 3 %. Peningkatan Debt Stabilizing deficit dalam pengelolaan utang sepanjang pemanfaatan utang dialokasikan untuk pembangunan di sektor sektor produktif. Peningkatan government spending ini akan mendorong permintaan agregat sehingga kesenjangan output berkurang. Hal penting lainnya dalah adanya time lag kebijakan fiskal menyebabkan kebijakan fiskal bis amenjadi tidak efektif. Saat pemerintah mengusulkan kebijakan penambahan utang melalui debt stabilizing deficit hingga ditetapkan oleh DPR, membutthkan waktu yang cukup lama. Asumsi adanya agent yang bersikap rasional dengan melakukan ekspektasi atas rencana kebijakan fiskal itu, maka saat usulan itu disetujui DPR, masyarakat sudah mengantisipasinya. Namun , walaupun kebijakan fiskal ini sudah diantisipasi masyarakat, akan tetap mengurangi kesenjangan output melalui peningkatan permintaan agregat. Peningkatan permintaan agregat akan mendorong kenaikan harga harga barang. Demikian juga, penambahan pembiayaan pembangunan melalui penerapan Debt Stabilizing Deficit ini akan meningkatkan capital inflow ke dalam negeri dan mendesak apresiasi mata uang domestik. Apresiasi mata uang domestik menyebabkan kinerja perdagangan luar negeri menurun sehingga menciptakan defisit neraca perdagangan. Kenaikan harga harga barang dan nilai tukar ini akan mendesak Bank Central mengambil langkah strategisnya menurunkan tingkat suku bunga domestik melalui moneter rule policinya. Penurunan suku bunga, akan mengembalikan harga ke keseimbangnnya dan output nasional kembali ke posisi awal.

**Kesimpulan**

First, debt stabilizing deficit model is still effective if it is implemented in Indonesia , Second if debt stabilizing deficit model is implemented, in the long run it can mengurangi kesenjangan output, menguatkan nilai tukar , menambah primary deficit dan meningkatkan defisit transaksi neraca perdagangan, tetapi tidak mempengaruhi pembentukan harga-harga umum dan suku bunga. Third, price level and interest rate are not significantly effected by fiscal policy which is implemented by Debt Stabilizing Deficit, because these variables are directly controlled by Central Bank as a monetary instrument variables. Government should build a good coordination between central bank as conducted monetary policy and fiscal authority to make a better economic performance, economic growth, and fiscal sustainability. Fourth, increasing debt stabilizing deficit is still effective as long as still under 60% PDB and this debt are allocated to the productive sectors, Fifth, inflation is the fastest variable in adjusting to the new equilibrium because no time lag, unlike fiscal variable.

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IS DEBT MANAGEMENT MODEL MAASTRICHT TREATY STILL EFFECTIVE?

**Abstract**

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At the time of the economic crisis, the state requires large financing to get through those times of crisis. One of the efforts made is to increase government debt, but carelessness in managing debt has resulted in the economy being trapped in a debt trap. The concept of debt management and a steady state oriented budget deficit that is applied in Indonesia is a debt stabilizing deficit model, namely a model by setting the level of debt and budget deficits at a certain level. The question is how effective the debt management model being able to create long-term economic growth because empirically, countries that adopt this concept are experiencing fiscal problems and are also headed for economic instability. The New Concensus Economy is a general equilibrium model of thought that contains 6 markets in an open economy, all agents are rational and contain intertemporal choices and there are elements of policy rules in it. By incorporating the Debt Stabilizing Deficit (DSD) rule into the balance model, the results show that, in the long term, the application of DSD is able to reduce the level of output gap, there is an increase in general prices, lower interest rates, strengthening of the domestic exchange rate so that the balance sheet conditions of trade become better. Meanwhile, in the short term, the application of the DSD rule does not significantly affect the formation of prices, interest rates, exchange rates and variations in the trade balance. Another finding is that if the debt level is increased by a certain amount but still below 60% of GDP, this policy will still be able to improve economic performance. The price level is the variable that re-adjusts the fastest to the equilibrium, while the interest rate takes longer time to return to the original equilibrium.

**Keywords: Debt Management , Fiscal Rule, Maastricht Treaty, Mazhab MNC**

**Background**

The current economic crisis has brought the country to face fiscal problems, namely a high government debt burden and an uncontrolled budget deficit. Even some countries in the European Union, such as Portugal, Greece, Spain, Italy, tend to experience defaults, which so far have applied the concept of debt management and budget deficits at a certain amount with a long-term orientation (steady state).

This concept applies fiscal rules that maintain a level of budget deficit that is able to keep government debt stable. In this concept, it is agreed that the maximum limit for the ratio of government debt to GDP is of a certain amount, not exceeding 60 percent of GDP, while the maximum limit for the state budget deficit is 3 percent of GDP. The concept of Debt Stabilizing Deficit (DSD) is an implication of the application of fiscal rules. The purpose of implementing this concept is that the government is disciplined on the fiscal side and is able to restrain the government's aggressiveness in debt. The Fiscal Rule also aims to maintain fiscal stability and provide sufficient fiscal space so that the government is able to play a role and lead to fiscal sustainability.

Like developed countries, Indonesia also uses this concept as outlined in Law No. 17 of 2003 concerning State Finance which is operationalized by Government Regulation No. 23 of 2003 concerning Control of the Cumulative Amount of Deficits of the State Budget and Regional Budget and the Cumulative Amount of Central and Regional Government Loans as well as Minister of Finance Regulation No. 95/PMK.02/2007 concerning Guidelines for Implementation and Monitoring Mechanisms for Deficits of State Budget, Regional Budget, and Loans. In Government Regulations No. 23 of 2003 article 5, it is stated that the maximum limit of government debt is 60 percent of GDP with a budget deficit target of a maximum of 3 percent of GDP. This debt management model is an application of the Maastricht Treaty concept used in European Union countries which empirically are currently experiencing fiscal problems and also leading to economic instability. The question is whether the concept of debt stabilizing deficit is still effectively maintained, when the country is facing an economic crisis like today which maintains economic stability in all markets? The concept of keeping debt stable is known as a debt stabilizing deficit whose model was introduced by Favero and Monacelli (2005). The advantages of this concept according to Rahmany (2009) and Mitchell et al., (1999) one of which is being able to achieve fiscal sustainability.

Theoretically and empirically, it was found that the budget deficit had an effect on macroeconomic performance. Ballassone (2005), for example, found that an increase in the budget deficit will increase aggregate demand and encourage economic growth. Sargent and Wallace (1981) stated that in the long run, the budget deficit affects inflation, but not in the short term. Metin (1998) found in Turkey that when the budget deficit increases, it has increased inflation and decreased national income. Cebula (1997) explained that in the long run, the budget deficit affected interest rates, but not in the short term. In addition, Laubach (2005) found that an increase of 1 percent in the budget deficit would lead to an increase in long-term interest rates by 25-30 basis points. The relationship between the budget deficit and interest rates was investigated by Beare (1978). He found that the increase in budget deficit through bond sales would increase domestic interest rates. Burney (1992) and Bernheim (1988) found twin deficits, namely economic conditions where an increase in the budget deficit will encourage an increase in the real domestic exchange rate. The observation of the relationship between the budget deficit and several macroeconomic indicators so that the concept of the budget deficit can be applied to the economy in Indonesia. Then, it is necessary to conduct a research of the implications from applying the concept of a debt stabilizing deficit to macroeconomic performance in Indonesia.

Several studies on the effect of fiscal policy in Indonesia along this time have only applied discretionary debt models, including those conducted by Wijoyo, S. (2011), Maryatmo (2004), Rahutami (2003) but have not used the rule of fiscal policy. The influence of Fiscal Policy is more widely studied using the New Keynesian rationale, as conducted by Favero and Monocelli (2005), Hubbard, et al., (2012), Giese and Wagner (2005), Wijoyo (2011), Rahutami (2003), Maryatmo (2004) using 3 equations in a closed economy. Hshing, Y. (2018) by using the balance model of 3 markets of IS, MP, and AS proved that the expansionary fiscal policy is effective in stimulating the economy, caution needs to be exercised as there may be a debt threshold beyond which a further increase in the debt-to-GDO ratio would hurt economic grow.

Indonesia has gone through several periods of economic crisis with different results and recovery times, but in general Indonesia's open economy has been able to get through it, although with the consequence that the amount of foreign debt continues to increase. According to Bank Indonesia, Indonesia's total foreign debt as of January 2020 was US$ 408.5 billion, which was mainly influenced by private external debt payment transactions. It is worried that debt which continues to increase will lead the country to a debt trap, a debt crisis. For this reason, it is necessary to evaluate the effectiveness of the debt management model through the general equilibrium model, which is when all markets work optimally in a general balance towards long-term economic stability.

However, Abdurohman and Ika (2012) found a weakness in the application of this fiscal rule model, namely that this rule was not sufficient to provide guidance to the government when the government budget should be in deficit, balanced or surplus. As long as a country's GDP increases, government debt can continue to increase, and this principle is justified as long as the government debt ratio does not exceed 60 percent of GDP. The problem is, if the government cannot control fiscal aggressiveness, it is feared that it will threaten fiscal sustainability and affect the economic performance in the long term. A high debt burden will reduce fiscal space or the government's discretion to allocate its budget. A stable economy is a condition in which all markets work optimally, including the goods market, money market, monetary rule policy, fiscal rule policy and also supported by a healthy trade balance and debt remains paid off.

One of the latest economic ideas in the analysis of an open economy covering 6 markets is the New Consensus Macroeconomics (MKB) thought. This idea was also chosen because in accordance with the conditions faced by the economy in Indonesia today where economic agents face conditions of prices and wages that are rigid (sticky), agents use their reasoning to make optimal decisions through intertemporal choices that are forward looking or model, dynamic and cointegrated and this model also uses the fiscal rules.

The Arestis model and the Tcerhvena model are models with 6 market equations. Modifying the existing model by adding the debt stabilizing deficit variable in each equation and adding the fiscal policy equation in the balance will generally be done. This combined debt management model is the latest model with the New Consensus Macroeconomics school approach which analyzes its general impact on six markets together. The Hsing, Y (2018) study which used the output gap variable to determine the economy finds that fiscal policy expansion through the implementation of a fiscal deficit stimulated the economy and the debt threshold beyond which a further increase in the debt-to-GDO ratio would hurt economic growth.

**Purpose of the Research**

The purpose of this study is to evaluate the effectiveness of the debt management model in the New Consensus Macro Economics general balance model by applying the debt stabilizing deficit model and its effect on changes in macroeconomic indicators, namely the output gap representing the goods market, the domestic price level representing price policy, domestic interest rates representing money market and monetary policy, exchange rates and the current account balance represent foreign trade, and the primary budget deficit represents fiscal policy. A good model is when the pattern of response to shocks in macroeconomic indicators converges and returns to the initial model equation in a short time or recovers quickly.

**Literature Review**

One of the concepts of managing debt and budget deficits that are oriented in the long term (steady state) is the debt stabilizing deficit, namely the concept of fiscal rules that maintain the level of the budget deficit which is able to keep the government debt stable. This study uses the New Consensus Macroeconomics (MKB) thinking with 6 single equations applied in an open economy.

Although Wijoyo, S (2011) has used MKB thinking, Suhartoko used the Giese and Wagner (2005) equation model in only 3 markets, on the contrary, this research uses Arestis (2009) model which is modified in 6 markets in an open economy supported by rational agents implemented through intertemporal choices and expectations. The previous research analyzed models with multiple equations using the simultaneous equation method as done by Arestis (2009), Tcherneva (2008), Rahutami (2003), Maryatmo (2004), while in this dissertation, the usual OLS approach was used to analyze the model and a short-term model was formed using the Vector Error Correction Model (VECM). VECM according to Gujarati and Porter (2009:789) was one of the developments of the a-theory VAR and SVAR models, while VECM was built based on theory. Another advantage of the VAR, SVAR and VECM models is that apart from being easy, they can also be estimated using the Two Stage Least Square (TSLS) model.

The economic thinking that underlies in this study uses the New Consensus Macroeconomics (MKB) thinking. MKB is the latest development of the latest macroeconomic thought which is the convergence of two ideas, namely New Keynesian and Business Cycle Theory. In addition to the considerations above, other basic considerations uses this thinking models will be explained later in this paragraph.

The aspects inherent in the MKB thinking are relatively in line with the economy in Indonesia. First, current economic actors face an imperfectly competitive market where this concept is New Keynesian thought. Second, the economy in Indonesia often experiences shocks, especially from supply shocks, including natural disasters, changes in technology, disruptions in the distribution of goods, labor demonstrations which are the core of the Real Business Cycle Theory. Third, economic actors will make rational decisions as a reflection of optimization behavior by using all past experience and future information they have and this is one of the principles of Real Business Cycle Theory. Fourth, the phenomenon that we encounter today, economic actors face sticky prices, namely price conditions that can change but are slow. Fifth, the implementation of monetary policy in Indonesia is currently implementing a monetary policy policy to maintain price stabilization through setting interest rate targets (r) and inflation.

**New Consensus Macroeconomics (MKB)**

In principle, MKB's thinking contains two main elements in its analysis, namely optimization between time. The importance of the government's role in the form of fiscal policy stems from New Keynesian thought, while forward looking price setting is the essence of the Business Cycle Theory. These two elements are incorporated into a dynamic model to explain fluctuations in the real economy. Economic actors face imperfectly competitive markets or incomplete markets that face sticky prices. This rigid price indicates that the price is adjusting but slowly. Goodfriend and King (1997) explained this monetary policy-transmission mechanism through two channels. The first path is the aggregate demand path and the second path is through mark-up. First, through the path of the aggregate demand, when the monetary authority changes the stock of money, this policy will affect the price level of goods and additional costs. Even though the price is assumed to be in a rigid condition, it is not easy to change, the company will still change the price of its output. These price changes and additional costs will affect the aggregate demand. Second, through inflating. Once there is an increase in inflation there will be a price bubble, and this inflation is considered a tax that causes distortions in the economy.

**Arestis Model (2009)**

In the Arestis model, fiscal policy is only seen in the magnitude of the aggregate demand equation. In order to clarify the role of fiscal policy in the economy, the Arestis (2009) equation is modified by adding a debt stabilizing deficit variable that keeps debt stable and adding to the primary budget deficit equation. The primary budget deficit equation model formed by Favero and Monacelli (2005) was chosen because the model is dynamic, uses an output gap variable that indicates an unstable economy and applies a standard fiscal policy. The form of the primary budget deficit equation after adjustment is .

The earlier equation indicates that the primary budget deficit is positively influenced by the output gap and debt stabilizing deficit and the nuisance error due to fiscal policy shocks. Second, the monetary authority uses policy interest rate instruments to control market interest rates if actual inflation is higher or lower than the inflation target. To reduce inflation to approach the inflation target, the monetary authority will raise interest rates through changes in policy interest rates, or vice versa. When the inflation that occurs is the same as the targeted inflation, then there is no output gap. Arestis model (2009) consists of 6 reduced forms equations as follows:





3.

4.

5.

6. 

The variables in the Arestis (2009) equation are mentioned as follows:

 : is a constant representing the fiscal position

 : is domestic aggregate demand

 : is world aggregate demand

R : is the nominal domestic interest rate

 : is the world nominal interest rate

P : is the domestic inflation rate

 : is the world inflation rate

P\* : is the inflation target

 : is the real interest rate in equilibrium

 : is the real exchange rate



 : is the nominal exchange rate

CA : is the current account balance

E : is hope

: is a stochastic shock

**The Steady State Concept of Government Debt**

If the main objective of fiscal policy is fiscal sustainability, then government debt must be kept stable or , and this concept was explained by Favero and Monacelli (2005), Farmer (2002:311). The concept of a debt stabilizing deficit is a type of fiscal rule that is able to create sustainability, because the size of the deficit target is set at a controlled level in the long term that keeps the government debt ratio under control and even decreases throughout the year. The application of this rule will give investors confidence in the high commitment and capacity of the state in managing its state finances, increasing the stabilization of the government's financial fiscal performance, especially for the policy of adjusting revenues and expenditures (Farmer, 2002:312) and Blanchard et al., (2010).

To explain the steady state concept of government debt, Farmer (2002: 312) used a simpler government budget constraint equation. The budget deficit is financed through the sale of government bonds to the public. Government debt for this period ( is the same as last year's government debt ( added with interest payments due to last year's debt (i) and added with this year's primary deficit (The volume of the additional debt that the government might do to pay budget deficit that occurs is limited to the amount of the interest expense on debt payments made in the previous year (  ) added with the budget deficit that occurred this year, namely the difference in government spending  with tax  and/or can be written as follows:

 (2.48)

If it is assumed that the government uses the concept of debt in order to keep it stable every year, then the total debt of government in the current year is the same as the total debt.

**Research Methodology**

The method used in this study starts from incorporating a policy of debt stabilizing deficit (Dds\*) or fiscal rules into the Arestis (2009) model, then shock is given to the model. If the equation model returns to the initial model and returns in a relatively short time compared to other models, then the model is considered effective. Because the data is not stationary at the level degree, then the data transformation is carried out at the first degree or called the VAR in difference model. After all stationary data reach the level degree, then the cointegration test is proceed. Cointegration test is carried out using the Johansen Cointegration approach. In addition, because the data have different degrees of stationarity but have cointegration, the estimation chosen is to use Structure Cointegrated Vector Autoregression (SCVAR) (Garratt et al., 1999). The SCVAR estimation results produce an impulse response function and a meaningful variance decomposition which is used to explain the effect of one shock on another variable in one equation or between equations. **Stationarity Test**

The principle of data stationarity is a basic principle that must be met in econometric tests, especially for dynamic time series models and if the data is not stationary then it must be re-decremented, and re-estimated with new data. The stationary test was carried out using the Augmented Dickey-Fuller (ADF) and Phillips Perron approach.

**Augmented Dickey-Fuller (ADF) and Phillips Perron Approach**

The null hypothesis for both the ADF and Phillips Perron approaches is the same, that is, the data series contains a stochastic trend. The regression equation from the ADF test can be written as follows:

 (3.5)

The estimation results from the ADF test are then compared with the MacKinnon critical value to obtain conclusions from the ADF test. If the ADF test value is smaller than the MacKinnon critical value, the null hypothesis of the unit root test can be rejected, meaning that the variable is stationary (Enders, 2004: 181). Conversely, if the ADF test value is greater than the MacKinnon critical value in a certain statistical degree, the null hypothesis is accepted, meaning that the variable is not stationary.

**Cointegration Test**

Cointegration test aims to see whether a group of data that is at the same degree of integration represents the long-term relationship. In the SCVAR method, the existence of a cointegration test is important because the structure of the variables used first needs to be tested to see whether there is a long-term relationship. In this study, the Johansen's Cointegration Test method was used to analyze whether there was a long-term relationship between the variables studied. Gujarati and Porter (2010: 762) explained the cointegration between these variables using the purchasing power parity equation as follows:

 (3.9)

 (3.10)

Although  and  individually known as *I* (1), but both have a stochastic trend, a liner combination *I* (0). The equation (3.8) is the cointegration regression while the equation (3.9) is the cointegration parameter.  and  as the linear equations appear to be cointegrated or have a long-run relationship or equilibrium, but in the short run they may not reach equilibrium.

**Vector Error Correction Model (VECM)**

The vector error correction model (VECM) is also known as the cointegrated SVAR model. The VECM model requires stationary data on I (1) and cointegrated which is supported by a strong economic theory basis. The VECM model is used to observe aspects of short-term and long-term relationships. In the long run, the observed variables are in equilibrium, while in the short term, it takes time to adjust from one equilibrium to another. Thus, the VECM model is not only able to obtain an overview of cointegration between variables, observe the process towards equilibrium and can also observe the speed of adjustment to balance, in the event of a shock in the economy.

 (3.26)

 (3.27)

 is the error correction term (ECT), namely the stationary residual obtained from the cointegrated regression equation, which has a constant variance. If the cointegration regression equation has a stationary error or I (0), then the VECM equation is written as follows:

 (3.28)

 (3.29)

The VECM Model of each equation is written as follows:

The Aggregate Demand (IS)

is(3.30)

The Aggregate Supply (IA)

IA

(3.31)

The Monetary Policy (MP)

MP

(3.32)

The Exchange Rates (E)

E

(3.33)

Current Account



(3.34)

Primary Deficit of Budget (KF)

dt (3.35)

The definitions of the variables mentioned in the equation models are defined as follows:

 : is the output gap

 : is the deposit interest rate

 : is the policy interest rate

 : is the exchange rate of the rupiah against the euro

 : is the level of domestic prices

 : is the current account balance

 : is a debt stabilizing deficit

 : is the primary budget deficit

 : is the difference between domestic interest rates and European interest rates

 : is the difference between the domestic and European output gaps

 : is the expected output gap

 : is the expected price of goods in the country

 : is the expected exchange rate of the rupiah against the euro currency

 : is the difference between expected domestic prices

with expectations of prices in Europe

 : is the error correction term of each equation

 : are the respective constants of the equations, where >0

 : is the coefficient of elasticity of the independent variable to the dependent variable

**Results and Discussion**

Starting with the unit root test on time series data and there are 13 un-stationary data. In order to avoid the spurious regression, the un-stationer data are differentiated to get stationary by using the ADF and Phillip Platform test. After all stationary data in first difference, the result found that each equation in the model has at least one long term relation. Table 1 indicates that all the data variables are stationary and the regression technique can be continued to prediction.

**Table 1. Unit Root Test at Error Term using *ADF test***

|  |  |  |  |
| --- | --- | --- | --- |
| **Equation** | **Symbol** | **ADF Test** | |
| **I(0)** | **Prob** |
| Output Gap |  | -5.9494 | 0.0000 |
| Inflation Adjustment |  | -7.3768 | 0.0000 |
| Interest Rate (monetary policy) |  | -3.3493 | 0.0083 |
| Exchange Rate |  | -6.2113 | 0.0000 |
| Current Account |  | -4.1010 | 0.0024 |
| Primary Budget Deficit (fiscal policy) |  | -3.8266 | 0.0053 |

In short term model, the changing of dependent variable is not only described by the changing of the independent variable but by the in-stability of the variable of the past as well. For this reason, a cointegration test was carried out and the results were that the entire equation model was cointegrated with an ECT value between 0 and 1 and was significant at d.f < 5%. It means that all short-term equation models in the 5 markets, namely the output market (real sector), balance in the money market, exchange rates, interest rate balances, trade balance balances, fiscal policy can represent the long-term model or the ECT rate coefficient is all significant (C5, C9, C14, C19, C23, C26). It indicates the speed of the adjustment of a variable is returning to its stability when countering shock. This condition also indicates that the prediction from the equation system is valid. The result of estimation in short and long terms might be seen in Table 2.

**Table 2. Estimation Result of Equation System Model**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |
|  | |  |  |  |  |
| Symbol | | Variable | Coefficient | t-Statistic | Prob. |
|  | |  |  |  |  |
| C(1) | | Drd | 0.000281 | 0.967050 | 0.0003 |
| C(2) | | Dds | -0.009729 | -1.276224 | 0.0041 |
| C(3) | | Dle | 0.604125 | 4.416884 | -1.1110 |
| C(4) | | dydf | 0.000800 | 6.376350 | 0.0012 |
| **C(5)** | | **ECT** | **-0.631834** | **-3.00985** | **0.000** |
| C(6) | | Dyd | -0.560857 | -0.310940 | -7,7164 |
| C(7) | | Dds | 0.000611 | 0.483559 | 0.1678 |
| C(8) | | dpgapf | 1.350913 | 10.57740 | 1,1698 |
| **C(9)** | | **ECT** | **-0.799272** | **-2.247073** | **0.0056** |
| C(10) | | Dyd | -117.5666 | -2.657332 | -6,0861 |
| C(11) | | dpdf | -0.514832 | -0.252241 | 0.7876 |
| C(12) | | Dds | -0.024702 | -0.777399 | -0.1012 |
| C(13) | | Drs | 0.694354 | 8.772610 | 0.8749 |
| **C(14)** | | **ECT** | **-1,2187** | **-7.885031** | **0.0000** |
| C(15) | | drgap | 0.0040 | 1.820438 | -0.0101 |
| C(16) | | Dds | 0.0021 | 8.259227 | -0.0002 |
| C(17) | | Dca | -0.014557 | -2.551947 | 0.0015 |
| C(18) | | Dlef | 1,0716 | 1.110989 | 1,0107 |
| **C(19)** | | **ECT** | **-0.439018** | **-1.993447** | **0.0474** |
| C(20) | | dygap | 26.78273 | 0.704742 | -4,55221 |
| C(21) | | Dds | 0.002684 | 0.044817 | 0.0226 |
| C(22) | | Dle | -12.74393 | -2.511621 | 0.3230 |
| **C(23)** | | **ECT** | **-0.485222** | **-1.560056** | **0.0201** |
| C(24) | | Dyd | -131.4610 | -0.744458 | 42.0545 |
| C(25) | | Dds | 0.400393 | 3.283851 | 0.0041 |
| **C(26)** | | **ECT** | **-0.540523** | **-1.943347** | **0.0300** |
|  | |  |  |  |  |
|  |  | |  |  |  |

Based on the estimation results, it is found that when the concept of Debt Stabilizing Deficit (Dds\*) is applied in Indonesia, all macroeconomic variables in the five markets move according to their respective directions. The application of the concept of the Debt Stabilizing Deficit (Dds) model will significantly reduce the output gap, strengthen the exchange rate, increase the primary deficit and increase the trade balance transaction deficit, but will not affect the formation of general prices and interest rates. When debt stabilizing deficit is implemented in the economy, it will encourage an increase in government spending. The increase in government spending will push actual output and leaving potential output. As a result, actual output approaches potential output so that the output gap in the economy is reduced. The ect value in the output gap equation or C5 in Table I.6 is -0.6318, meaning that if there is a shock that causes the output gap level to be higher than the potential output level, it will cause an increase in the output gap. This condition causes the output gap to be adjusted by 0.63 percent of the past imbalance in each period. So it takes 1.58 periods to reach the new balance. Yu H (2017) found that when the Australian government implemented a budget deficit policy, there was an increase in output proxied by an increase in GDP, as a result, the country's output gap was reduced. According to Hshing, Y (2018) said that although expansionary fiscal policy is effective in stimulating the economy, caution needs to be exercised as there may be a debt threshold beyond which a further increase in the debt-to-GDO ratio would hurt economic growth .

The increase in aggregate demand is due to an increase in government spending, although the study results show an insignificant effect, general prices have increased. This increase in the general price level causes the inflation gap to widen. However, this condition did not last long, because the Central Bank with its monetary authority immediately lowered interest rates to return prices to a reasonable level.

The application of Dds\* does not affect the general price level in the short term because the company cannot immediately change the price of its product when the government increases its budget deficit. The company is worried that if raising prices will create social costs that are greater than profits due to the increase in output prices. Variable consumer expectations of prices need to be considered in macro policy. The expectation of the price which is too high from the consumer will increase the actual price and it is found that if there is an increase in consumer expectations of prices by 1%, actual prices will increase by 1.16%. It was also found that if a shock occurs, the general price will react and make adjustments for 1.26 periods to return to its original balance. The Coefficient valueC:\Users\HP\AppData\Local\Temp\ksohtml14304\wps5.jpg on the price equation or C9 in Table 2 around -0,7992 means if there is a shock that makes the price level higher or lower than the equilibrium price level, then the price level will adjust by 0.79 or the price equation takes 1.26 periods to return to equilibrium after experiencing the shock.

Similarly, what happened in the foreign exchange market represented by the Curent Account equation showed that when the government added debt through the concept of Debt Stabilizing Deficit (Dds\*), domestic capital inflows were experienced. Capital inflow conditions pushed the rupiah exchange rate to strengthen (appreciation). This strengthening of the domestic exchange rate caused the prices of imported goods to be relatively cheaper than the prices of exported goods. This condition causes a decrease in export performance and an increase in imports. This decline in foreign trade performance causes net export performance to decrease, resulting in a decrease in foreign trade. This decline in export performance will push the current account into a deficit.

The interest rate equation applied in Indonesia adopts the application of the monetary rule. In order to control prices and exchange rates, the monetary authority sets certain interest rate targets. In the Arestis balance model, there are 4 variables that determine interest rates, namely the output gap, price expectations, fiscal policy and the monetary rule. The moment when the Debt Stabilizing deficit (Dds\*) policy is applied to the interest rate equation, the results show that this deficit policy does not affect interest rates in Indonesia and the value of the ECT rate is also in-significant. It indicates that the interest rate equation is shaped from the interest rate policy. When debt stabilizing deficit is implemented in Indonesia, it has no influence on interest rate and exchange rate. The central of bank will control interest rate by central bank rate (BI Rate) without considered budget deficit condition or other. It is a monetary rule concepts. This situation describes that there is lack of coordination between the central bank (Bank Indonesia) and the Ministry of Finance as fiscal authority to achieve their target goal variables. So, the Central Bank must build a good coordination with fiscal authority to make a better macro economic performance, economic growth, and fiscal sustainability. It also finds that, fiscal policy is less effectiveness than monetary policy, related to the time lag. This situation is different from the results of a study by Moh'd Mahmoud Ajlouni (2018) which found that the government budget deficit, short-term risk-free interest rate, capital inflows, money supply and business cycle are long-term determinants of the real interest rate. in Jordan.

The coefficient value C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps9.jpg in the interest rate equation shown by C14 in Table I.6 is -0.4187 meaning that if there is a surprise that makes the interest rate higher or lower than the balance interest rate, the interest rate will make an adjustment of 0.41. Thus, the price equation takes 2.43 periods to return to equilibrium after experiencing a shock.

The balance of the exchange rate according to the Arestis Model is influenced by the current account, fiscal policy, exchange rate expectations, the difference between domestic and foreign interest rates. The estimation results show that the long-term behavior of the variables forming the exchange rate is consistent with the theory, except for the difference between domestic and foreign interest rates. The implementation of the Debt Stabilizing Deficit (Dds\*) concept in Indonesia will affect the balance of the exchange rate through the monetary sector and the real sector that will be described later. At the moment the government implements Dds\*, capital inflow as a source of domestic financing increases. This capital inflow will encourage the rupiah exchange rate to strengthen (appreciation). If there is an increase in the budget deficit of 1 percent, the rupiah exchange rate will strengthen by 0.0021 percent. This finding is in line with the study of Maryatmo (2004). Exchange rate also has negative effect on the output gap. Appreciation of exchange rate in the long term will significantly increase the production cost, particularly manufactured production industry in Indonesia that is still using imported raw materials. When the cost of production increased, the national production level will decrease, output actual will go far from potential output. This condition resulting the output gap increased. The exchange rate equation has a coefficient value C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps10.jpg around -0,4390 meaning that if there is a shock that makes the exchange rate higher than the equilibrium exchange rate, there will be an exchange rate adjustment of 0.43 percent of the past imbalance in each period. In terms of the length of the adjustment period, it took 2.32 periods for the exchange rate to reach its new equilibrium.

The balance in the current account in Indonesia as represented in the Arsetic Model is influenced by the gap in output levels, exchange rates and fiscal policy. Based on the results of the study, it was found that when the government applied the concept of Debt Stabilizing Deficit (Dds\*) it would improve the condition of the current account balance in Indonesia to a surplus, but not significant in the short term. This is due to the long transmission mechanism that links fiscal policy and the current account balance. On the other hand, the short-term and long-term rupiah exchange rate affects the current account balance through net export volume. This finding is supported by Reisen (1997) that there is a negative relationship between the exchange rate and the current account balance when the concept of debt stabilizing deficit is included in the equation.

Meanwhile, the results of this study also found that there is a negative relationship between the output gap and the current account balance in Indonesia. When the level of output gap increases, the price gap at home and abroad widens as a result, the real exchange rate of the rupiah against the euro is depressed or depreciated. The depreciation of the rupiah exchange rate caused the prices of exported goods to be relatively cheaper than the prices of imported goods, thereby encouraging an increase in export volume. As a result, the current account balance in Indonesia experienced a surplus. The coefficient valueC:\Users\HP\AppData\Local\Temp\ksohtml14304\wps13.jpg in the current account balance equation shown by C 23 in Table 2 is -0.4852, meaning that if there is a shock that makes the current account balance in Indonesia higher than the current account balance in a state of balance, there will be an adjustment of the current account balance of 0.48 percent of that past imbalance in each period. So that it takes 2.08 periods to reach the new current account balance.

The fiscal policy equation proxied in the model is represented by the primary budget deficit influenced by the output gap and the debt stabilizing deficit (ds\*). The primary deficit is the difference between tax revenues and government spending before deducting the burden of debt payments. In the short and long term, the relationship between the output gap and fiscal policy is different. In the long term when the government increases the budget deficit but keeps debt stable, the primary deficit will increase by 0.4 percent. On the other hand, in the short term, when the deficit is increased by Rp. 1 trillion, it will encourage the primary deficit to increase by 131%. This condition indicates how important fiscal policy is to cover financing needs. The coefficient value C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps14.jpg in the fiscal policy equation as shown by C26 in Table 2 is -0.5405, meaning that if there is a shock that makes the primary deficit higher than the equilibrium condition, there will be an adjustment to the primary budget deficit of 0.54 percent of the past imbalance in each period. It takes 1.85 periods to re-achieve the new primary deficit balance.

One of the advantages of the NMC equilibrium model is the expectation variable. The expectation variable is very dominant in the analysis of rational expectations. Expectations of the rupiah exchange rate for example against the euro in the long term have a positive and significant effect on the actual rupiah exchange rate. When people predict that the rupiah exchange rate will strengthen in period t, people's expectations of the exchange rate will increase. People will switch to holding the rupiah and releasing their foreign currency, as a result, demand for the rupiah increases and the rupiah exchange rate strengthens or vice versa when people's expectations of the exchange rate weaken, prompting people to sell their rupiah, so that the value of the rupiah currency is depressed. Thus, an increase in exchange rate expectations will encourage the actual exchange rate to follow the same direction as the expectation. Similarly, consumer expectations on the domestic goods price encourage instantly when the government just informs the media to increase debt stabilizing deficit (Dds\*) or increase the oil price, rationale of subsidize, increase civil servant salary.

When the expectation is too high, this expectation tends to encourage the economic actors to purchase goods real time that may trigger increase of the goods price. The increase of the goods price will encourage Central Bank (Bank of Indonesia) to play its role in stabilizing the price through interest rate policy that the market interest rate will increase. When the actual price increases, central bank will make some effort to hold the increase of this goods price by influencing that the interest rate decreases until the aggregate offering shifted to the right. To make a fiscal sustainability, it should be considered as the implementing of Fiscal Policy Rule. The expectation of the exchange rate has positive influence and significant on rupiah exchange rate on euro currency. The increase of the exchange rate expectation will encourage the actual exchange rate to follow the same direction of its expectation.In the long term there is negative relationship between domestic output gap and average output level in the European Union countries toward the current account in Indonesia. When the output gap is getting bigger and away from the potential output, the goods price tends to be even bigger. As the recovery economic crisis influence does not complete that spread in some parts of developed country and Indonesia, this resulting the domestic demand on imported goods is not automatically significant. Yet, in the short term it means the opposite. In the long term, debt stabilizing deficit has positive influence on budget primary, output gap has relationship with budget primary deficit. In the short term when the output gap increases 1 trillion IDR, this will resulting the increase of demand, which primary deficit will increase the deficit by 131%. This condition indicates how important is the fiscal policy to address the requirement of financing because of the increase of demand. From the simulation, it indicates that when the shock occurs in the form of adding and subtracting of the magnitude of 1 % of debt stabilizing deficit from data base line debt stabilizing deficit, response pattern of output gap equation, price, interest rate, exchange rate, current account, and budget primary deficit have the same pattern with response pattern before simulation is conducted which is return to the equilibrium. If debt stabilizing deficit is added 1 % those five equations indicate that the curve position is below the curve before simulation is conducted. When the magnitude of debt stabilizing deficit subtracted 1 % base line, curve position is above the curve position before simulation is conducted where the its coefficient higher compared to simulation earlier for all equations. It means that it is important for government to keep the debt stable.

Discussion

The additional amount of debt by applying the concept of Debt Stabilizing Deficit is still effectively done by the government, as long as the debt ratio and budget deficit requirements are maintained, which are below 60% and 3%, respectively. The increase in Debt Stabilizing deficit in debt management as long as debt utilization is allocated for development in the productive sectors. This increase in government spending will encourage aggregate demand so that the output gap is reduced. Another important thing is that the fiscal policy time lag causes fiscal policy to become ineffective.

When the government proposes a policy of increasing debt through a debt stabilizing deficit until it is determined by the House of Representatives (DPR), it takes quite a long time. Assuming that there is an agent who behaves rationally by carrying out the expectations for the fiscal policy plan, when the proposal is approved by the DPR, the public has already anticipated it. However, although this fiscal policy has been anticipated by the public, it will still reduce the output gap through an increase in aggregate demand. An increase in aggregate demand will encourage an increase in the price of goods. Similarly, the addition of development financing through the implementation of the Debt Stabilizing Deficit will increase the capital inflows into the country and encourage the appreciation of the domestic currency. The appreciation of the domestic currency causes the performance of foreign trade to decline, thus creating a trade balance deficit. The increase in the price of goods and the exchange rate will urge the Central Bank to take strategic steps to reduce the domestic interest rate through its monetary rule policy. A decrease in interest rates will return prices to their equilibrium and national output will return to its initial position.

**Conclusions**

First, the debt stabilizing deficit model is still effective if it is implemented in Indonesia. Second, if debt stabilizing deficit model is implemented, in the long run, it can reduce the output gap, strengthen the exchange rate, increase the primary deficit and increase the trade balance transaction deficit, but does not affect the formation of general prices and interest rates. Third, price level and interest rate are not significantly effected by fiscal policy which is implemented by Debt Stabilizing Deficit, because these variables are directly controlled by Central Bank as a monetary instrument variables. Government should build a good coordination between the central bank as conducted monetary policy and fiscal authority to make a better economic performance, economic growth, and fiscal sustainability. Fourth, increasing debt stabilizing deficit is still effective as long as still under 60% of GDP and this debt are allocated to the productive sectors, Fifth, inflation is the fastest variable in adjusting to the new equilibrium because there is no time lag, unlike fiscal variable.

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IS DEBT MANAGEMENT MODEL MAASTRICHT TREATY STILL EFFECTIVE?

**Abstract**

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At the time of the economic crisis, the state requires large financing to get through those times of crisis. One of the efforts made is to increase government debt, but carelessness in managing debt has resulted in the economy being trapped in a debt trap. The concept of debt management and a steady state oriented budget deficit that is applied in Indonesia is a debt stabilizing deficit model, namely a model by setting the level of debt and budget deficits at a certain level. The question is how effective the debt management model being able to create long-term economic growth because empirically, countries that adopt this concept are experiencing fiscal problems and are also headed for economic instability. The New Concensus Economy is a general equilibrium model of thought that contains 6 markets in an open economy, all agents are rational and contain intertemporal choices and there are elements of policy rules in it. By incorporating the Debt Stabilizing Deficit (DSD) rule into the balance model, the results show that, in the long term, the application of DSD is able to reduce the level of output gap, there is an increase in general prices, lower interest rates, strengthening of the domestic exchange rate so that the balance sheet conditions of trade become better. Meanwhile, in the short term, the application of the DSD rule does not significantly affect the formation of prices, interest rates, exchange rates and variations in the trade balance. Another finding is that if the debt level is increased by a certain amount but still below 60% of GDP, this policy will still be able to improve economic performance. The price level is the variable that re-adjusts the fastest to the equilibrium, while the interest rate takes longer time to return to the original equilibrium.

**Keywords: Debt Management , Fiscal Rule, Maastricht Treaty, Mazhab MNC**

**Background**

The current economic crisis has brought the country to face fiscal problems, namely a high government debt burden and an uncontrolled budget deficit. Even some countries in the European Union, such as Portugal, Greece, Spain, Italy, tend to experience defaults, which so far have applied the concept of debt management and budget deficits at a certain amount with a long-term orientation (steady state).

This concept applies fiscal rules that maintain a level of budget deficit that is able to keep government debt stable. In this concept, it is agreed that the maximum limit for the ratio of government debt to GDP is of a certain amount, not exceeding 60 percent of GDP, while the maximum limit for the state budget deficit is 3 percent of GDP. The concept of Debt Stabilizing Deficit (DSD) is an implication of the application of fiscal rules. The purpose of implementing this concept is that the government is disciplined on the fiscal side and is able to restrain the government's aggressiveness in debt. The Fiscal Rule also aims to maintain fiscal stability and provide sufficient fiscal space so that the government is able to play a role and lead to fiscal sustainability.

Like developed countries, Indonesia also uses this concept as outlined in Law No. 17 of 2003 concerning State Finance which is operationalized by Government Regulation No. 23 of 2003 concerning Control of the Cumulative Amount of Deficits of the State Budget and Regional Budget and the Cumulative Amount of Central and Regional Government Loans as well as Minister of Finance Regulation No. 95/PMK.02/2007 concerning Guidelines for Implementation and Monitoring Mechanisms for Deficits of State Budget, Regional Budget, and Loans. In Government Regulations No. 23 of 2003 article 5, it is stated that the maximum limit of government debt is 60 percent of GDP with a budget deficit target of a maximum of 3 percent of GDP. This debt management model is an application of the Maastricht Treaty concept used in European Union countries which empirically are currently experiencing fiscal problems and also leading to economic instability. The question is whether the concept of debt stabilizing deficit is still effectively maintained, when the country is facing an economic crisis like today which maintains economic stability in all markets? The concept of keeping debt stable is known as a debt stabilizing deficit whose model was introduced by Favero and Monacelli (2005). The advantages of this concept according to Rahmany (2009) and Mitchell et al., (1999) one of which is being able to achieve fiscal sustainability.

Theoretically and empirically, it was found that the budget deficit had an effect on macroeconomic performance. Ballassone (2005), for example, found that an increase in the budget deficit will increase aggregate demand and encourage economic growth. Sargent and Wallace (1981) stated that in the long run, the budget deficit affects inflation, but not in the short term. Metin (1998) found in Turkey that when the budget deficit increases, it has increased inflation and decreased national income. Cebula (1997) explained that in the long run, the budget deficit affected interest rates, but not in the short term. In addition, Laubach (2005) found that an increase of 1 percent in the budget deficit would lead to an increase in long-term interest rates by 25-30 basis points. The relationship between the budget deficit and interest rates was investigated by Beare (1978). He found that the increase in budget deficit through bond sales would increase domestic interest rates. Burney (1992) and Bernheim (1988) found twin deficits, namely economic conditions where an increase in the budget deficit will encourage an increase in the real domestic exchange rate. The observation of the relationship between the budget deficit and several macroeconomic indicators so that the concept of the budget deficit can be applied to the economy in Indonesia. Then, it is necessary to conduct a research of the implications from applying the concept of a debt stabilizing deficit to macroeconomic performance in Indonesia.

Several studies on the effect of fiscal policy in Indonesia along this time have only applied discretionary debt models, including those conducted by Wijoyo, S. (2011), Maryatmo (2004), Rahutami (2003) but have not used the rule of fiscal policy. The influence of Fiscal Policy is more widely studied using the New Keynesian rationale, as conducted by Favero and Monocelli (2005), Hubbard, et al., (2012), Giese and Wagner (2005), Wijoyo (2011), Rahutami (2003), Maryatmo (2004) using 3 equations in a closed economy. Hshing, Y. (2018) by using the balance model of 3 markets of IS, MP, and AS proved that the expansionary fiscal policy is effective in stimulating the economy, caution needs to be exercised as there may be a debt threshold beyond which a further increase in the debt-to-GDO ratio would hurt economic grow.

Indonesia has gone through several periods of economic crisis with different results and recovery times, but in general Indonesia's open economy has been able to get through it, although with the consequence that the amount of foreign debt continues to increase. According to Bank Indonesia, Indonesia's total foreign debt as of January 2020 was US$ 408.5 billion, which was mainly influenced by private external debt payment transactions. It is worried that debt which continues to increase will lead the country to a debt trap, a debt crisis. For this reason, it is necessary to evaluate the effectiveness of the debt management model through the general equilibrium model, which is when all markets work optimally in a general balance towards long-term economic stability.

However, Abdurohman and Ika (2012) found a weakness in the application of this fiscal rule model, namely that this rule was not sufficient to provide guidance to the government when the government budget should be in deficit, balanced or surplus. As long as a country's GDP increases, government debt can continue to increase, and this principle is justified as long as the government debt ratio does not exceed 60 percent of GDP. The problem is, if the government cannot control fiscal aggressiveness, it is feared that it will threaten fiscal sustainability and affect the economic performance in the long term. A high debt burden will reduce fiscal space or the government's discretion to allocate its budget. A stable economy is a condition in which all markets work optimally, including the goods market, money market, monetary rule policy, fiscal rule policy and also supported by a healthy trade balance and debt remains paid off.

One of the latest economic ideas in the analysis of an open economy covering 6 markets is the New Consensus Macroeconomics (MKB) thought. This idea was also chosen because in accordance with the conditions faced by the economy in Indonesia today where economic agents face conditions of prices and wages that are rigid (sticky), agents use their reasoning to make optimal decisions through intertemporal choices that are forward looking or model, dynamic and cointegrated and this model also uses the fiscal rules.

The Arestis model and the Tcerhvena model are models with 6 market equations. Modifying the existing model by adding the debt stabilizing deficit variable in each equation and adding the fiscal policy equation in the balance will generally be done. This combined debt management model is the latest model with the New Consensus Macroeconomics school approach which analyzes its general impact on six markets together. The Hsing, Y (2018) study which used the output gap variable to determine the economy finds that fiscal policy expansion through the implementation of a fiscal deficit stimulated the economy and the debt threshold beyond which a further increase in the debt-to-GDO ratio would hurt economic growth.

**Purpose of the Research**

The purpose of this study is to evaluate the effectiveness of the debt management model in the New Consensus Macro Economics general balance model by applying the debt stabilizing deficit model and its effect on changes in macroeconomic indicators, namely the output gap representing the goods market, the domestic price level representing price policy, domestic interest rates representing money market and monetary policy, exchange rates and the current account balance represent foreign trade, and the primary budget deficit represents fiscal policy. A good model is when the pattern of response to shocks in macroeconomic indicators converges and returns to the initial model equation in a short time or recovers quickly.

**Literature Review**

One of the concepts of managing debt and budget deficits that are oriented in the long term (steady state) is the debt stabilizing deficit, namely the concept of fiscal rules that maintain the level of the budget deficit which is able to keep the government debt stable. This study uses the New Consensus Macroeconomics (MKB) thinking with 6 single equations applied in an open economy.

Although Wijoyo, S (2011) has used MKB thinking, Suhartoko used the Giese and Wagner (2005) equation model in only 3 markets, on the contrary, this research uses Arestis (2009) model which is modified in 6 markets in an open economy supported by rational agents implemented through intertemporal choices and expectations. The previous research analyzed models with multiple equations using the simultaneous equation method as done by Arestis (2009), Tcherneva (2008), Rahutami (2003), Maryatmo (2004), while in this dissertation, the usual OLS approach was used to analyze the model and a short-term model was formed using the Vector Error Correction Model (VECM). VECM according to Gujarati and Porter (2009:789) was one of the developments of the a-theory VAR and SVAR models, while VECM was built based on theory. Another advantage of the VAR, SVAR and VECM models is that apart from being easy, they can also be estimated using the Two Stage Least Square (TSLS) model.

The economic thinking that underlies in this study uses the New Consensus Macroeconomics (MKB) thinking. MKB is the latest development of the latest macroeconomic thought which is the convergence of two ideas, namely New Keynesian and Business Cycle Theory. In addition to the considerations above, other basic considerations uses this thinking models will be explained later in this paragraph.

The aspects inherent in the MKB thinking are relatively in line with the economy in Indonesia. First, current economic actors face an imperfectly competitive market where this concept is New Keynesian thought. Second, the economy in Indonesia often experiences shocks, especially from supply shocks, including natural disasters, changes in technology, disruptions in the distribution of goods, labor demonstrations which are the core of the Real Business Cycle Theory. Third, economic actors will make rational decisions as a reflection of optimization behavior by using all past experience and future information they have and this is one of the principles of Real Business Cycle Theory. Fourth, the phenomenon that we encounter today, economic actors face sticky prices, namely price conditions that can change but are slow. Fifth, the implementation of monetary policy in Indonesia is currently implementing a monetary policy policy to maintain price stabilization through setting interest rate targets (r) and inflation.

**New Consensus Macroeconomics (MKB)**

In principle, MKB's thinking contains two main elements in its analysis, namely optimization between time. The importance of the government's role in the form of fiscal policy stems from New Keynesian thought, while forward looking price setting is the essence of the Business Cycle Theory. These two elements are incorporated into a dynamic model to explain fluctuations in the real economy. Economic actors face imperfectly competitive markets or incomplete markets that face sticky prices. This rigid price indicates that the price is adjusting but slowly. Goodfriend and King (1997) explained this monetary policy-transmission mechanism through two channels. The first path is the aggregate demand path and the second path is through mark-up. First, through the path of the aggregate demand, when the monetary authority changes the stock of money, this policy will affect the price level of goods and additional costs. Even though the price is assumed to be in a rigid condition, it is not easy to change, the company will still change the price of its output. These price changes and additional costs will affect the aggregate demand. Second, through inflating. Once there is an increase in inflation there will be a price bubble, and this inflation is considered a tax that causes distortions in the economy.

**Arestis Model (2009)**

In the Arestis model, fiscal policy is only seen in the magnitude of the aggregate demand equation. In order to clarify the role of fiscal policy in the economy, the Arestis (2009) equation is modified by adding a debt stabilizing deficit variable that keeps debt stable and adding to the primary budget deficit equation. The primary budget deficit equation model formed by Favero and Monacelli (2005) was chosen because the model is dynamic, uses an output gap variable that indicates an unstable economy and applies a standard fiscal policy. The form of the primary budget deficit equation after adjustment is .

The earlier equation indicates that the primary budget deficit is positively influenced by the output gap and debt stabilizing deficit and the nuisance error due to fiscal policy shocks. Second, the monetary authority uses policy interest rate instruments to control market interest rates if actual inflation is higher or lower than the inflation target. To reduce inflation to approach the inflation target, the monetary authority will raise interest rates through changes in policy interest rates, or vice versa. When the inflation that occurs is the same as the targeted inflation, then there is no output gap. Arestis model (2009) consists of 6 reduced forms equations as follows:





3.

4.

5.

6. 

The variables in the Arestis (2009) equation are mentioned as follows:

 : is a constant representing the fiscal position

 : is domestic aggregate demand

 : is world aggregate demand

R : is the nominal domestic interest rate

 : is the world nominal interest rate

P : is the domestic inflation rate

 : is the world inflation rate

P\* : is the inflation target

 : is the real interest rate in equilibrium

 : is the real exchange rate



 : is the nominal exchange rate

CA : is the current account balance

E : is hope

: is a stochastic shock

**The Steady State Concept of Government Debt**

If the main objective of fiscal policy is fiscal sustainability, then government debt must be kept stable or , and this concept was explained by Favero and Monacelli (2005), Farmer (2002:311). The concept of a debt stabilizing deficit is a type of fiscal rule that is able to create sustainability, because the size of the deficit target is set at a controlled level in the long term that keeps the government debt ratio under control and even decreases throughout the year. The application of this rule will give investors confidence in the high commitment and capacity of the state in managing its state finances, increasing the stabilization of the government's financial fiscal performance, especially for the policy of adjusting revenues and expenditures (Farmer, 2002:312) and Blanchard et al., (2010).

To explain the steady state concept of government debt, Farmer (2002: 312) used a simpler government budget constraint equation. The budget deficit is financed through the sale of government bonds to the public. Government debt for this period ( is the same as last year's government debt ( added with interest payments due to last year's debt (i) and added with this year's primary deficit (The volume of the additional debt that the government might do to pay budget deficit that occurs is limited to the amount of the interest expense on debt payments made in the previous year (  ) added with the budget deficit that occurred this year, namely the difference in government spending  with tax  and/or can be written as follows:

 (2.48)

If it is assumed that the government uses the concept of debt in order to keep it stable every year, then the total debt of government in the current year is the same as the total debt.

**Research Methodology**

The method used in this study starts from incorporating a policy of debt stabilizing deficit (Dds\*) or fiscal rules into the Arestis (2009) model, then shock is given to the model. If the equation model returns to the initial model and returns in a relatively short time compared to other models, then the model is considered effective. Because the data is not stationary at the level degree, then the data transformation is carried out at the first degree or called the VAR in difference model. After all stationary data reach the level degree, then the cointegration test is proceed. Cointegration test is carried out using the Johansen Cointegration approach. In addition, because the data have different degrees of stationarity but have cointegration, the estimation chosen is to use Structure Cointegrated Vector Autoregression (SCVAR) (Garratt et al., 1999). The SCVAR estimation results produce an impulse response function and a meaningful variance decomposition which is used to explain the effect of one shock on another variable in one equation or between equations. **Stationarity Test**

The principle of data stationarity is a basic principle that must be met in econometric tests, especially for dynamic time series models and if the data is not stationary then it must be re-decremented, and re-estimated with new data. The stationary test was carried out using the Augmented Dickey-Fuller (ADF) and Phillips Perron approach.

**Augmented Dickey-Fuller (ADF) and Phillips Perron Approach**

The null hypothesis for both the ADF and Phillips Perron approaches is the same, that is, the data series contains a stochastic trend. The regression equation from the ADF test can be written as follows:

 (3.5)

The estimation results from the ADF test are then compared with the MacKinnon critical value to obtain conclusions from the ADF test. If the ADF test value is smaller than the MacKinnon critical value, the null hypothesis of the unit root test can be rejected, meaning that the variable is stationary (Enders, 2004: 181). Conversely, if the ADF test value is greater than the MacKinnon critical value in a certain statistical degree, the null hypothesis is accepted, meaning that the variable is not stationary.

**Cointegration Test**

Cointegration test aims to see whether a group of data that is at the same degree of integration represents the long-term relationship. In the SCVAR method, the existence of a cointegration test is important because the structure of the variables used first needs to be tested to see whether there is a long-term relationship. In this study, the Johansen's Cointegration Test method was used to analyze whether there was a long-term relationship between the variables studied. Gujarati and Porter (2010: 762) explained the cointegration between these variables using the purchasing power parity equation as follows:

 (3.9)

 (3.10)

Although  and  individually known as *I* (1), but both have a stochastic trend, a liner combination *I* (0). The equation (3.8) is the cointegration regression while the equation (3.9) is the cointegration parameter.  and  as the linear equations appear to be cointegrated or have a long-run relationship or equilibrium, but in the short run they may not reach equilibrium.

**Vector Error Correction Model (VECM)**

The vector error correction model (VECM) is also known as the cointegrated SVAR model. The VECM model requires stationary data on I (1) and cointegrated which is supported by a strong economic theory basis. The VECM model is used to observe aspects of short-term and long-term relationships. In the long run, the observed variables are in equilibrium, while in the short term, it takes time to adjust from one equilibrium to another. Thus, the VECM model is not only able to obtain an overview of cointegration between variables, observe the process towards equilibrium and can also observe the speed of adjustment to balance, in the event of a shock in the economy.

 (3.26)

 (3.27)

 is the error correction term (ECT), namely the stationary residual obtained from the cointegrated regression equation, which has a constant variance. If the cointegration regression equation has a stationary error or I (0), then the VECM equation is written as follows:

 (3.28)

 (3.29)

The VECM Model of each equation is written as follows:

The Aggregate Demand (IS)

is(3.30)

The Aggregate Supply (IA)

IA

(3.31)

The Monetary Policy (MP)

MP

(3.32)

The Exchange Rates (E)

E

(3.33)

Current Account



(3.34)

Primary Deficit of Budget (KF)

dt (3.35)

The definitions of the variables mentioned in the equation models are defined as follows:

 : is the output gap

 : is the deposit interest rate

 : is the policy interest rate

 : is the exchange rate of the rupiah against the euro

 : is the level of domestic prices

 : is the current account balance

 : is a debt stabilizing deficit

 : is the primary budget deficit

 : is the difference between domestic interest rates and European interest rates

 : is the difference between the domestic and European output gaps

 : is the expected output gap

 : is the expected price of goods in the country

 : is the expected exchange rate of the rupiah against the euro currency

 : is the difference between expected domestic prices

with expectations of prices in Europe

 : is the error correction term of each equation

 : are the respective constants of the equations, where >0

 : is the coefficient of elasticity of the independent variable to the dependent variable

**Results and Discussion**

Starting with the unit root test on time series data and there are 13 un-stationary data. In order to avoid the spurious regression, the un-stationer data are differentiated to get stationary by using the ADF and Phillip Platform test. After all stationary data in first difference, the result found that each equation in the model has at least one long term relation. Table 1 indicates that all the data variables are stationary and the regression technique can be continued to prediction.

**Table 1. Unit Root Test at Error Term using *ADF test***

|  |  |  |  |
| --- | --- | --- | --- |
| **Equation** | **Symbol** | **ADF Test** | |
| **I(0)** | **Prob** |
| Output Gap |  | -5.9494 | 0.0000 |
| Inflation Adjustment |  | -7.3768 | 0.0000 |
| Interest Rate (monetary policy) |  | -3.3493 | 0.0083 |
| Exchange Rate |  | -6.2113 | 0.0000 |
| Current Account |  | -4.1010 | 0.0024 |
| Primary Budget Deficit (fiscal policy) |  | -3.8266 | 0.0053 |

In short term model, the changing of dependent variable is not only described by the changing of the independent variable but by the in-stability of the variable of the past as well. For this reason, a cointegration test was carried out and the results were that the entire equation model was cointegrated with an ECT value between 0 and 1 and was significant at d.f < 5%. It means that all short-term equation models in the 5 markets, namely the output market (real sector), balance in the money market, exchange rates, interest rate balances, trade balance balances, fiscal policy can represent the long-term model or the ECT rate coefficient is all significant (C5, C9, C14, C19, C23, C26). It indicates the speed of the adjustment of a variable is returning to its stability when countering shock. This condition also indicates that the prediction from the equation system is valid. The result of estimation in short and long terms might be seen in Table 2.

**Table 2. Estimation Result of Equation System Model**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |
|  | |  |  |  |  |
| Symbol | | Variable | Coefficient | t-Statistic | Prob. |
|  | |  |  |  |  |
| C(1) | | Drd | 0.000281 | 0.967050 | 0.0003 |
| C(2) | | Dds | -0.009729 | -1.276224 | 0.0041 |
| C(3) | | Dle | 0.604125 | 4.416884 | -1.1110 |
| C(4) | | dydf | 0.000800 | 6.376350 | 0.0012 |
| **C(5)** | | **ECT** | **-0.631834** | **-3.00985** | **0.000** |
| C(6) | | Dyd | -0.560857 | -0.310940 | -7,7164 |
| C(7) | | Dds | 0.000611 | 0.483559 | 0.1678 |
| C(8) | | dpgapf | 1.350913 | 10.57740 | 1,1698 |
| **C(9)** | | **ECT** | **-0.799272** | **-2.247073** | **0.0056** |
| C(10) | | Dyd | -117.5666 | -2.657332 | -6,0861 |
| C(11) | | dpdf | -0.514832 | -0.252241 | 0.7876 |
| C(12) | | Dds | -0.024702 | -0.777399 | -0.1012 |
| C(13) | | Drs | 0.694354 | 8.772610 | 0.8749 |
| **C(14)** | | **ECT** | **-1,2187** | **-7.885031** | **0.0000** |
| C(15) | | drgap | 0.0040 | 1.820438 | -0.0101 |
| C(16) | | Dds | 0.0021 | 8.259227 | -0.0002 |
| C(17) | | Dca | -0.014557 | -2.551947 | 0.0015 |
| C(18) | | Dlef | 1,0716 | 1.110989 | 1,0107 |
| **C(19)** | | **ECT** | **-0.439018** | **-1.993447** | **0.0474** |
| C(20) | | dygap | 26.78273 | 0.704742 | -4,55221 |
| C(21) | | Dds | 0.002684 | 0.044817 | 0.0226 |
| C(22) | | Dle | -12.74393 | -2.511621 | 0.3230 |
| **C(23)** | | **ECT** | **-0.485222** | **-1.560056** | **0.0201** |
| C(24) | | Dyd | -131.4610 | -0.744458 | 42.0545 |
| C(25) | | Dds | 0.400393 | 3.283851 | 0.0041 |
| **C(26)** | | **ECT** | **-0.540523** | **-1.943347** | **0.0300** |
|  | |  |  |  |  |
|  |  | |  |  |  |

Based on the estimation results, it is found that when the concept of Debt Stabilizing Deficit (Dds\*) is applied in Indonesia, all macroeconomic variables in the five markets move according to their respective directions. The application of the concept of the Debt Stabilizing Deficit (Dds) model will significantly reduce the output gap, strengthen the exchange rate, increase the primary deficit and increase the trade balance transaction deficit, but will not affect the formation of general prices and interest rates. When debt stabilizing deficit is implemented in the economy, it will encourage an increase in government spending. The increase in government spending will push actual output and leaving potential output. As a result, actual output approaches potential output so that the output gap in the economy is reduced. The ect value in the output gap equation or C5 in Table I.6 is -0.6318, meaning that if there is a shock that causes the output gap level to be higher than the potential output level, it will cause an increase in the output gap. This condition causes the output gap to be adjusted by 0.63 percent of the past imbalance in each period. So it takes 1.58 periods to reach the new balance. Yu H (2017) found that when the Australian government implemented a budget deficit policy, there was an increase in output proxied by an increase in GDP, as a result, the country's output gap was reduced. According to Hshing, Y (2018) said that although expansionary fiscal policy is effective in stimulating the economy, caution needs to be exercised as there may be a debt threshold beyond which a further increase in the debt-to-GDO ratio would hurt economic growth .

The increase in aggregate demand is due to an increase in government spending, although the study results show an insignificant effect, general prices have increased. This increase in the general price level causes the inflation gap to widen. However, this condition did not last long, because the Central Bank with its monetary authority immediately lowered interest rates to return prices to a reasonable level.

The application of Dds\* does not affect the general price level in the short term because the company cannot immediately change the price of its product when the government increases its budget deficit. The company is worried that if raising prices will create social costs that are greater than profits due to the increase in output prices. Variable consumer expectations of prices need to be considered in macro policy. The expectation of the price which is too high from the consumer will increase the actual price and it is found that if there is an increase in consumer expectations of prices by 1%, actual prices will increase by 1.16%. It was also found that if a shock occurs, the general price will react and make adjustments for 1.26 periods to return to its original balance. The Coefficient valueC:\Users\HP\AppData\Local\Temp\ksohtml14304\wps5.jpg on the price equation or C9 in Table 2 around -0,7992 means if there is a shock that makes the price level higher or lower than the equilibrium price level, then the price level will adjust by 0.79 or the price equation takes 1.26 periods to return to equilibrium after experiencing the shock.

Similarly, what happened in the foreign exchange market represented by the Curent Account equation showed that when the government added debt through the concept of Debt Stabilizing Deficit (Dds\*), domestic capital inflows were experienced. Capital inflow conditions pushed the rupiah exchange rate to strengthen (appreciation). This strengthening of the domestic exchange rate caused the prices of imported goods to be relatively cheaper than the prices of exported goods. This condition causes a decrease in export performance and an increase in imports. This decline in foreign trade performance causes net export performance to decrease, resulting in a decrease in foreign trade. This decline in export performance will push the current account into a deficit.

The interest rate equation applied in Indonesia adopts the application of the monetary rule. In order to control prices and exchange rates, the monetary authority sets certain interest rate targets. In the Arestis balance model, there are 4 variables that determine interest rates, namely the output gap, price expectations, fiscal policy and the monetary rule. The moment when the Debt Stabilizing deficit (Dds\*) policy is applied to the interest rate equation, the results show that this deficit policy does not affect interest rates in Indonesia and the value of the ECT rate is also in-significant. It indicates that the interest rate equation is shaped from the interest rate policy. When debt stabilizing deficit is implemented in Indonesia, it has no influence on interest rate and exchange rate. The central of bank will control interest rate by central bank rate (BI Rate) without considered budget deficit condition or other. It is a monetary rule concepts. This situation describes that there is lack of coordination between the central bank (Bank Indonesia) and the Ministry of Finance as fiscal authority to achieve their target goal variables. So, the Central Bank must build a good coordination with fiscal authority to make a better macro economic performance, economic growth, and fiscal sustainability. It also finds that, fiscal policy is less effectiveness than monetary policy, related to the time lag. This situation is different from the results of a study by Moh'd Mahmoud Ajlouni (2018) which found that the government budget deficit, short-term risk-free interest rate, capital inflows, money supply and business cycle are long-term determinants of the real interest rate. in Jordan.

The coefficient value C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps9.jpg in the interest rate equation shown by C14 in Table I.6 is -0.4187 meaning that if there is a surprise that makes the interest rate higher or lower than the balance interest rate, the interest rate will make an adjustment of 0.41. Thus, the price equation takes 2.43 periods to return to equilibrium after experiencing a shock.

The balance of the exchange rate according to the Arestis Model is influenced by the current account, fiscal policy, exchange rate expectations, the difference between domestic and foreign interest rates. The estimation results show that the long-term behavior of the variables forming the exchange rate is consistent with the theory, except for the difference between domestic and foreign interest rates. The implementation of the Debt Stabilizing Deficit (Dds\*) concept in Indonesia will affect the balance of the exchange rate through the monetary sector and the real sector that will be described later. At the moment the government implements Dds\*, capital inflow as a source of domestic financing increases. This capital inflow will encourage the rupiah exchange rate to strengthen (appreciation). If there is an increase in the budget deficit of 1 percent, the rupiah exchange rate will strengthen by 0.0021 percent. This finding is in line with the study of Maryatmo (2004). Exchange rate also has negative effect on the output gap. Appreciation of exchange rate in the long term will significantly increase the production cost, particularly manufactured production industry in Indonesia that is still using imported raw materials. When the cost of production increased, the national production level will decrease, output actual will go far from potential output. This condition resulting the output gap increased. The exchange rate equation has a coefficient value C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps10.jpg around -0,4390 meaning that if there is a shock that makes the exchange rate higher than the equilibrium exchange rate, there will be an exchange rate adjustment of 0.43 percent of the past imbalance in each period. In terms of the length of the adjustment period, it took 2.32 periods for the exchange rate to reach its new equilibrium.

The balance in the current account in Indonesia as represented in the Arsetic Model is influenced by the gap in output levels, exchange rates and fiscal policy. Based on the results of the study, it was found that when the government applied the concept of Debt Stabilizing Deficit (Dds\*) it would improve the condition of the current account balance in Indonesia to a surplus, but not significant in the short term. This is due to the long transmission mechanism that links fiscal policy and the current account balance. On the other hand, the short-term and long-term rupiah exchange rate affects the current account balance through net export volume. This finding is supported by Reisen (1997) that there is a negative relationship between the exchange rate and the current account balance when the concept of debt stabilizing deficit is included in the equation.

Meanwhile, the results of this study also found that there is a negative relationship between the output gap and the current account balance in Indonesia. When the level of output gap increases, the price gap at home and abroad widens as a result, the real exchange rate of the rupiah against the euro is depressed or depreciated. The depreciation of the rupiah exchange rate caused the prices of exported goods to be relatively cheaper than the prices of imported goods, thereby encouraging an increase in export volume. As a result, the current account balance in Indonesia experienced a surplus. The coefficient valueC:\Users\HP\AppData\Local\Temp\ksohtml14304\wps13.jpg in the current account balance equation shown by C 23 in Table 2 is -0.4852, meaning that if there is a shock that makes the current account balance in Indonesia higher than the current account balance in a state of balance, there will be an adjustment of the current account balance of 0.48 percent of that past imbalance in each period. So that it takes 2.08 periods to reach the new current account balance.

The fiscal policy equation proxied in the model is represented by the primary budget deficit influenced by the output gap and the debt stabilizing deficit (ds\*). The primary deficit is the difference between tax revenues and government spending before deducting the burden of debt payments. In the short and long term, the relationship between the output gap and fiscal policy is different. In the long term when the government increases the budget deficit but keeps debt stable, the primary deficit will increase by 0.4 percent. On the other hand, in the short term, when the deficit is increased by Rp. 1 trillion, it will encourage the primary deficit to increase by 131%. This condition indicates how important fiscal policy is to cover financing needs. The coefficient value C:\Users\HP\AppData\Local\Temp\ksohtml14304\wps14.jpg in the fiscal policy equation as shown by C26 in Table 2 is -0.5405, meaning that if there is a shock that makes the primary deficit higher than the equilibrium condition, there will be an adjustment to the primary budget deficit of 0.54 percent of the past imbalance in each period. It takes 1.85 periods to re-achieve the new primary deficit balance.

One of the advantages of the NMC equilibrium model is the expectation variable. The expectation variable is very dominant in the analysis of rational expectations. Expectations of the rupiah exchange rate for example against the euro in the long term have a positive and significant effect on the actual rupiah exchange rate. When people predict that the rupiah exchange rate will strengthen in period t, people's expectations of the exchange rate will increase. People will switch to holding the rupiah and releasing their foreign currency, as a result, demand for the rupiah increases and the rupiah exchange rate strengthens or vice versa when people's expectations of the exchange rate weaken, prompting people to sell their rupiah, so that the value of the rupiah currency is depressed. Thus, an increase in exchange rate expectations will encourage the actual exchange rate to follow the same direction as the expectation. Similarly, consumer expectations on the domestic goods price encourage instantly when the government just informs the media to increase debt stabilizing deficit (Dds\*) or increase the oil price, rationale of subsidize, increase civil servant salary.

When the expectation is too high, this expectation tends to encourage the economic actors to purchase goods real time that may trigger increase of the goods price. The increase of the goods price will encourage Central Bank (Bank of Indonesia) to play its role in stabilizing the price through interest rate policy that the market interest rate will increase. When the actual price increases, central bank will make some effort to hold the increase of this goods price by influencing that the interest rate decreases until the aggregate offering shifted to the right. To make a fiscal sustainability, it should be considered as the implementing of Fiscal Policy Rule. The expectation of the exchange rate has positive influence and significant on rupiah exchange rate on euro currency. The increase of the exchange rate expectation will encourage the actual exchange rate to follow the same direction of its expectation.In the long term there is negative relationship between domestic output gap and average output level in the European Union countries toward the current account in Indonesia. When the output gap is getting bigger and away from the potential output, the goods price tends to be even bigger. As the recovery economic crisis influence does not complete that spread in some parts of developed country and Indonesia, this resulting the domestic demand on imported goods is not automatically significant. Yet, in the short term it means the opposite. In the long term, debt stabilizing deficit has positive influence on budget primary, output gap has relationship with budget primary deficit. In the short term when the output gap increases 1 trillion IDR, this will resulting the increase of demand, which primary deficit will increase the deficit by 131%. This condition indicates how important is the fiscal policy to address the requirement of financing because of the increase of demand. From the simulation, it indicates that when the shock occurs in the form of adding and subtracting of the magnitude of 1 % of debt stabilizing deficit from data base line debt stabilizing deficit, response pattern of output gap equation, price, interest rate, exchange rate, current account, and budget primary deficit have the same pattern with response pattern before simulation is conducted which is return to the equilibrium. If debt stabilizing deficit is added 1 % those five equations indicate that the curve position is below the curve before simulation is conducted. When the magnitude of debt stabilizing deficit subtracted 1 % base line, curve position is above the curve position before simulation is conducted where the its coefficient higher compared to simulation earlier for all equations. It means that it is important for government to keep the debt stable.

Discussion

The additional amount of debt by applying the concept of Debt Stabilizing Deficit is still effectively done by the government, as long as the debt ratio and budget deficit requirements are maintained, which are below 60% and 3%, respectively. The increase in Debt Stabilizing deficit in debt management as long as debt utilization is allocated for development in the productive sectors. This increase in government spending will encourage aggregate demand so that the output gap is reduced. Another important thing is that the fiscal policy time lag causes fiscal policy to become ineffective.

When the government proposes a policy of increasing debt through a debt stabilizing deficit until it is determined by the House of Representatives (DPR), it takes quite a long time. Assuming that there is an agent who behaves rationally by carrying out the expectations for the fiscal policy plan, when the proposal is approved by the DPR, the public has already anticipated it. However, although this fiscal policy has been anticipated by the public, it will still reduce the output gap through an increase in aggregate demand. An increase in aggregate demand will encourage an increase in the price of goods. Similarly, the addition of development financing through the implementation of the Debt Stabilizing Deficit will increase the capital inflows into the country and encourage the appreciation of the domestic currency. The appreciation of the domestic currency causes the performance of foreign trade to decline, thus creating a trade balance deficit. The increase in the price of goods and the exchange rate will urge the Central Bank to take strategic steps to reduce the domestic interest rate through its monetary rule policy. A decrease in interest rates will return prices to their equilibrium and national output will return to its initial position.

**Conclusions**

First, the debt stabilizing deficit model is still effective if it is implemented in Indonesia. Second, if debt stabilizing deficit model is implemented, in the long run, it can reduce the output gap, strengthen the exchange rate, increase the primary deficit and increase the trade balance transaction deficit, but does not affect the formation of general prices and interest rates. Third, price level and interest rate are not significantly effected by fiscal policy which is implemented by Debt Stabilizing Deficit, because these variables are directly controlled by Central Bank as a monetary instrument variables. Government should build a good coordination between the central bank as conducted monetary policy and fiscal authority to make a better economic performance, economic growth, and fiscal sustainability. Fourth, increasing debt stabilizing deficit is still effective as long as still under 60% of GDP and this debt are allocated to the productive sectors, Fifth, inflation is the fastest variable in adjusting to the new equilibrium because there is no time lag, unlike fiscal variable.

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