

The Impact of Residents' Overseas Investment on Domestic Swap Rate and Local Exchange Rate

Young Sik JEONG Director General, New Southern Policy Department (ysjeong@kiep.go.kr)

Eunjung Kang Senior Researcher, International Macroeconomics and Finance Department (ejkang@kiep.go.kr)

Tae Soo KANG Senior Fellow, i-See Solution (taesoo.kang58@gmail.com)

Kyunghun KIM Professor, Department of Economics, Hongik University (hunkim0831@gmail.com)

I. Introduction

Korean residents' overseas portfolio investment has increased sharply since the year of 2011. Overseas portfolio investment has increased from \$100 billion in 2000 to \$498 billion (equity securities \$294 billion, debt securities \$204 billion) in March 2019. The trend is expected to continue due to macroeconomic conditions (low interest rates, expansion of savings over retirement), government policies (activation and deregulation related to overseas investment), and institutional changes (introduction of IFRS in the insurance industry). The trend will have influences on the Korean financial market through various channels. In particular, it is likely to affect the FX market, FX swap market and the external macro-prudential status (short term external debt). Thus it is necessary to analyze the effects and prepare for risks in advance. This study is aimed at presenting policy implications for stabilizing the FX market and FX swap market through empirical studies.

II. Effect of residents' overseas securities investments on FX market

We examine the impact of the residents' foreign portfolio investments (bonds and equity) on swap rates and local exchange rates using the Simultaneous Equations Model (SEM). SEM can effectively mitigate the endogeneity problem under the control of other factors that might affect swap rates and exchange rates. We use panel data of 18 emerging economies including Korea from 2000 to 2017.

The empirical findings of the SEM with the panel data show that the effect of residents' foreign bond investment and foreign equity investment on swap rates and exchange rates are different (see Table 1). Residents' foreign bond investment lowers the swap rates, while the residents' foreign equity investment has no impact on the swap rates. On the other hand, the effect on the exchange rates is opposite. The effect of residents' foreign bond investments on exchange rates is statistically insignificant. However, residents' foreign equity investments are closely linked to the depreciation of Korean

won. One notable outcome is that the effect of residents' foreign bond investment on swap rates is more pronounced in emerging market economies (see Appendix Table 1 and Table 2). These empirical results can be explained by the different hedge practices of foreign bond and equity investment to deal with the exchange rate risk. In general, residents' overseas bond investment lowers the swap rate by using the swap market to hedge exchange rate risk. However, investors who make overseas equity investment normally exchange their local currency to foreign currency at the spot exchange market. In this process, the value of the local currency is depreciated. These empirical results are consistent with the result from the VAR model using Korean monthly data (Figure 1).

The impact of a 0.3% increase in residents' overseas debt investment affected a 0.2% reduction of swap rates, and the value of Korean won (ER) has appreciated against the US dollar by 0.6% at the beginning and then depreciated by 0.6–0.7%. While the impact of a 0.3% increase in residents' overseas equity investment on the swap rate is not statistically significant, the value of Korean won (ER) has appreciated by 0.3% and then depreciated by 0.5%.

III. Policy suggestions

1. Conclusion

Residents' overseas investments are likely to expand regardless of current account surplus or deficit. Net outflows from financial accounts have increased even though net inflows from current accounts have declined since 2015. Financial product is insufficient even though demand in overseas investment by institutional

investors such as pension funds and life insurers has been increasing. In the case of the National Pension Fund, which continues to increase in size, domestic investment products are insufficient. The demand for overseas long-term debt securities is expected to surge because institutional investors (insurance and asset management corporations) need to eliminate a duration mismatch due to implementation of IFRS 17 from 2023.

The authorities have to strengthen macro-prudential management due to an increase in residents' overseas investment. A slowdown in inflow of current account and a decrease in outflow of financial account are likely to lead to an increase in short-term external debt. This can lead to an increase in short-term borrowings of foreign bank branches and resident investors becoming highly dependent on the swap market. Moreover Korean insurance companies are exposed to residual rollover risk since most life insurers seek to maintain a 100% hedge ratio. Insurers' duration of overseas debt investment bonds (18 years) significantly exceeded an average tenor of buy & sell (1.3 years) at the end of May 2019.

An increase in hedge costs is likely to dampen excessive hedging behavior. Investing in US Treasury bonds after hedging provides profitable advantages since the Korean won FX swap basis against the US dollar tended to be positive up to 2017. Swap basis turned negative after 2017, however, as incentives to invest in US Treasury bonds were reduced. Therefore, it is important to correct insurers' hedging practice in order to establish a virtuous cycle in which idle foreign currency-denominated funds arise as a result of the current account surplus.

2. Policy implications

① Incentives for un-hedged foreign currency investments

Based on the results of the empirical analysis, residents' overseas foreign equity investments are closely related to the depreciation of Korean won. Particularly, Korea's National Pension Service (NPS) is a leading example to other institutional investors. The NPS decided to stop currency hedging on its overseas debt investment by cutting the hedging target rate to zero. Thus it is necessary to offer incentives to domestic investors lowering their hedging target rate like the NPS.

② A governance framework to reconcile differences between macroeconomic authorities and financial regulators

Market participants say that government authorities hold different positions on risk hedging regulations associated with overseas portfolio investments. For example, macroeconomic regulators expect to improve hedging practices in order to establish a virtuous cycle in which idle foreign currency-denominated funds arise as a result of current account surplus. On the contrary, financial regulators seeking financial stability are expected to strengthen investors' risk firewalls.

③ Strengthened risk responses to changes in accounting standards and capital adequacy regulations

IFRS 17 was introduced by the International

Accounting Standards Committee (IASB) on May 2017. In Korea, IFRS 17 will be introduced in 2023. IFRS 17 is required for all listed companies and financial institutions. As IFRS 17 is expected to be implemented in 2023, it is necessary to respond to risks such as a reduction of insurers' capital, high volatility of profit or loss, and widening duration gaps.

④ Activation of foreign currency denominated insurance sales

It is necessary to induce domestic insurance companies to handle foreign currency denominated insurance, up to now mostly sold by foreign insurance companies. When foreign currency insurance increases, insurers' hedging ratio may decrease. In addition, an increase in foreign currency insurance can mitigate the effects of an appreciation of the Korean won driven by current account surplus. In the case of Japanese insurers, foreign currency insurance premium accounts for 20% to 30% of insurance premium. It is necessary to expand foreign currency insurance considering an example of Japanese insurance companies.

⑤ De-regulation of Risk-Based Capital (RBC) ratio

RBC ratio regulation needs to be improved to relieve excessive hedging ratios.

Korean insurance companies are required to maintain their RBC ratio above the regulatory standard of 100 percent. An increase in available capital (numerator)¹ or a decrease in required capital (denominator)² is necessary to

1 Available capital is calculated by first aggregating an insurance company's core capital, which primarily consist of capital stock (paid-in capital and capital surplus), retained earnings, and accumulated other comprehensive income, and supplementary capital such as subordinated debt and loan loss reserves, then deducting from the aggregate capital items including prepaid expenses, deferred acquisition cost, and goodwill, and any capital

shortfalls of the insurance company's subsidiaries.

2 Required capital, the denominator of the RBC ratio measuring the insurance company's total risk, is capital calculated from the insurance company's underlying exposures to insurance risk, interest rate risk, market risk, credit risk, and operational risk.

increase the RBC ratio. When considering insurance companies, a decreasing solvency capital requirement is an easier choice than increasing available capital reserve. It is necessary to touch on the current regulatory framework that forces insurance companies to 100% hedge.

⑥ **Countermeasures to changes in accounting standards and capital adequacy regulations**

Authorities need to respond to the IFRS 17 risks. Assets and liabilities need to be evaluated to mark-to-market in accordance with IFRS17 implemented in 2023. Accordingly, exposure to interest rate fluctuation is expected to grow as duration gap gets bigger. Looking at the interest-earning assets and liabilities by maturity, the ratio of long-term interest-earning liabilities (69%) is overwhelmingly higher than the ratio of long-term interest-earning assets (15%). Thus authorities are required to respond to the risk arising from the implementation of IFRS17.

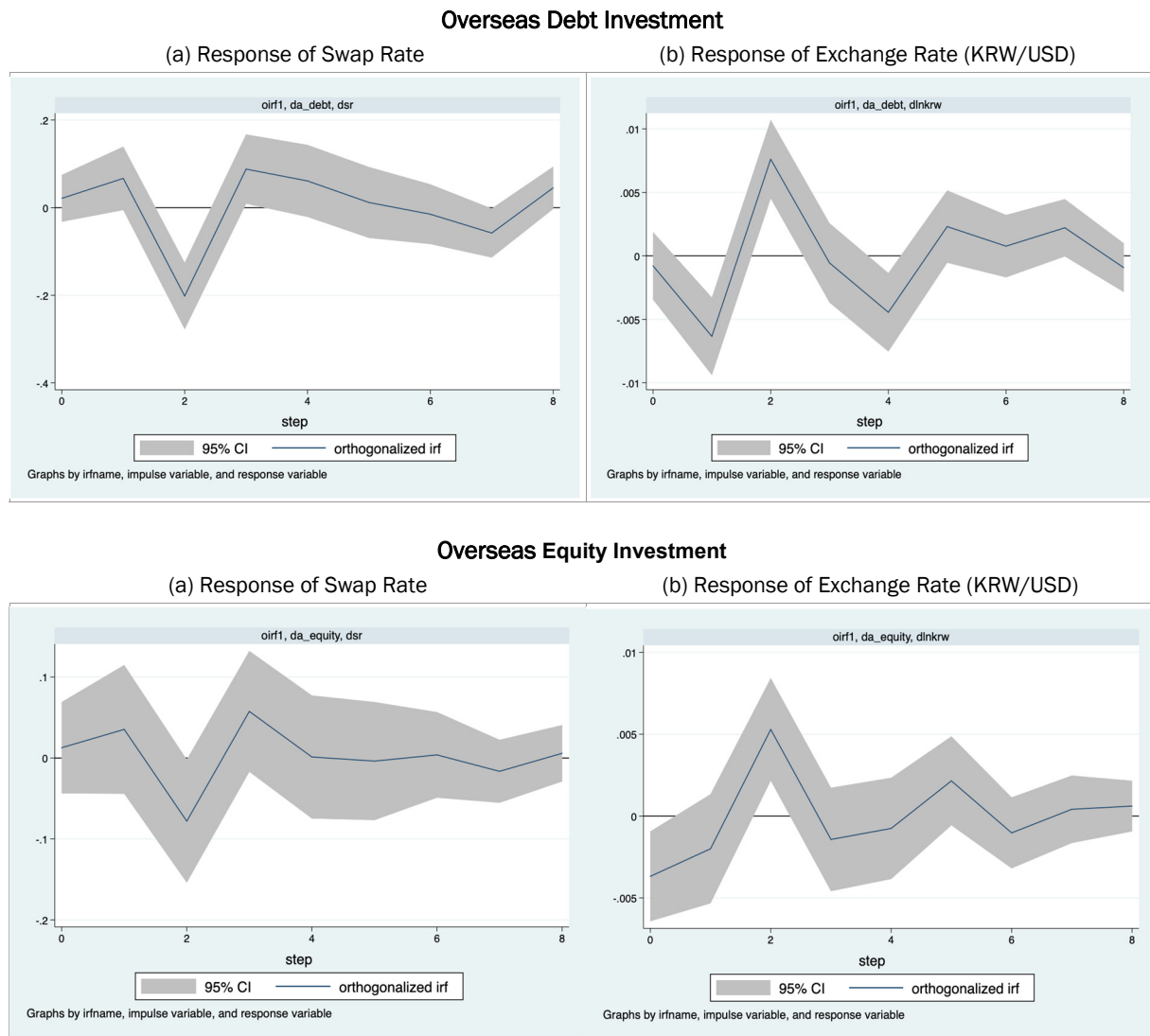
KIEP

Table 1. (BASELINE) Result of the SEM: Bond/Equity

Dependent Variables:	(1) $SR_{t,1}$	(2) $ER_{t,1}$	(3) $BOND_{t,t}^A$	(4) $SR_{t,1}$	(5) $ER_{t,1}$	(6) $EQUITY_{t,t}^A$
$ER_{t,1}$	-10.342** (5.063)			-6.769** (3.208)		
$BOND_{t,t}^A$	-0.822*** (0.266)	-0.022 (0.016)				
$EQUITY_{t,t}^A$				-0.173 (0.127)	-0.024** (0.011)	
$R_{t,1}$	1.765*** (0.132)	0.011 (0.008)	0.368*** (0.135)	1.464*** (0.058)	0.002 (0.004)	-0.027 (0.093)
R_t^S	-1.613*** (0.099)	-0.003 (0.003)	0.164 (0.137)	-1.615*** (0.073)	0.002 (0.004)	0.363*** (0.094)
$Y_{t,1}$			-0.122* (0.064)			-0.094** (0.043)
$Y_t^{A,B}$			0.002 (0.085)			-0.141 (0.089)
VIX_t	-2.329*** (0.413)	-0.017 (0.016)	-0.715 (0.595)	-1.992*** (0.303)	-0.036* (0.020)	-1.655*** (0.422)
Obs	703	703	703	703	703	703

Note: Standard errors are reported in parentheses. *, **, *** indicate significance at the 10, 5, and 1-percent levels, respectively.

Source: Authors' calculation.

Figure 1. Impulse Response to 0.3% Increase in Overseas Portfolio Investment

Source: Authors' calculation.

Appendix Table 1. (BASELINE) Result of the SEM: Bond/Equity, Advanced economies

Dependent Variables	(1) $SR_{t,1}$	(2) $ER_{t,1}$	(3) $BOND_{t,t}^A$	(4) $SR_{t,1}$	(5) $ER_{t,1}$	(6) $EQUITY_{t,t}^A$
$ER_{t,1}$	5.837 (21.343)			-15.077 (9.360)		
$BOND_{t,t}^A$	-0.819** (0.395)	0.005 (0.009)				
$EQUITY_{t,t}^A$				-0.155 (0.157)	-0.035*** (0.013)	
$R_{t,1}$	1.722*** (0.275)	0.005 (0.008)	0.626** (0.261)	1.327*** (0.120)	0.013** (0.007)	0.128 (0.162)
R_t^A	-1.413*** (0.294)	-0.008** (0.004)	-0.123 (0.238)	-1.560*** (0.128)	0.001 (0.007)	0.317** (0.147)
$I_{t,1}$			-0.086 (0.105)			0.032 (0.056)
$I_t^{A,B}$			0.205 (0.180)			-0.221* (0.127)
VIX_t	-1.409 (1.312)	-0.030* (0.018)	-0.499 (0.977)	-2.114*** (0.768)	-0.095*** (0.030)	-2.141*** (0.606)
Obs	442	442	442	442	442	442

Note: Standard errors are reported in parentheses. *, **, *** indicate significance at the 10, 5, and 1-percent levels, respectively. Fixed effects regressions with crisis dummy (2008Q4~2010Q4).
Source: Authors' calculation.

Appendix Table 2. (BASELINE) Result of the SEM: Bond/Equity, Emerging Economies

Dependent Variables:	(1) $SR_{t,l}$	(2) $ER_{t,l}$	(3) $BOND_{t,t}^A$	(4) $SR_{t,l}$	(5) $ER_{t,l}$	(6) $EQUITY_{t,t}^A$
$ER_{t,l}$	-0.087 (3.490)			-7.768** (3.134)		
$BOND_{t,t}^A$	-0.527* (0.292)	0.038 (0.029)				
$EQUITY_{t,t}^A$				-0.401 (0.340)	0.007 (0.013)	
$R_{t,l}$	1.724*** (0.114)	-0.004 (0.009)	0.140** (0.069)	1.495*** (0.153)	-0.001 (0.005)	-0.166* (0.094)
R_t^B	-1.616*** (0.147)	-0.007 (0.007)	-0.023 (0.084)	-1.568*** (0.161)	-0.003 (0.005)	0.175 (0.126)
$I_{t,l}$			0.181*** (0.036)			-0.061 (0.055)
$I_t^{A,B}$			-0.105* (0.064)			-0.109 (0.116)
VIX_t	-2.245*** (0.510)	0.056 (0.035)	-0.632* (0.376)	-2.085*** (0.560)	0.035 (0.024)	-1.235** (0.535)
Obs	261	261	261	261	261	261

Note: Standard errors are reported in parentheses. *, **, *** indicate significance at the 10, 5, and 1-percent levels, respectively. Fixed effects regressions with crisis dummy (2008Q4~2010Q4).

Source: Authors' calculation.