Foreign Exchange Intervention and Monetary Policy Design: A Market Microstructure Analysis

Carlos Montoro and Marco Ortiz

Discussion: Santiago, 26 April 2013

by Paolo Vitale

Ud'A

Overview

- Contribution: Mix a GE approach with a market microstructure component to analyze FX intervention and monetary policy:
  - ⋆ Within a DSGE model for a small open economy with nominal rigidities;
  - ⋆ FX transactions are completed via risk-averse dealers;
  - ⋆ the CB follows a Taylor rule and undertakes FX intervention to either lean against the wind or reduce exchange rate volatility;
  - ⋆ heterogeneously informed agents apply infinite regression.

Overview

- Contribution: Mix a GE approach with a market microstructure component to analyze FX intervention and monetary policy:
  - ⋆ Within a DSGE model for a small open economy with nominal rigidities;
  - ⋆ FX transactions are completed via risk-averse dealers;
  - ⋆ the CB follows a Taylor rule and undertakes FX intervention to either lean against the wind or reduce exchange rate volatility;
  - ⋆ heterogeneously informed agents apply infinite regression.

Overview

- Contribution: Mix a GE approach with a market microstructure component to analyze FX intervention and monetary policy:
  - ⋆ Within a DSGE model for a small open economy with nominal rigidities;
  - ⋆ FX transactions are completed via risk-averse dealers;
  - ⋆ the CB follows a Taylor rule and undertakes FX intervention to either lean against the wind or reduce exchange rate volatility;
  - ⋆ heterogeneously informed agents apply infinite regression.

Overview

- Contribution: Mix a GE approach with a market microstructure component to analyze FX intervention and monetary policy:
  - ⋆ Within a DSGE model for a small open economy with nominal rigidities;
  - ⋆ FX transactions are completed via risk-averse dealers;
  - ⋆ the CB follows a Taylor rule and undertakes FX intervention to either lean against the wind or reduce exchange rate volatility;
  - ⋆ heterogeneously informed agents apply infinite regression.

Overview

- Contribution: Mix a GE approach with a market microstructure component to analyze FX intervention and monetary policy:
  - ⋆ Within a DSGE model for a small open economy with nominal rigidities;
  - ⋆ FX transactions are completed via risk-averse dealers;
  - ⋆ the CB follows a Taylor rule and undertakes FX intervention to either lean against the wind or reduce exchange rate volatility;
  - ⋆ heterogeneously informed agents apply infinite regression.

Overview

- Comments:
  - Paper very interesting (mixing a GE approach with a market microstructure component is *unprecedented and very ambitious*)
- Suggestions:
  - Welfare analysis is possible within a GE formulation;
  - The GE formulation allows for normative analysis;
  - FX intervention and monetary policy can be coordinated;
  - FX intervention plays a signalling role;
  - Homogeneous information simplifies analysis and magnifies the role of central bank;
  - The trade account makes dynamics and welfare analysis richer

Overview

- Comments:
  - ⋆ Paper very interesting (mixing a GE approach with a market microstructure component is *unprecedented and very ambitious*)
- Suggestions:
  - ⋆ Welfare analysis is possible within a GE formulation;
  - ⋆ The GE formulation allows for normative analysis;
  - ⋆ FX intervention and monetary policy can be coordinated;
  - ⋆ FX intervention plays a signalling role;
  - ⋆ Homogeneous information simplifies analysis and magnifies the role of central bank;
  - ⋆ The trade account makes dynamics and welfare analysis richer

Overview

- Comments:
  - ⋆ Paper very interesting (mixing a GE approach with a market microstructure component is *unprecedented and very ambitious*)
- Suggestions:
  - ⋆ Welfare analysis is possible within a GE formulation;
  - ⋆ The GE formulation allows for normative analysis;
  - ⋆ FX intervention and monetary policy can be coordinated;
  - ⋆ FX intervention plays a signalling role;
  - ⋆ Homogeneous information simplifies analysis and magnifies the role of central bank;
  - ⋆ The trade account makes dynamics and welfare analysis richer.

Overview

- Comments:
  - ⋆ Paper very interesting (mixing a GE approach with a market microstructure component is *unprecedented and very ambitious*)
- Suggestions:
  - ⋆ Welfare analysis is possible within a GE formulation;
  - ⋆ The GE formulation allows for normative analysis;
  - ⋆ FX intervention and monetary policy can be coordinated;
  - ⋆ FX intervention plays a signalling role;
  - ⋆ Homogeneous information simplifies analysis and magnifies the role of central bank;
  - ⋆ The trade account makes dynamics and welfare analysis richer.

Overview

- Comments:
  - ⋆ Paper very interesting (mixing a GE approach with a market microstructure component is *unprecedented and very ambitious*)
- Suggestions:
  - ⋆ Welfare analysis is possible within a GE formulation;
  - ⋆ The GE formulation allows for normative analysis;
  - ⋆ FX intervention and monetary policy can be coordinated;
  - ⋆ FX intervention plays a signalling role;
  - ⋆ Homogeneous information simplifies analysis and magnifies the role of central bank;
  - ⋆ The trade account makes dynamics and welfare analysis richer.

Overview

- Comments:
  - Paper very interesting (mixing a GE approach with a market microstructure component is *unprecedented and very ambitious*)
- Suggestions:
  - Welfare analysis is possible within a GE formulation;
  - The GE formulation allows for normative analysis;
  - FX intervention and monetary policy can be coordinated;
  - FX intervention plays a signalling role;
  - Homogeneous information simplifies analysis and magnifies the role of central bank;
  - The trade account makes dynamics and welfare analysis richer.

Overview

- Comments:
  - ⋆ Paper very interesting (mixing a GE approach with a market microstructure component is *unprecedented and very ambitious*)
- Suggestions:
  - ⋆ Welfare analysis is possible within a GE formulation;
  - ⋆ The GE formulation allows for normative analysis;
  - ⋆ FX intervention and monetary policy can be coordinated;
  - ⋆ FX intervention plays a signalling role;
  - ⋆ Homogeneous information simplifies analysis and magnifies the role of central bank;
  - ⋆ The trade account makes dynamics and welfare analysis richer.

Overview

- Comments:
  - ⋆ Paper very interesting (mixing a GE approach with a market microstructure component is *unprecedented and very ambitious*)
- Suggestions:
  - ⋆ Welfare analysis is possible within a GE formulation;
  - ⋆ The GE formulation allows for normative analysis;
  - ⋆ FX intervention and monetary policy can be coordinated;
  - ⋆ FX intervention plays a signalling role;
  - ⋆ Homogeneous information simplifies analysis and magnifies the role of central bank;
  - ⋆ The trade account makes dynamics and welfare analysis richer.

Overview

- Comments:
  - ⋆ Paper very interesting (mixing a GE approach with a market microstructure component is *unprecedented and very ambitious*)
- Suggestions:
  - ⋆ Welfare analysis is possible within a GE formulation;
  - ⋆ The GE formulation allows for normative analysis;
  - ⋆ FX intervention and monetary policy can be coordinated;
  - ⋆ FX intervention plays a signalling role;
  - ⋆ Homogeneous information simplifies analysis and magnifies the role of central bank;
  - ⋆ The trade account makes dynamics and welfare analysis richer.

Literature Background: Empirical Evidence

- Research on FX intervention
  - ⋆ Dominguez and Frankel (1993a,1993c), Klein and Rosengren (1991), Watanabe (1992), Payne and Vitale (2003) show that FX intervention affects spot rates.
  - ⋆ Dominguez (1992), Lewis (1995), Kaminsky and Lewis (1996) show that FX intervention is informative of future monetary policy.
  - ⋆ Dominguez and Frankel (1993b, 1993c) show that FX intervention affects exchange rate expectations.
  - ⋆ Dominguez and Frankel (1993b) show that FX intervention affects FX risk-premia.
  - ⋆ Leahy (1995), Sweeney (2000) and Ito (2002) show that FX intervention is profitable.

Literature Background: Empirical Evidence

- Research on FX intervention
  - ⋆ Dominguez and Frankel (1993a,1993c), Klein and Rosengren (1991), Watanabe (1992), Payne and Vitale (2003) show that FX intervention affects spot rates.
  - ⋆ Dominguez (1992), Lewis (1995), Kaminsky and Lewis (1996) show that FX intervention is informative of future monetary policy.
  - ⋆ Dominguez and Frankel (1993b, 1993c) show that FX intervention affects exchange rate expectations.
  - ⋆ Dominguez and Frankel (1993b) show that FX intervention affects FX risk-premia.
  - ⋆ Leahy (1995), Sweeney (2000) and Ito (2002) show that FX intervention is profitable.

Literature Background: Empirical Evidence

- Research on FX intervention
  - ⋆ Dominguez and Frankel (1993a,1993c), Klein and Rosengren (1991), Watanabe (1992), Payne and Vitale (2003) show that FX intervention affects spot rates.
  - ⋆ Dominguez (1992), Lewis (1995), Kaminsky and Lewis (1996) show that FX intervention is informative of future monetary policy.
  - ⋆ Dominguez and Frankel (1993b, 1993c) show that FX intervention affects exchange rate expectations.
  - ⋆ Dominguez and Frankel (1993b) show that FX intervention affects FX risk-premia.
  - ⋆ Leahy (1995), Sweeney (2000) and Ito (2002) show that FX intervention is profitable.

Literature Background: Empirical Evidence

- Research on FX intervention
  - ⋆ Dominguez and Frankel (1993a,1993c), Klein and Rosengren (1991), Watanabe (1992), Payne and Vitale (2003) show that FX intervention affects spot rates.
  - ⋆ Dominguez (1992), Lewis (1995), Kaminsky and Lewis (1996) show that FX intervention is informative of future monetary policy.
  - ⋆ Dominguez and Frankel (1993b, 1993c) show that FX intervention affects exchange rate expectations.
  - ⋆ Dominguez and Frankel (1993b) show that FX intervention affects FX risk-premia.
  - ⋆ Leahy (1995), Sweeney (2000) and Ito (2002) show that FX intervention is profitable.

Literature Background: Empirical Evidence

- Research on FX intervention
  - ⋆ Dominguez and Frankel (1993a,1993c), Klein and Rosengren (1991), Watanabe (1992), Payne and Vitale (2003) show that FX intervention affects spot rates.
  - ⋆ Dominguez (1992), Lewis (1995), Kaminsky and Lewis (1996) show that FX intervention is informative of future monetary policy.
  - ⋆ Dominguez and Frankel (1993b, 1993c) show that FX intervention affects exchange rate expectations.
  - ⋆ Dominguez and Frankel (1993b) show that FX intervention affects FX risk-premia.
  - ⋆ Leahy (1995), Sweeney (2000) and Ito (2002) show that FX intervention is profitable.

Literature Background: Empirical Evidence

- Research on FX intervention
  - ⋆ Dominguez and Frankel (1993a,1993c), Klein and Rosengren (1991), Watanabe (1992), Payne and Vitale (2003) show that FX intervention affects spot rates.
  - ⋆ Dominguez (1992), Lewis (1995), Kaminsky and Lewis (1996) show that FX intervention is informative of future monetary policy.
  - ⋆ Dominguez and Frankel (1993b, 1993c) show that FX intervention affects exchange rate expectations.
  - ⋆ Dominguez and Frankel (1993b) show that FX intervention affects FX risk-premia.
  - ⋆ Leahy (1995), Sweeney (2000) and Ito (2002) show that FX intervention is profitable.

Literature Background: Empirical Evidence

- Research on FX market microstructure
  - ⋆ Evans and Lyons (2002), Payne (2003) show strong positive correlation between signed order flow and returns in FX markets.
  - ⋆ Evans and Lyons (2002), Payne (2003), Berger et al. (2005), Biønnes and Rime (2005), Froot and Ramadorai (2005) show large, persistent and significant impact of order flow on returns.
  - ⋆ Evans and Lyons (2008) show that customer order flow predicts FX fundamentals.
  - ⋆ Breedon and Vitale (2010) show that order flow impacts FX returns via both portfolio-balance and information effects.

Literature Background: Empirical Evidence

- Research on FX market microstructure
  - ⋆ Evans and Lyons (2002), Payne (2003) show strong positive correlation between signed order flow and returns in FX markets.
  - ⋆ Evans and Lyons (2002), Payne (2003), Berger et al. (2005), Biønnes and Rime (2005), Froot and Ramadorai (2005) show large, persistent and significant impact of order flow on returns.
  - ⋆ Evans and Lyons (2008) show that customer order flow predicts FX fundamentals.
  - ⋆ Breedon and Vitale (2010) show that order flow impacts FX returns via both portfolio-balance and information effects.

Literature Background: Empirical Evidence

- Research on FX market microstructure
  - ⋆ Evans and Lyons (2002), Payne (2003) show strong positive correlation between signed order flow and returns in FX markets.
  - ⋆ Evans and Lyons (2002), Payne (2003), Berger et al. (2005), Biønnes and Rime (2005), Froot and Ramadorai (2005) show large, persistent and significant impact of order flow on returns.
  - ⋆ Evans and Lyons (2008) show that customer order flow predicts FX fundamentals.
  - ⋆ Breedon and Vitale (2010) show that order flow impacts FX returns via both portfolio-balance and information effects.

Literature Background: Empirical Evidence

- Research on FX market microstructure
  - ⋆ Evans and Lyons (2002), Payne (2003) show strong positive correlation between signed order flow and returns in FX markets.
  - ⋆ Evans and Lyons (2002), Payne (2003), Berger et al. (2005), Biønnes and Rime (2005), Froot and Ramadorai (2005) show large, persistent and significant impact of order flow on returns.
  - ⋆ Evans and Lyons (2008) show that customer order flow predicts FX fundamentals.
  - ⋆ Breedon and Vitale (2010) show that order flow impacts FX returns via both portfolio-balance and information effects.

Literature Background: Empirical Evidence

- Research on FX market microstructure
  - ⋆ Evans and Lyons (2002), Payne (2003) show strong positive correlation between signed order flow and returns in FX markets.
  - ⋆ Evans and Lyons (2002), Payne (2003), Berger et al. (2005), Biønnes and Rime (2005), Froot and Ramadorai (2005) show large, persistent and significant impact of order flow on returns.
  - ⋆ Evans and Lyons (2008) show that customer order flow predicts FX fundamentals.
  - ⋆ Breedon and Vitale (2010) show that order flow impacts FX returns via both portfolio-balance and information effects.

Literature Background: Theory

- FX market microstructure
  - ⋆ Lyons (1997), Evans and Lyons (2004), Bacchetta and van Wincoop (2006), Hau and Rey (2006), Breedon and Vitale (2010): models of liquidity and information effects.
- FX intervention
  - ⋆ Bhattacharya and Weller (1997), Vitale (1999) and Montgomery and Popper (2001): models of signalling channel.
  - ⋆ Vitale (2011): model of signalling and portfolio-balance channels.
  - ⋆ Vitale (2003): model of FX intervention and monetary policy.
- Comment: What's missing? A GE formulation!

Literature Background: Theory

- FX market microstructure
  - ⋆ Lyons (1997), Evans and Lyons (2004), Bacchetta and van Wincoop (2006), Hau and Rey (2006), Breedon and Vitale (2010): models of liquidity and information effects.
- FX intervention
  - ⋆ Bhattacharya and Weller (1997), Vitale (1999) and Montgomery and Popper (2001): models of signalling channel.
  - ⋆ Vitale (2011): model of signalling and portfolio-balance channels.
  - ⋆ Vitale (2003): model of FX intervention and monetary policy.
- Comment: What's missing? A GE formulation!

Literature Background: Theory

- FX market microstructure
  - ⋆ Lyons (1997), Evans and Lyons (2004), Bacchetta and van Wincoop (2006), Hau and Rey (2006), Breedon and Vitale (2010): models of liquidity and information effects.
- FX intervention
  - ⋆ Bhattacharya and Weller (1997), Vitale (1999) and Montgomery and Popper (2001): models of signalling channel.
  - ⋆ Vitale (2011): model of signalling and portfolio-balance channels.
  - ⋆ Vitale (2003): model of FX intervention and monetary policy.
- Comment: What's missing? A GE formulation!

Literature Background: Theory

- FX market microstructure
  - ⋆ Lyons (1997), Evans and Lyons (2004), Bacchetta and van Wincoop (2006), Hau and Rey (2006), Breedon and Vitale (2010): models of liquidity and information effects.
- FX intervention
  - ⋆ Bhattacharya and Weller (1997), Vitale (1999) and Montgomery and Popper (2001): models of signalling channel.
  - ⋆ Vitale (2011): model of signalling and portfolio-balance channels.
  - ⋆ Vitale (2003): model of FX intervention and monetary policy.
- Comment: What's missing? A GE formulation!

Literature Background: Theory

- FX market microstructure
  - ⋆ Lyons (1997), Evans and Lyons (2004), Bacchetta and van Wincoop (2006), Hau and Rey (2006), Breedon and Vitale (2010): models of liquidity and information effects.
- FX intervention
  - ⋆ Bhattacharya and Weller (1997), Vitale (1999) and Montgomery and Popper (2001): models of signalling channel.
  - ⋆ Vitale (2011): model of signalling and portfolio-balance channels.
  - ⋆ Vitale (2003): model of FX intervention and monetary policy.
- Comment: What's missing? A GE formulation!

Literature Background: Theory

- FX market microstructure
  - ⋆ Lyons (1997), Evans and Lyons (2004), Bacchetta and van Wincoop (2006), Hau and Rey (2006), Breedon and Vitale (2010): models of liquidity and information effects.
- FX intervention
  - ⋆ Bhattacharya and Weller (1997), Vitale (1999) and Montgomery and Popper (2001): models of signalling channel.
  - ⋆ Vitale (2011): model of signalling and portfolio-balance channels.
  - ⋆ Vitale (2003): model of FX intervention and monetary policy.
- Comment: What's missing? A GE formulation!

Literature Background: Theory

- FX market microstructure
  - ⋆ Lyons (1997), Evans and Lyons (2004), Bacchetta and van Wincoop (2006), Hau and Rey (2006), Breedon and Vitale (2010): models of liquidity and information effects.
- FX intervention
  - ⋆ Bhattacharya and Weller (1997), Vitale (1999) and Montgomery and Popper (2001): models of signalling channel.
  - ⋆ Vitale (2011): model of signalling and portfolio-balance channels.
  - ⋆ Vitale (2003): model of FX intervention and monetary policy.
- Comment: What's missing? A GE formulation!

Literature Background: Theory

- FX market microstructure
  - ⋆ Lyons (1997), Evans and Lyons (2004), Bacchetta and van Wincoop (2006), Hau and Rey (2006), Breedon and Vitale (2010): models of liquidity and information effects.
- FX intervention
  - ⋆ Bhattacharya and Weller (1997), Vitale (1999) and Montgomery and Popper (2001): models of signalling channel.
  - ⋆ Vitale (2011): model of signalling and portfolio-balance channels.
  - ⋆ Vitale (2003): model of FX intervention and monetary policy.
- Comment: What's missing? A GE formulation!

Montoro and Ortiz's Formulation

- General Equilibrium:
  - households' preferences over leisure and consumption of domestic and foreign goods;
  - labor is the input of competitive intermediate goods firms;
  - monopolistic competitive firms produce domestic and foreign final goods.
- FX market microstructure:
  - risk-averse dealers absorb capital inflows from investors and central bank;
  - market clearing yields modified UIP:

$$\bar{E}_t[\tilde{s}_{t+1}] = (i_t - i_t^*) + \gamma\sigma^2(\bar{w}_t^* + \bar{w}_t^{*,cb}).$$

Montoro and Ortiz's Formulation

- General Equilibrium:
  - ⋆ households' preferences over leisure and consumption of domestic and foreign goods;
  - ⋆ labor is the input of competitive intermediate goods firms;
  - ⋆ monopolistic competitive firms produce domestic and foreign final goods.
- FX market microstructure:
  - ⋆ risk-averse dealers absorb capital inflows from investors and central bank;
  - ⋆ market clearing yields modified UIP:

$$\bar{E}_t\left[\breve{s}_{t+1}\right] = \left(i_t - i_t^*\right) + \gamma\sigma^2\left(\bar{w}_t^* + \bar{w}_t^{*,cb}\right).$$

Montoro and Ortiz's Formulation

- General Equilibrium:
  - ⋆ households' preferences over leisure and consumption of domestic and foreign goods;
  - ⋆ labor is the input of competitive intermediate goods firms;
  - ⋆ monopolistic competitive firms produce domestic and foreign final goods.
- FX market microstructure:
  - ⋆ risk-averse dealers absorb capital inflows from investors and central bank;
  - ⋆ market clearing yields modified UIP:

$$\bar{E}_t[\bar{s}_{t+1}] = (i_t - i_t^*) + \gamma\sigma^2 \left(\bar{w}_t^* + \bar{w}_t^{*,cb}\right).$$

Montoro and Ortiz's Formulation

- General Equilibrium:
  - ⋆ households' preferences over leisure and consumption of domestic and foreign goods;
  - ⋆ labor is the input of competitive intermediate goods firms;
  - ⋆ monopolistic competitive firms produce domestic and foreign final goods.
- FX market microstructure:
  - ⋆ risk-averse dealers absorb capital inflows from investors and central bank;
  - ⋆ market clearing yields modified UIP:

$$\bar{E}_t\left[\bar{s}_{t+1}\right] = \left(i_t - i_t^*\right) + \gamma\sigma^2\left(\bar{w}_t^* + \bar{w}_t^{*,cb}\right).$$

Montoro and Ortiz's Formulation

- General Equilibrium:
  - ⋆ households' preferences over leisure and consumption of domestic and foreign goods;
  - ⋆ labor is the input of competitive intermediate goods firms;
  - ⋆ monopolistic competitive firms produce domestic and foreign final goods.
- FX market microstructure:
  - ⋆ risk-averse dealers absorb capital inflows from investors and central bank;
  - ⋆ market clearing yields modified UIP:

$$\bar{E}_t[\tilde{s}_{t+1}] = (i_t - i_t^*) + \gamma\sigma^2 \left(\bar{w}_t^* + \bar{w}_t^{*,cb}\right).$$

Montoro and Ortiz's Formulation

- General Equilibrium:
  - households' preferences over leisure and consumption of domestic and foreign goods;
  - labor is the input of competitive intermediate goods firms;
  - monopolistic competitive firms produce domestic and foreign final goods.
- FX market microstructure:
  - risk-averse dealers absorb capital inflows from investors and central bank;
  - market clearing yields modified UIP:

$$\bar{E}_t[\tilde{s}_{t+1}] = (i_t - i_t^*) + \gamma\sigma^2 \left(\bar{w}_t^* + \bar{w}_t^{*,cb}\right).$$

Montoro and Ortiz's Formulation

- General Equilibrium:
  - ⋆ households' preferences over leisure and consumption of domestic and foreign goods;
  - ⋆ labor is the input of competitive intermediate goods firms;
  - ⋆ monopolistic competitive firms produce domestic and foreign final goods.
- FX market microstructure:
  - ⋆ risk-averse dealers absorb capital inflows from investors and central bank;
  - ⋆ market clearing yields modified UIP:

$$\bar{E}_t[\tilde{s}_{t+1}] = (i_t - i_t^*) + \gamma\sigma^2 (\bar{w}_t^* + \bar{w}_t^{*,cb}).$$

Monetary Policy and FX Intervention

- Monetary policy follows simple Taylor rule: $i_t = f(\Pi_t) + \eta_t$.
  - As FX intervention is sterilized, monetary policy is autonomous.
- FX intervention can be:
  - discretionary: $w_t^{*,cb} = \epsilon_t$.
  - pre-announced: $w_t^{*,cb} = \phi_\Delta \Delta s_t + \epsilon_t$, or $w_t^{*,cb} = \phi_{rer} rer_t + \epsilon_t$.
  - Pre-announced FX intervention affects spot rate expectations, even if it does not convey information on FX fundamentals.

Monetary Policy and FX Intervention

- Monetary policy follows simple Taylor rule: $i_t = f(\Pi_t) + \eta_t$.
  - As FX intervention is sterilized, monetary policy is autonomous.
- FX intervention can be:
  - discretionary: $w_t^{*,cb} = \epsilon_t$;
  - pre-announced: $w_t^{*,cb} = \phi_\Delta \Delta s_t + \epsilon_t$, or $w_t^{*,cb} = \phi_{rer} rer_t + \epsilon_t$.
  - Pre-announced FX intervention affects spot rate expectations, even if it does not convey information on FX fundamentals.

Monetary Policy and FX Intervention

- Monetary policy follows simple Taylor rule: $i_t = f(\Pi_t) + \eta_t$.
  - ⋆ As FX intervention is sterilized, monetary policy is autonomous.
- FX intervention can be:
  - ⋆ discretionary: $w_t^{*,cb} = \epsilon_t$;
  - ⋆ pre-announced: $w_t^{*,cb} = \phi_\Delta \Delta s_t + \epsilon_t$, or $w_t^{*,cb} = \phi_{rer} rer_t + \epsilon_t$.
  - ⋆ Pre-announced FX intervention affects spot rate expectations, even if it does not convey information on FX fundamentals.

Monetary Policy and FX Intervention

- Monetary policy follows simple Taylor rule: $i_t = f(\Pi_t) + \eta_t$.
  - ⋆ As FX intervention is sterilized, monetary policy is autonomous.
- FX intervention can be:
  - ⋆ discretionary: $w_t^{*,cb} = \epsilon_t$;
  - ⋆ pre-announced: $w_t^{*,cb} = \phi_\Delta \Delta s_t + \epsilon_t$, or $w_t^{*,cb} = \phi_{rer} \mathrm{rer}_t + \epsilon_t$.
  - ⋆ Pre-announced FX intervention affects spot rate expectations, even if it does not convey information on FX fundamentals.

Monetary Policy and FX Intervention

- Monetary policy follows simple Taylor rule: $i_t = f(\Pi_t) + \eta_t$.
  - ⋆ As FX intervention is sterilized, monetary policy is autonomous.
- FX intervention can be:
  - ⋆ discretionary: $w_t^{*,cb} = \epsilon_t$;
  - ⋆ pre-announced: $w_t^{*,cb} = \phi_\Delta \Delta s_t + \epsilon_t$, or $w_t^{*,cb} = \phi_{rer} \mathrm{rer}_t + \epsilon_t$.
  - ⋆ Pre-announced FX intervention affects spot rate expectations, even if it does not convey information on FX fundamentals.

Monetary Policy and FX Intervention

- Monetary policy follows simple Taylor rule: $i_t = f(\Pi_t) + \eta_t$.
  - ⋆ As FX intervention is sterilized, monetary policy is autonomous.
- FX intervention can be:
  - ⋆ discretionary: $w_t^{*,cb} = \epsilon_t$;
  - ⋆ pre-announced: $w_t^{*,cb} = \phi_\Delta \Delta s_t + \epsilon_t$, or $w_t^{*,cb} = \phi_{rer} \mathrm{rer}_t + \epsilon_t$.
  - ⋆ Pre-announced FX intervention affects spot rate expectations, even if it does not convey information on FX fundamentals.

Main Results

- The GE formulation allows to see the impact of monetary policy and FX intervention on macro-variables.
- FX intervention *stabilizes* the economy and *reduces* volatility.
- The impact of discretionary FX intervention is larger than that of pre-announced FX intervention.
- FX intervention *reduces* the impact of monetary policy.
- FX intervention *reduces* the impact of capital inflows.
- The impact of capital inflows is smaller with heterogeneously informed than with fully informed dealers.

Main Results

- The GE formulation allows to see the impact of monetary policy and FX intervention on macro-variables.
- FX intervention *stabilizes* the economy and *reduces* volatility.
- The impact of discretionary FX intervention is larger than that of pre-announced FX intervention.
- FX intervention *reduces* the impact of monetary policy.
- FX intervention *reduces* the impact of capital inflows.
- The impact of capital inflows is smaller with heterogeneously informed than with fully informed dealers.

Main Results

- The GE formulation allows to see the impact of monetary policy and FX intervention on macro-variables.
- FX intervention *stabilizes* the economy and *reduces* volatility.
- The impact of discretionary FX intervention is larger than that of pre-announced FX intervention.
- FX intervention *reduces* the impact of monetary policy.
- FX intervention *reduces* the impact of capital inflows.
- The impact of capital inflows is smaller with heterogeneously informed than with fully informed dealers.

Main Results

- The GE formulation allows to see the impact of monetary policy and FX intervention on macro-variables.
- FX intervention *stabilizes* the economy and *reduces* volatility.
- The impact of discretionary FX intervention is larger than that of pre-announced FX intervention.
- FX intervention *reduces* the impact of monetary policy.
- FX intervention *reduces* the impact of capital inflows.
- The impact of capital inflows is smaller with heterogeneously informed than with fully informed dealers.

Main Results

- The GE formulation allows to see the impact of monetary policy and FX intervention on macro-variables.
- FX intervention *stabilizes* the economy and *reduces* volatility.
- The impact of discretionary FX intervention is larger than that of pre-announced FX intervention.
- FX intervention *reduces* the impact of monetary policy.
- FX intervention *reduces* the impact of capital inflows.
- The impact of capital inflows is smaller with heterogeneously informed than with fully informed dealers.

Main Results

- The GE formulation allows to see the impact of monetary policy and FX intervention on macro-variables.
- FX intervention *stabilizes* the economy and *reduces* volatility.
- The impact of discretionary FX intervention is larger than that of pre-announced FX intervention.
- FX intervention *reduces* the impact of monetary policy.
- FX intervention *reduces* the impact of capital inflows.
- The impact of capital inflows is smaller with heterogeneously informed than with fully informed dealers.

Comments

- Paper shows plenty of results: some need economic intuition.
- Show moments of macro-variables at different leads.
- Consider sensitiveness analysis to parametrization. Could choose calibration specific to Latin-American countries.
- Compare the impact of FX intervention on existence of equilibria (Figure 2) with Vitale (2011).
- Because of complexity, consider only full information.

Comments

- Paper shows plenty of results: some need economic intuition.
- Show moments of macro-variables at different leads.
- Consider sensitiveness analysis to parametrization. Could choose calibration specific to Latin-American countries.
- Compare the impact of FX intervention on existence of equilibria (Figure 2) with Vitale (2011).
- Because of complexity, consider only full information.

Comments

- Paper shows plenty of results: some need economic intuition.
- Show moments of macro-variables at different leads.
- Consider sensitiveness analysis to parametrization. Could choose calibration specific to Latin-American countries.
- Compare the impact of FX intervention on existence of equilibria (Figure 2) with Vitale (2011).
- Because of complexity, consider only full information.

Comments

- Paper shows plenty of results: some need economic intuition.
- Show moments of macro-variables at different leads.
- Consider sensitiveness analysis to parametrization. Could choose calibration specific to Latin-American countries.
- Compare the impact of FX intervention on existence of equilibria (Figure 2) with Vitale (2011).
- Because of complexity, consider only full information.

Comments

- Paper shows plenty of results: some need economic intuition.
- Show moments of macro-variables at different leads.
- Consider sensitiveness analysis to parametrization. Could choose calibration specific to Latin-American countries.
- Compare the impact of FX intervention on existence of equilibria (Figure 2) with Vitale (2011).
- Because of complexity, consider only full information.

Comments

The GE formulation allows for welfare analysis.

- Numerical methods could permit:
  - ⋆ normative analysis; and
  - ⋆ analysis of coordinated FX intervention and monetary policy.
- FX intervention could signal monetary shocks, $w_t^{*,cb} = \psi_\eta \eta_{t+1}$, and improve welfare.

Comments

The GE formulation allows for welfare analysis.

- Numerical methods could permit:
  - normative analysis; and
  - analysis of coordinated FX intervention and monetary policy.
- FX intervention could signal monetary shocks, $w_t^{*,cb} = \phi_\eta \eta_{t+1}$, and improve welfare.

Comments

The GE formulation allows for welfare analysis.

- Numerical methods could permit:
  - ⋆ normative analysis; and
  - ⋆ analysis of coordinated FX intervention and monetary policy.
- FX intervention could signal monetary shocks, $w_t^{*,cb} = \phi_\eta \eta_{t+1}$, and improve welfare.

Comments

The GE formulation allows for welfare analysis.

- Numerical methods could permit:
  - ⋆ normative analysis; and
  - ⋆ analysis of coordinated FX intervention and monetary policy.
- FX intervention could signal monetary shocks, $w_t^{*,cb} = \phi_\eta \eta_{t+1}$, and improve welfare.

Comments

The GE formulation allows for welfare analysis.

- Numerical methods could permit:
  - ⋆ normative analysis; and
  - ⋆ analysis of coordinated FX intervention and monetary policy.
- FX intervention could signal monetary shocks, $w_t^{*,cb} = \phi_\eta \eta_{t+1}$, and improve welfare.

Comments

The trade account makes dynamics and welfare analysis richer.

- In the FX market customers' orders correspond to capital *and* commercial flows, but in the model
  - capital flows are exogenous
  - and commercial flows are absent
- Commercial flows stem from the the trade account balance

$$\frac{B_t}{P_t} - \frac{B_{t-1}}{P_{t-1}} = \frac{P_t^{def}}{P_t} Y_t - C_t + \left(\frac{1+i_{t-1}}{\Pi_t} - 1\right)\frac{B_{t-1}}{P_{t-1}} + REST_t$$

- An important interaction between the macro-economy and the FX market is shut down.
- While analytically challenging, investigating it could be fruitful

Comments

The trade account makes dynamics and welfare analysis richer.

- In the FX market customers' orders correspond to capital *and* commercial flows, but in the model
  - ⋆ capital flows are *exogenous*
  - ⋆ and commercial flows are *absent*.
- Commercial flows stem from the the trade account balance:

$$\frac{\overline{B}_t}{P_t} - \frac{\overline{B}_{t-1}}{P_{t-1}} = \frac{P_t^{\text{def}}}{P_t} Y_t - C_t + \left(\frac{1+i_{t-1}}{\Pi_t} - 1 \right) \frac{\overline{B}_{t-1}}{P_{t-1}} + \text{REST}_t .$$

- An important interaction between the macro-economy and the FX market is shut down.
- While analytically challenging, investigating it could be fruitful

Comments

The trade account makes dynamics and welfare analysis richer.

- In the FX market customers' orders correspond to capital *and* commercial flows, but in the model
  - ⋆ capital flows are *exogenous*
  - ⋆ and commercial flows are *absent*.
- Commercial flows stem from the the trade account balance:

$$\frac{\overline{B}_t}{P_t} - \frac{\overline{B}_{t-1}}{P_{t-1}} = \frac{P_t^{\text{def}}}{P_t} Y_t - C_t + \left(\frac{1+i_{t-1}}{\Pi_t} - 1 \right) \frac{\overline{B}_{t-1}}{P_{t-1}} + \text{REST}_t .$$

- An important interaction between the macro-economy and the FX market is shut down.
- While analytically challenging, investigating it could be fruitful.

Comments

The trade account makes dynamics and welfare analysis richer.

- In the FX market customers' orders correspond to capital *and* commercial flows, but in the model
  - capital flows are *exogenous*
  - and commercial flows are *absent*.
- Commercial flows stem from the the trade account balance:

$$\frac{\overline{B}_t}{P_t} - \frac{\overline{B}_{t-1}}{P_{t-1}} = \frac{P_t^{\text{def}}}{P_t} Y_t - C_t + \left(\frac{1 + i_{t-1}}{\Pi_t} - 1 \right) \frac{\overline{B}_{t-1}}{P_{t-1}} + \text{REST}_t \,.$$

- An important interaction between the macro-economy and the FX market is shut down.
- While analytically challenging, investigating it could be fruitful.

Comments

The trade account makes dynamics and welfare analysis richer.

- In the FX market customers' orders correspond to capital *and* commercial flows, but in the model
  - ⋆ capital flows are *exogenous*
  - ⋆ and commercial flows are *absent*.
- Commercial flows stem from the the trade account balance:

$$\frac{\overline{B}_t}{P_t} - \frac{\overline{B}_{t-1}}{P_{t-1}} = \frac{P_t^{\mathrm{def}}}{P_t} Y_t - C_t + \left(\frac{1 + i_{t-1}}{\Pi_t} - 1 \right) \frac{\overline{B}_{t-1}}{P_{t-1}} + \mathrm{REST}_t \, .$$

- An important interaction between the macro-economy and the FX market is shut down.
- While analytically challenging, investigating it could be fruitful.

Comments

The trade account makes dynamics and welfare analysis richer.

- In the FX market customers' orders correspond to capital *and* commercial flows, but in the model
  - capital flows are *exogenous*
  - and commercial flows are *absent*.
- Commercial flows stem from the the trade account balance:

$$\frac{\overline{B}_t}{P_t} - \frac{\overline{B}_{t-1}}{P_{t-1}} = \frac{P_t^{\mathrm{def}}}{P_t} Y_t - C_t + \left(\frac{1+i_{t-1}}{\Pi_t} - 1 \right) \frac{\overline{B}_{t-1}}{P_{t-1}} + \mathrm{REST}_t \, .$$

- An important interaction between the macro-economy and the FX market is shut down.
- While analytically challenging, investigating it could be fruitful.

Comments

The trade account makes dynamics and welfare analysis richer.

- In the FX market customers' orders correspond to capital *and* commercial flows, but in the model
  - capital flows are *exogenous*
  - and commercial flows are *absent*.
- Commercial flows stem from the the trade account balance:

$$\frac{\overline{B}_t}{P_t} - \frac{\overline{B}_{t-1}}{P_{t-1}} = \frac{P_t^{\text{def}}}{P_t} Y_t - C_t + \left(\frac{1 + i_{t-1}}{\Pi_t} - 1 \right) \frac{\overline{B}_{t-1}}{P_{t-1}} + \text{REST}_t \, .$$

- An important interaction between the macro-economy and the FX market is shut down.
- While analytically challenging, investigating it could be fruitful.