

2021 경제학 공동학술대회
코로나 19 이후 한국경제의 당면과제와 정책대응

불확실성하의 국가간 자본이동: 한국 경제에 대한 함의

Drawn from “Uncertainty and foreign capital
inflows” with Gabriele Ciminelli (OECD) and Davide
Furceri (IMF)

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The views expressed in this paper are those of the authors and do not represent those of the IMF or OECD.

■ OUTLINE OF THE TALK

1. 불확실성이란 무엇이며 어떻게 측정하는가?
2. 한국 경제의 예를 통해 본 다양한 불확실성 지수
3. 불확실성 증대가 국가간 자본이동에 미치는 영향에 대한 포괄적
실증분석: 국가내 정치적 경제적 불확실성의 증대가 외국인 투자
자들의 투자행태에 미치는 영향을 중심으로
4. 실증분석의 결과가 갖는 한국 경제에 대한 함의


■ WHAT IS UNCERTAINTY?

1. 불확실성이란 무엇이며 어떻게 측정하는가?

■ WHAT IS UNCERTAINTY?

- Everyday of our life is about decisions under uncertainty!
 - Theoretically, quite certain.
- However, uncertainty is an intangible measure and could be subjective: Knightian uncertainty vs. risk
 - Empirically, still uncertain.

WHAT IS UNCERTAINTY?

 un·cer·tain
/ˌənˈsɜrtɪn/

adjective


adjective: **uncertain**

not able to be relied on; not known or definite.
"an uncertain future"

Similar: unknown undetermined unsettled unresolved unsure pending

- (of a person) not completely confident or sure of something.
"I was uncertain how to proceed"

Similar: unsure doubtful dubious undecided unresolved indecisive

 un·cer·tain·ty
/ˌənˈsɜrtɪn(t)ē/

noun

noun: **uncertainty**

the state of being uncertain.
"times of uncertainty and danger"

Similar: unpredictability unreliability riskiness chanciness precariousness

- something that is uncertain or that causes one to feel uncertain.
plural noun: **uncertainties**
"financial uncertainties"

Similar: doubt qualm misgiving apprehension quandary dilemma

Translate uncertainty to Korean

noun

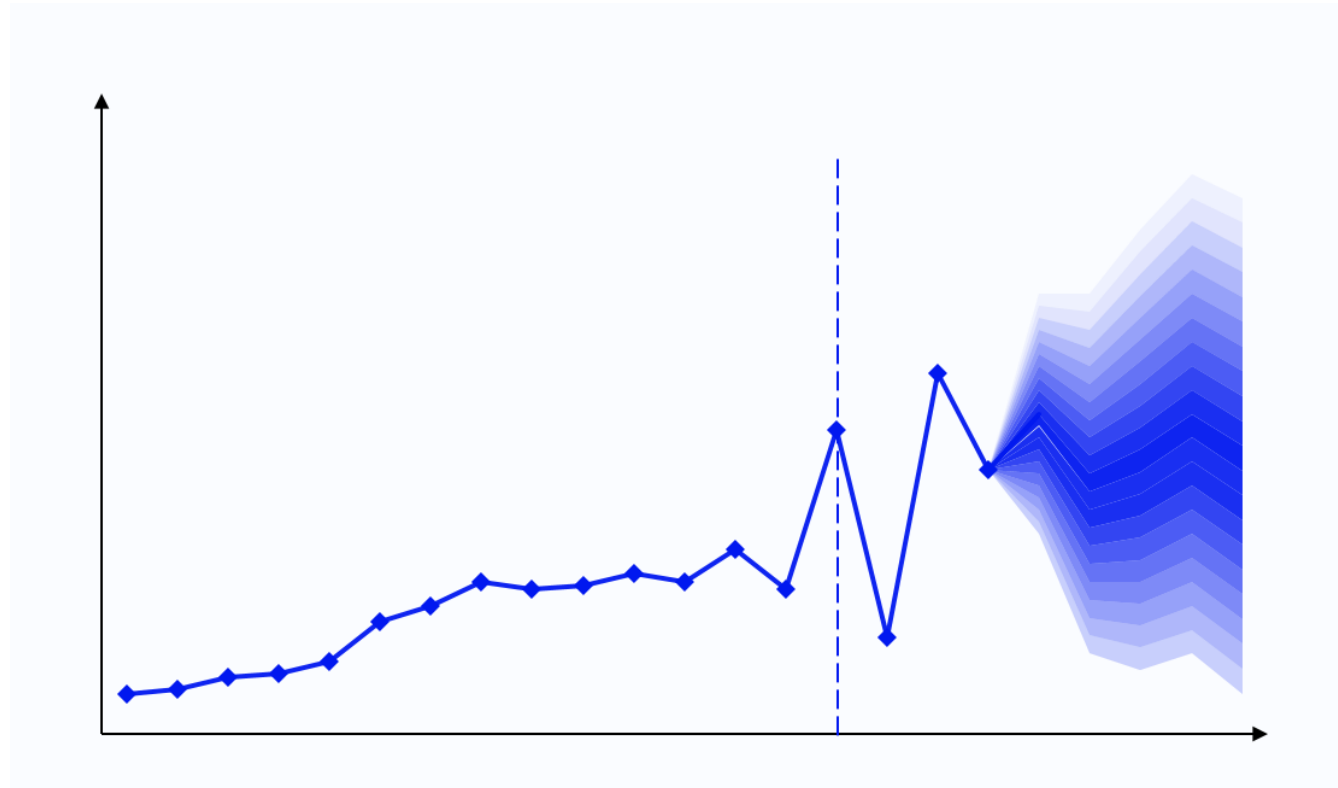
1. 불확실성
2. 불확실
3. 불안정
4. 부정
5. 불확실한 것
6. 불확실한 일

Use over time for: uncertainty



■ WHAT IS UNCERTAINTY?

- Seems like we live in a world with higher uncertainty than before:
Really? How do we know?



■ STATE OF THE LITERATURE

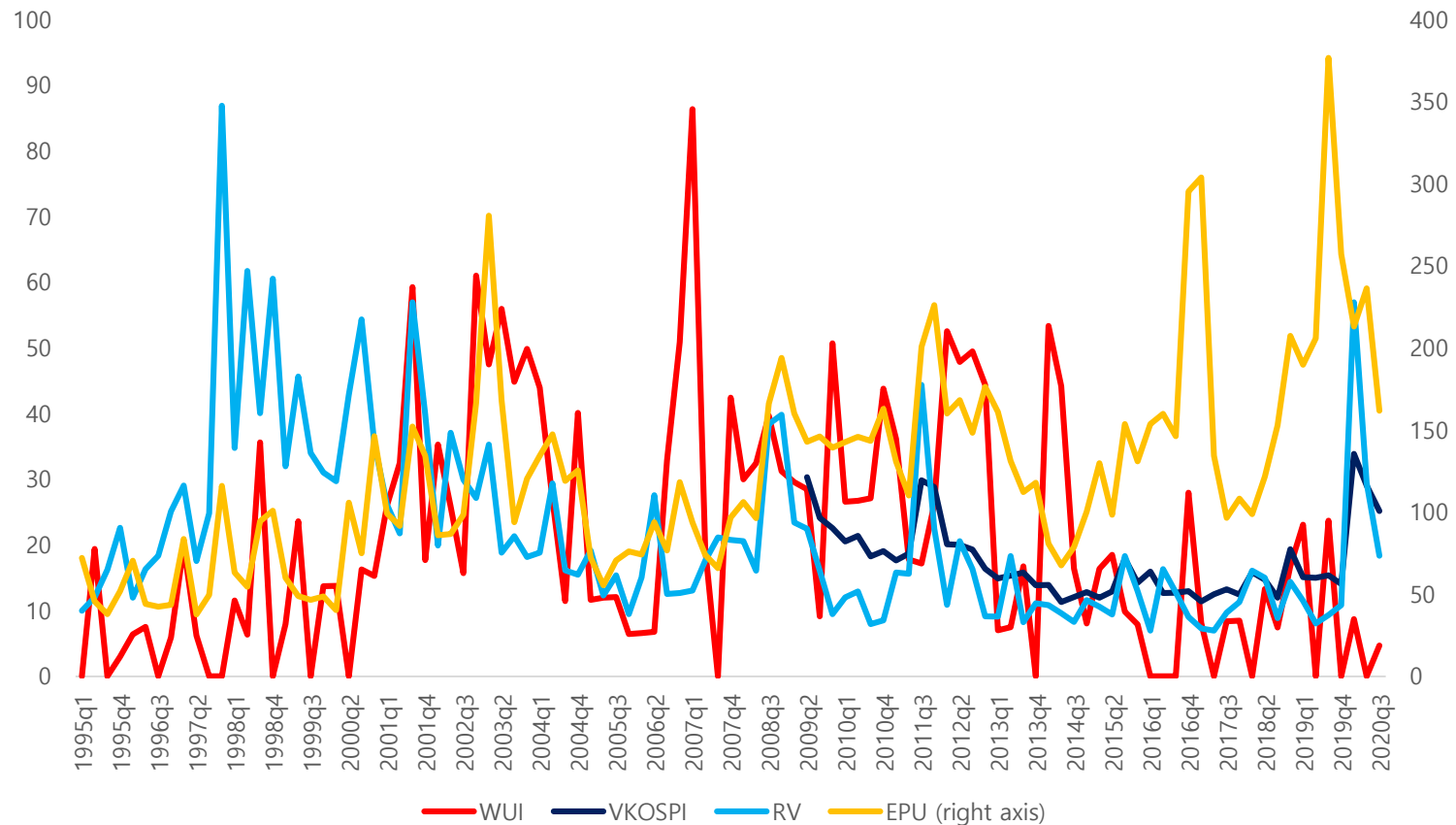
- Academic literature has flourished since the seminal contribution of Bloom (2009): uncertainty shocks have negative real effects.
- Policy circles became also interested in monitoring development of uncertainty in the local and global economy.
- Thanks to the recent development in measuring or proxying uncertainty.
- Rapid development of various measures of uncertainty using i) financial data (e.g., VIX), ii) survey data (e.g., forecast distributions), iii) text mining (e.g., EPU), iv) econometric methodology (e.g., stochastic volatility model).

■ MEASURES OF UNCERTAINTY: CASE OF KOREA

2. 한국 경제의 예를 통해 본 다양한 불확실성 지수

MEASURES OF UNCERTAINTY: CASE OF KOREA

- $\text{Corr (GUI, VKOSPI)}=0.15$ $\text{Corr (GUI, RV)}=-0.06$ $\text{Corr (GUI, EPU)}=0.18$



■ WHAT IS WORLD UNCERTAINTY INDEX?

- Source: Ahir, Bloom and Furceri, 2018
- Count of words 'uncertain, 'uncertainty' and 'uncertainties' in country reports of Economist Intelligence Unit (scaled by total number of words).
- EIU Country reports covering domestic economic, political and policy developments.
 - Foreign/external developments covered only if they have domestic impact.
- Cross-country consistency is warranted.

WHAT IS WORLD UNCERTAINTY INDEX?

- Example of EIU

The screenshot displays the EIU website interface for South Korea. At the top, the 'The Economist INTELLIGENCE UNIT' logo is visible, along with navigation tabs for 'Country', 'Industry', 'Risk', 'Data', and 'Special reports'. A search bar is located on the right. Below the navigation, the breadcrumb 'My EIU > Country > South Korea' is shown. The main heading 'South Korea' is prominently displayed, followed by a row of sub-section tabs: 'Summary', 'Politics', 'Economy', 'Risk', 'Regulation', 'Business', and 'Industry'. The 'Summary' tab is selected. On the left, a map of South Korea is shown with major cities like Seoul, Incheon, Daejeon, Gwangju, and Busan marked. To the right of the map, an 'In brief' section provides a concise overview of the country's economic outlook, mentioning its status as the first OECD country to see its economy recover to pre-coronavirus levels and its expected real GDP growth of 2.8% in 2021. Below this, a 'Featured analysis' section lists three articles from November 2020, each with a 'More >' link. On the far right, a 'Forecast updates' section lists three recent updates from December 2020, also with 'More >' links. At the bottom right, a 'Quick links' section offers links to the 'Forecast summary' and 'Market outlook'. The overall layout is clean and professional, typical of a financial intelligence website.

■ WHAT IS WORLD UNCERTAINTY INDEX?

- Example of reports

Presidential race remains tight

April 20, 2015

With just six months to go before the October 27th general election, the electoral outlook is still uncertain, and there is as yet no presidential candidate with a clear advantage. Although several weeks ago a deal between the centre-right Propuesta Republicana (Pro) and the centrist Unión Cívica Radical (UCR) boosted the electoral chances of the Buenos Aires city mayor Mauricio Macri, recent opinion polls do not show a clear winner, and a second-round runoff between Mr Macri and the governor of Buenos Aires province, Daniel Scioli, is currently the most likely outcome.

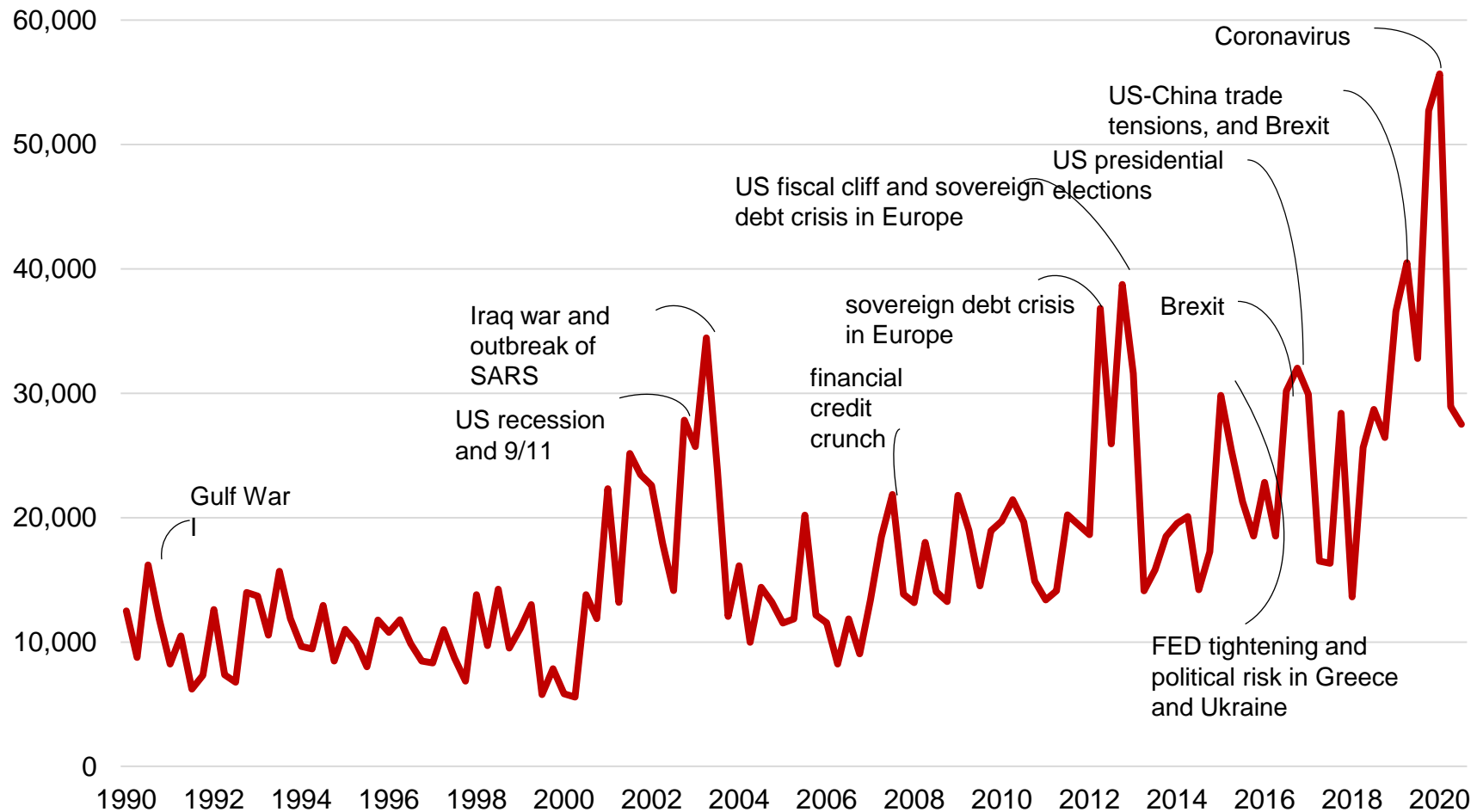
According to the most recent opinion poll, conducted by a local consultancy, Management & Fit, Mr Scioli and Mr Macri are virtually tied, with the former having the support of 29.5% of respondents and the latter 28.8%. According to Management & Fit, the third-placed candidate, Sergio Massa, has fallen well behind, with only 14.6% of the vote. Another poll, conducted by Poliarquía, has Mr Scioli as the winner, with 31% of the vote, followed by Mr Macri with 25% and Mr Massa with 21%. A third poll, conducted by Polldata, puts Mr Macri in the lead, with 26.4%, followed by Mr Massa with 24.2% and Mr Scioli with 23.1%. There is still a relatively large number of undecided voters (between 6% and 15% of respondents), adding further **uncertainty** to the presidential race.

■ WHAT IS WORLD UNCERTAINTY INDEX?

- Coverage: 143 countries (all advanced & emerging markets, 25 frontier markets, 69 low-income countries) representing 99% of world GDP
- From 1996Q1 to 2020Q4, quarterly frequency.
- Why not stock market volatility as a measure of uncertainty?
 - Stock market volatility is quite endogenous to capital flows (especially equity inflows): think of AFC in 1997-98.
 - Due to financial contagion, an increase in stock market volatility is synchronized across countries.

■ WHAT IS WORLD UNCERTAINTY INDEX?

■ Global GUI



■ MOTIVATION: OLD QUESTION BUT NEW DATA

3. 불확실성 증대가 국가간 자본이동에 미치는 영향에 대한 포괄적
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■ MOTIVATION: OLD QUESTION BUT NEW DATA

ETF investors set to perform volte-face on US Senate **uncertainty**

Recent move into value equities was based on having a clear path to fiscal stimulus

Investors exit UK equity funds on pandemic and Brexit fears

Proportion of assets British retail investors allocate to domestic stocks at record low

Kim Jong Un's absence showed **uncertainty** of investing in region

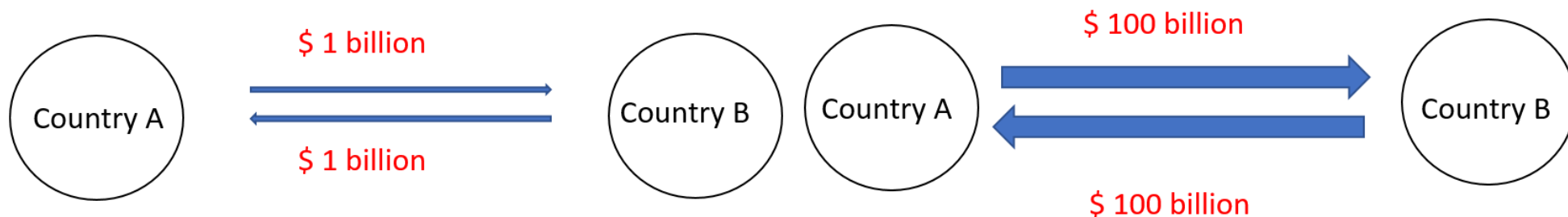
Traders and analysts rely on networks of local contacts to gauge risk from Pyongyang

■ MOTIVATION: OLD QUESTION BUT NEW DATA

- Theory and conventional wisdom: uncertainty scares away foreign investors.
 - Fear of capital controls, taxes on foreign transactions, political regime changes, expropriation risk.
- But empirical evidence in academic literature remains scant.
 - Literature mostly focused on the global component of uncertainty (e.g., VIX) motivated by GFCy (Rey, 2015)
- However, international investors also pay attention to local (domestic) uncertainty.

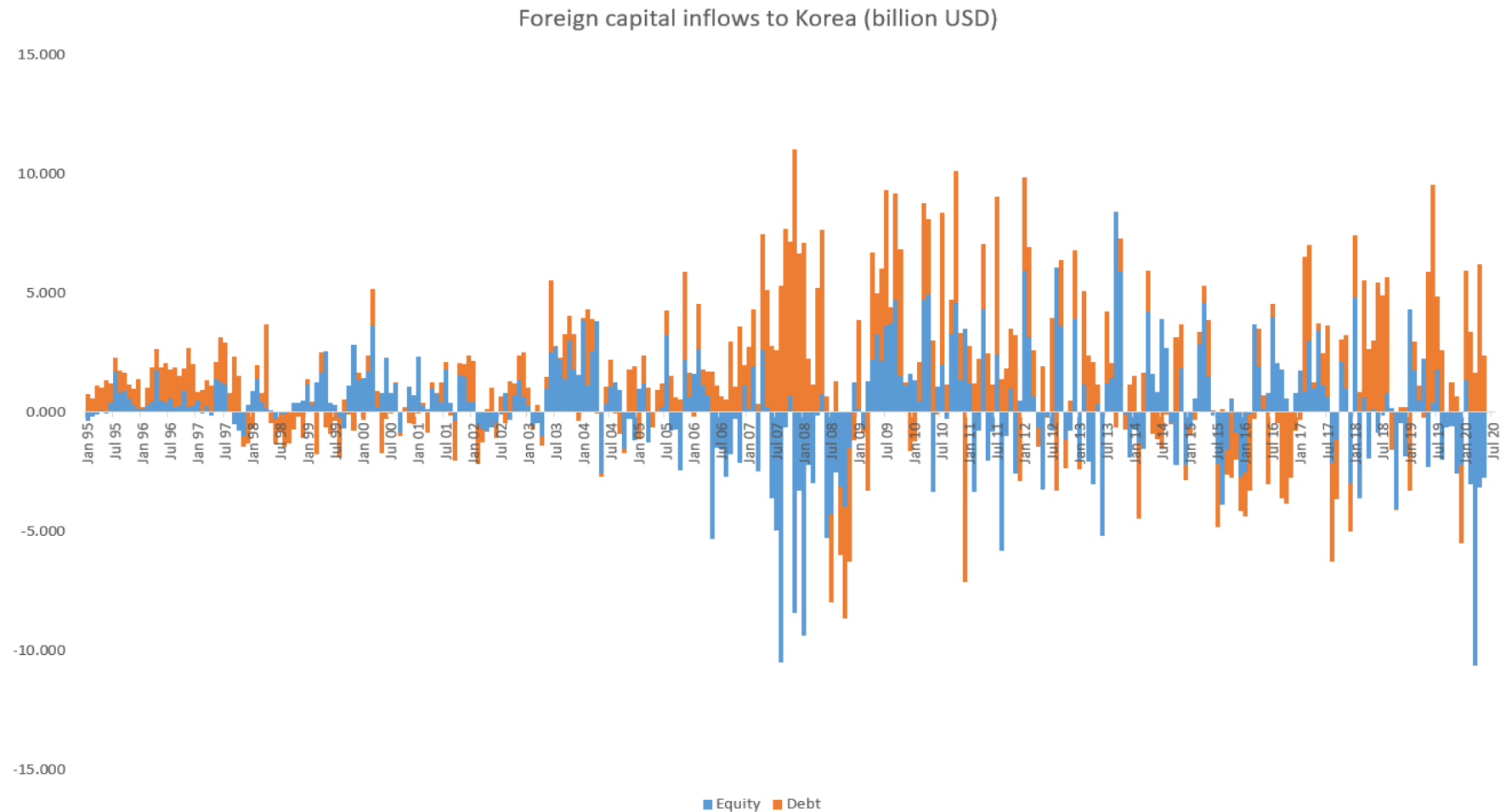
■ WHY GROSS FLOWS MATTER

- Net capital flows correspond to current account.
- Gross capital flows have dwarfed trade flows over past decades.
 - Gross stocks of cross-border assets and liabilities have increased dramatically from around 60% of world GDP in the mid-1990s to approximately 200% in 2015.



- Obstfeld (2012): Netting them could hide important vulnerability, as gross flows substantially increased.

■ WHY NOT JUST LOOKING AT AGGREGATE FLOWS?



■ WHAT WE DO IN THE PAPER

- Three types of gross flows: bank credit, portfolio bond, and portfolio equity
- Two types of portfolio flows: mutual funds vs. ETFs
- Large bilateral dataset: foreign inflows into (up to) 143 recipient countries from (up to) 51 source countries
- Uncover **heterogeneity**: response of foreign investors to domestic uncertainty different across country groups, types of flows, time periods, underlying characteristics (especially via Mundellian Trilemma)

■ DATA

- A purely aggregate analysis is plagued by issues of endogeneity, heterogeneity and statistical power.
- BIS Locational Banking Statistics: dyadic structure following the residency basis (1996Q1-2018Q4).
- Emerging Portfolio Fund Research: collection of fund-level data based on its domicile and destination (1996Q1-2018Q4 for equity and 2004Q1-2018Q4 for bond).
- Country-level flows cannot distinguish end-investors' purchase and redemption vs. managers' allocation (what we do is not fund-level research).

■ ECONOMETRIC SPECIFICATION

- Panel estimation with a constellation of fixed effects.
 - Bank flows: $FLOW_{i,j,t} = \mu_{i,j} + \tau_{i,t} + \beta WUI_{j,t-1} + \gamma Z_{j,t-1} + \sum_{l=1}^4 \delta^l FLOW_{i,j,t-l} + \varepsilon_{i,j,t}$

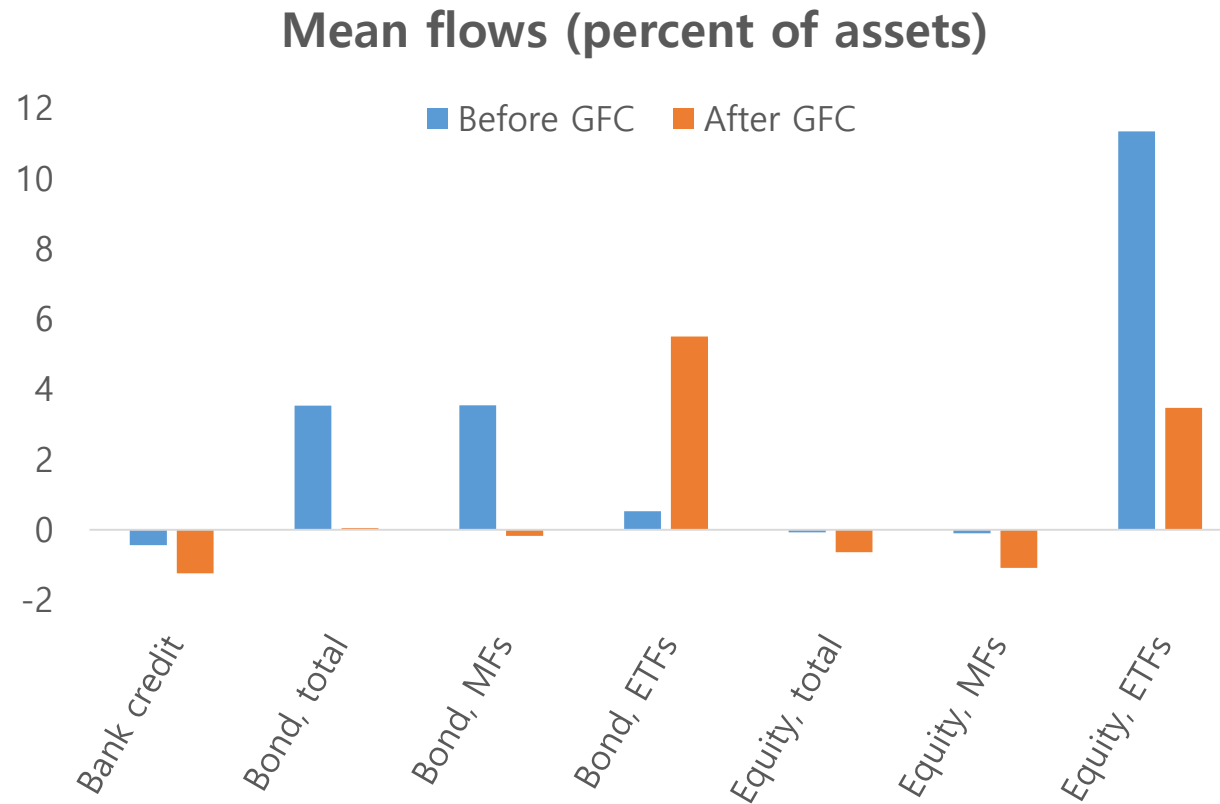
where $FLOW_{i,j,t} = \frac{\Delta LOANS_{i,j,t}}{LOANS_{i,j,t-1}}$

- Portfolio flows: $FLOW_{i,j,t} = \mu_{i,j} + \tau_{i,t} + \beta WUI_{j,t} + \gamma Z_{j,t} + \sum_{l=1}^4 \delta^l FLOW_{i,j,t-l} + \varepsilon_{i,j,t}$

where $FLOW_{i,j,t} = \frac{PURCHASE_{i,j,t}}{ASSETS_{i,j,t}}$

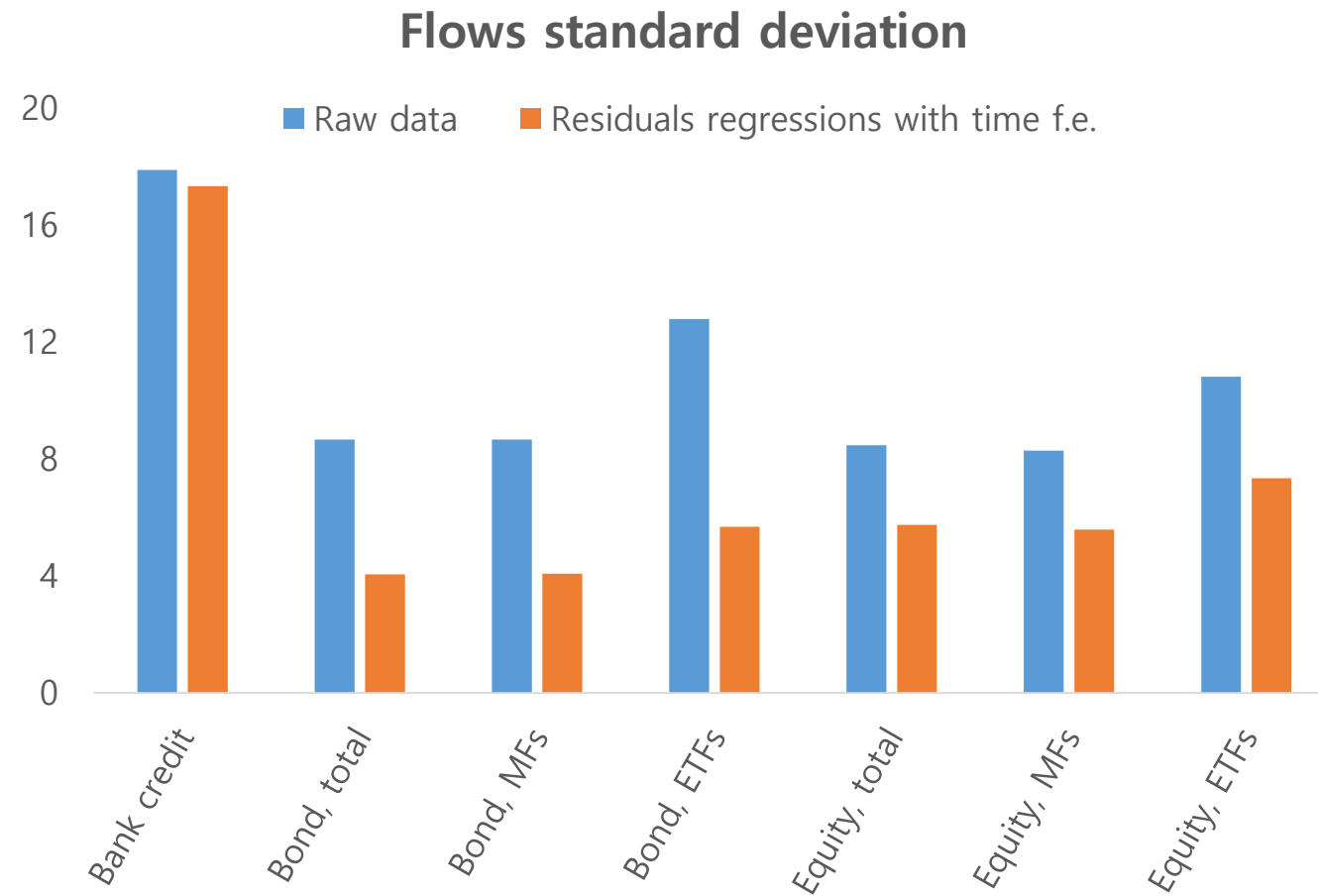
FIRST LOOK AT THE DATA

- Retrenchment of global banks since the GFC and rapid rise in ETF flows, especially in bond:



FIRST LOOK AT THE DATA

- The role of global factors: controlling for VIX, US monetary policy, and US growth yield similar results.

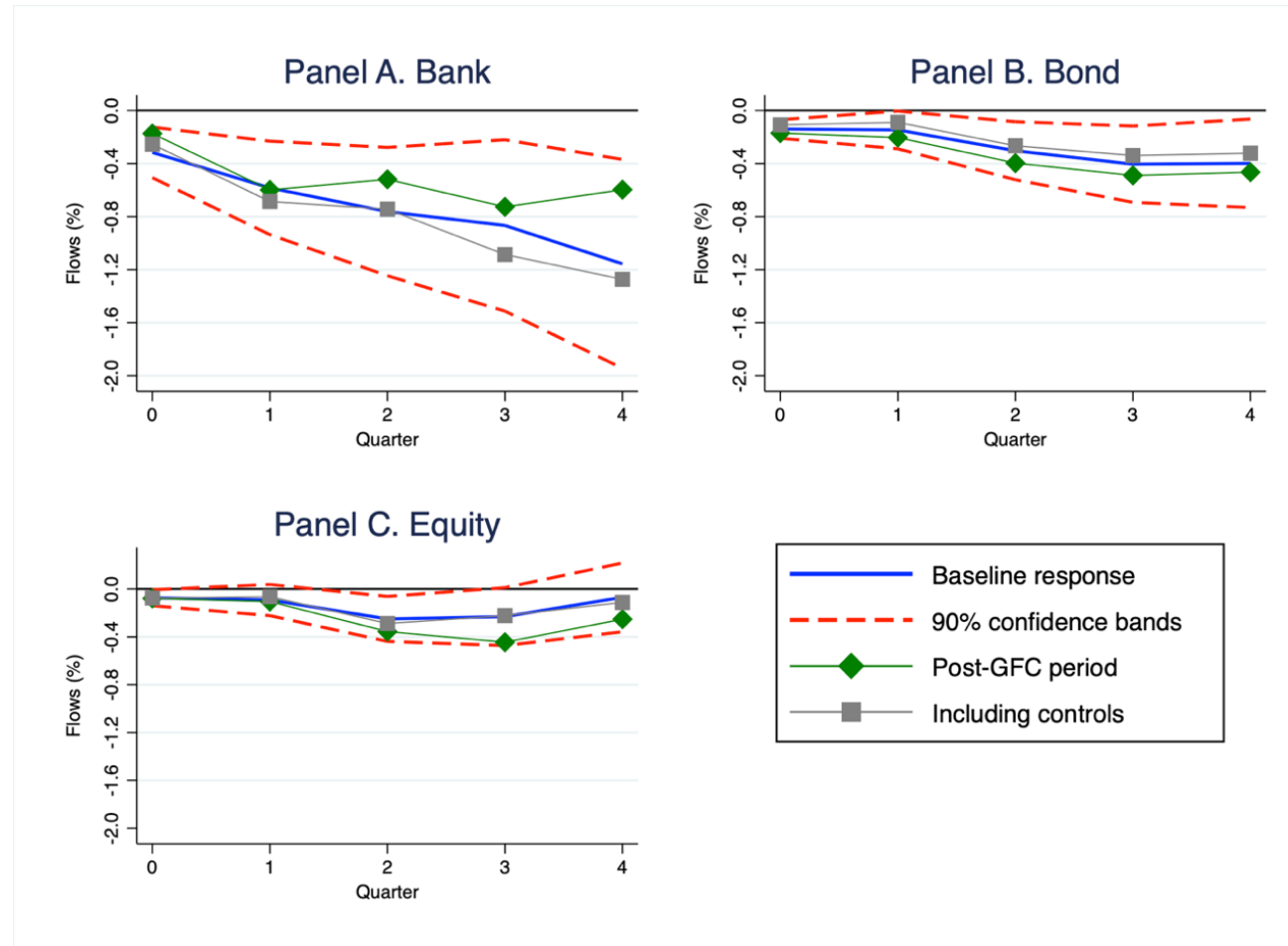


■ SUMMARY OF RESULTS

- An increase in domestic uncertainty has large & persistent negative effects on bank credit & bond inflows.
- Bank credit response mostly driven by emerging & frontier markets, while portfolio bond flows driven by advanced markets.
- Effects on portfolio flows became larger after GFC, while effects on bank credit flows became smaller.
- Mutual funds react to both global and country-specific uncertainty, ETFs only to global component.
- The role of trilemma and market liquidity: overall, larger effects on countries with higher financial openness and market depth.

MAIN RESULTS

- Dynamic effects estimated by local projections



■ TRILEMMA OR DILEMMA?

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	High ERS	Low ERS	High MI	Low MI	High KA	Low KA
Bank	-0.38**	-0.25*	-0.34**	-0.21	-0.35*	-0.28*
	(0.19)	(0.15)	(0.16)	(0.19)	(0.18)	(0.16)
Equity	-0.02	-0.13***	-0.07	-0.15**	-0.16**	-0.03
	(0.10)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
Bond	-0.14*	-0.15***	-0.09*	-0.13*	-0.22***	-0.06
	(0.08)	(0.05)	(0.05)	(0.07)	(0.07)	(0.04)
Equity ETF	-0.05	-0.20	-0.12	-0.08	-0.21	-0.05
	(0.25)	(0.13)	(0.15)	(0.18)	(0.17)	(0.14)
Bond ETF	0.12	-0.29*	-0.09	0.04	-0.27	-0.02
	(0.26)	(0.16)	(0.13)	(0.23)	(0.21)	(0.13)

■ MARKET DEPTH OR LIQUIDITY

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	High credit market	Low credit market	High portfol io market	Low portfoli o market	High stock market	Low stock market	High bond market	Low bond market
Bank	-0.37** (0.17)	-0.17 (0.18)	-0.04 (0.29)	-0.37 (0.26)				
Equity	-0.12** (0.06)	-0.06 (0.07)	-0.16* (0.09)	-0.19** (0.08)	-0.09 (0.06)	-0.04 (0.08)		
Bond	-0.13* (0.07)	-0.08 (0.05)	-0.11 (0.10)	0.01 (0.10)			-0.22 (0.16)	0.04 (0.08)
Equity ETF	-0.28* (0.17)	0.04 (0.19)	-0.23 (0.30)	-0.16 (0.27)	-0.04 (0.19)	-0.02 (0.24)		
Bond ETF	-0.16 (0.23)	0.15 (0.16)	-0.80** (0.38)	-0.54* (0.32)			-1.16*** (0.37)	-0.38 (0.30)

■ IMPLICATIONS FOR KOREAN ECONOMY

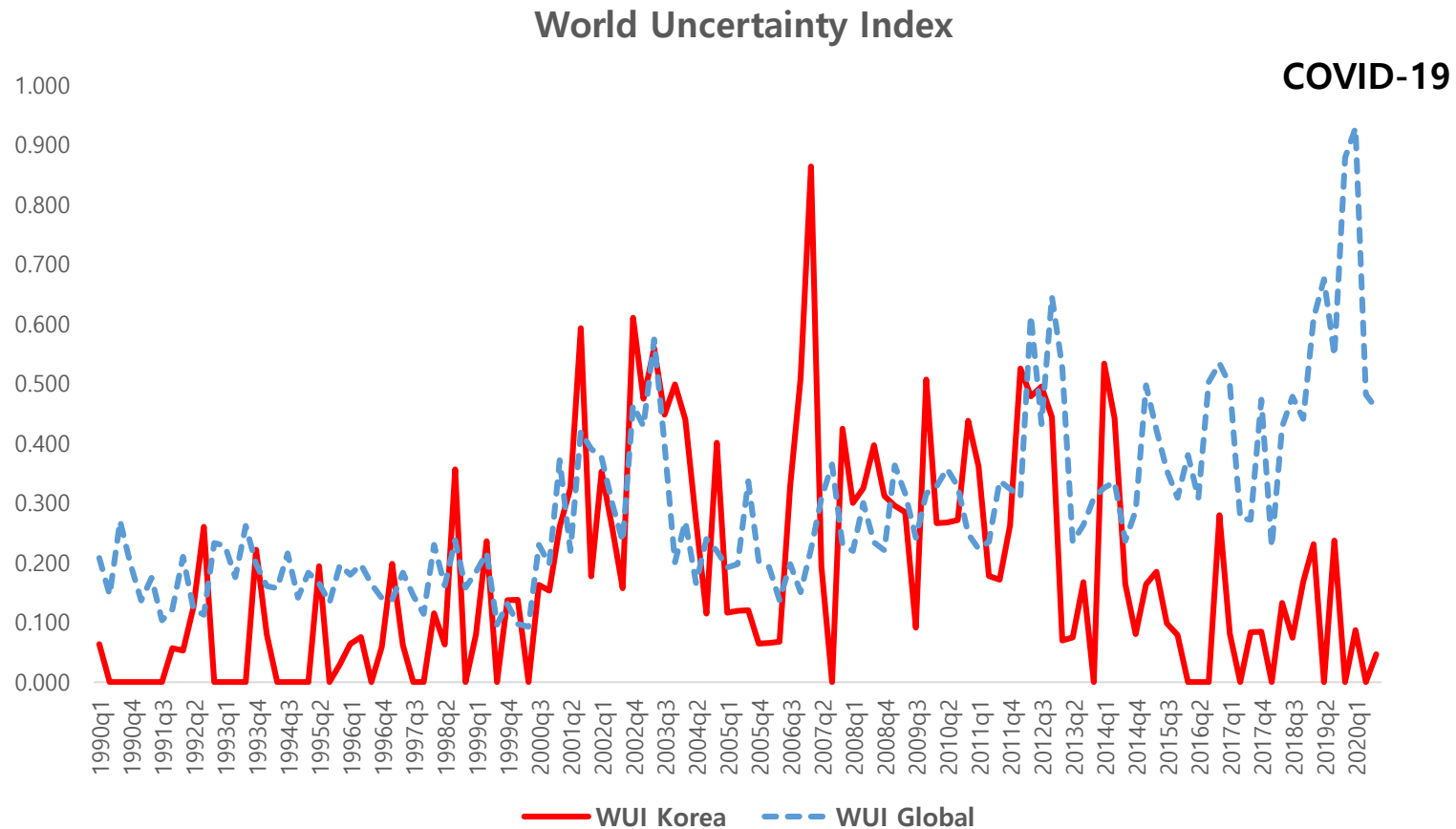
4. 실증분석의 결과가 갖는 한국 경제에 대한 함의

■ IMPLICATIONS FOR KOREAN ECONOMY

- Note that foreigners' view on the prospect of the Korean economy can differ from how we felt about it.
- Caveat: our results are based on the panel estimation, so they cannot simply be applied to an individual economy.
- Nevertheless, considering characteristics of the Korean economy, we have some indirect answers to the question:
 - Capital openness, FX regime, financial depth, institutional quality

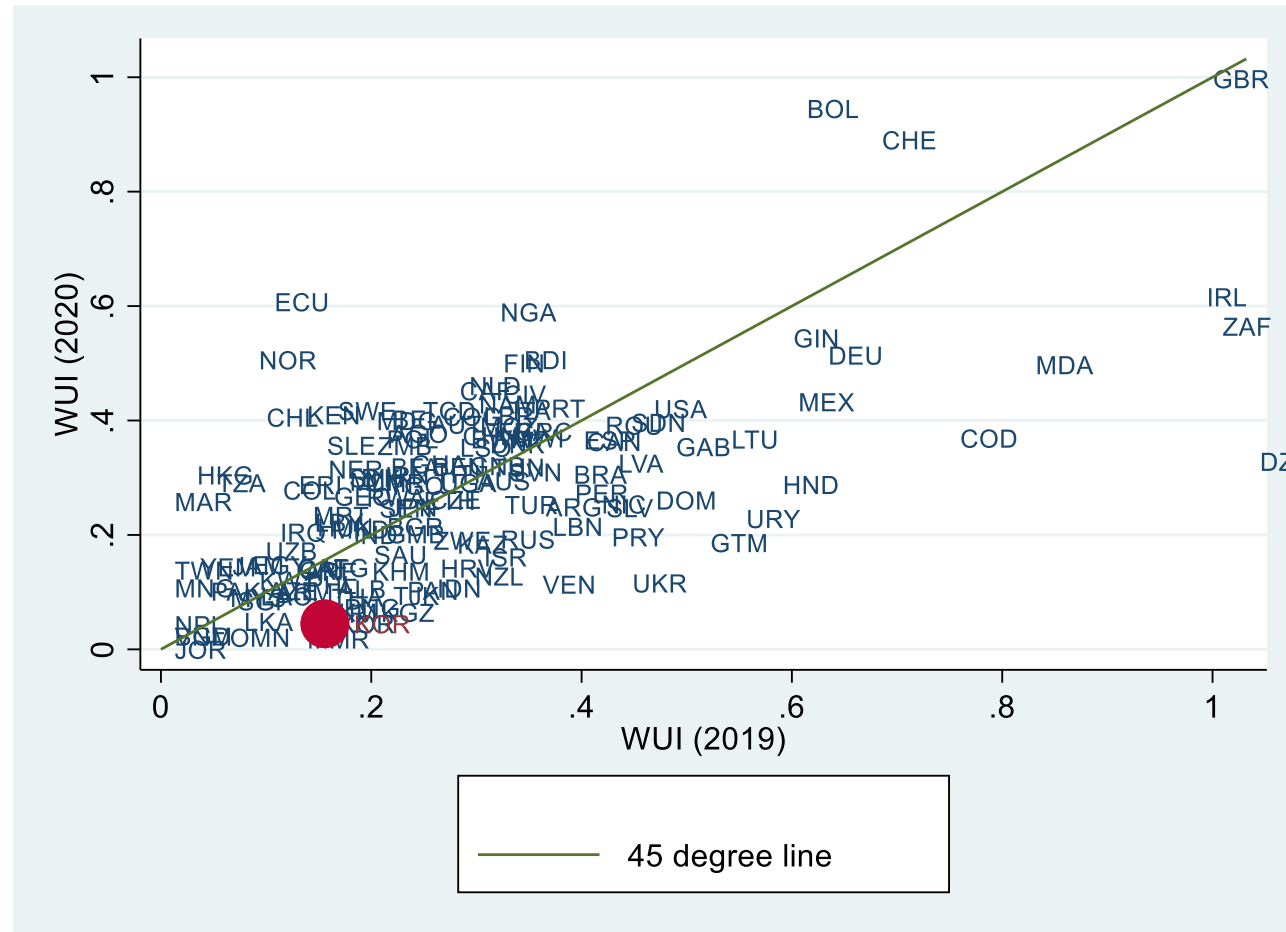
■ IMPLICATIONS FOR KOREAN ECONOMY

- Korean uncertainty vs. world uncertainty (corr=0.2)



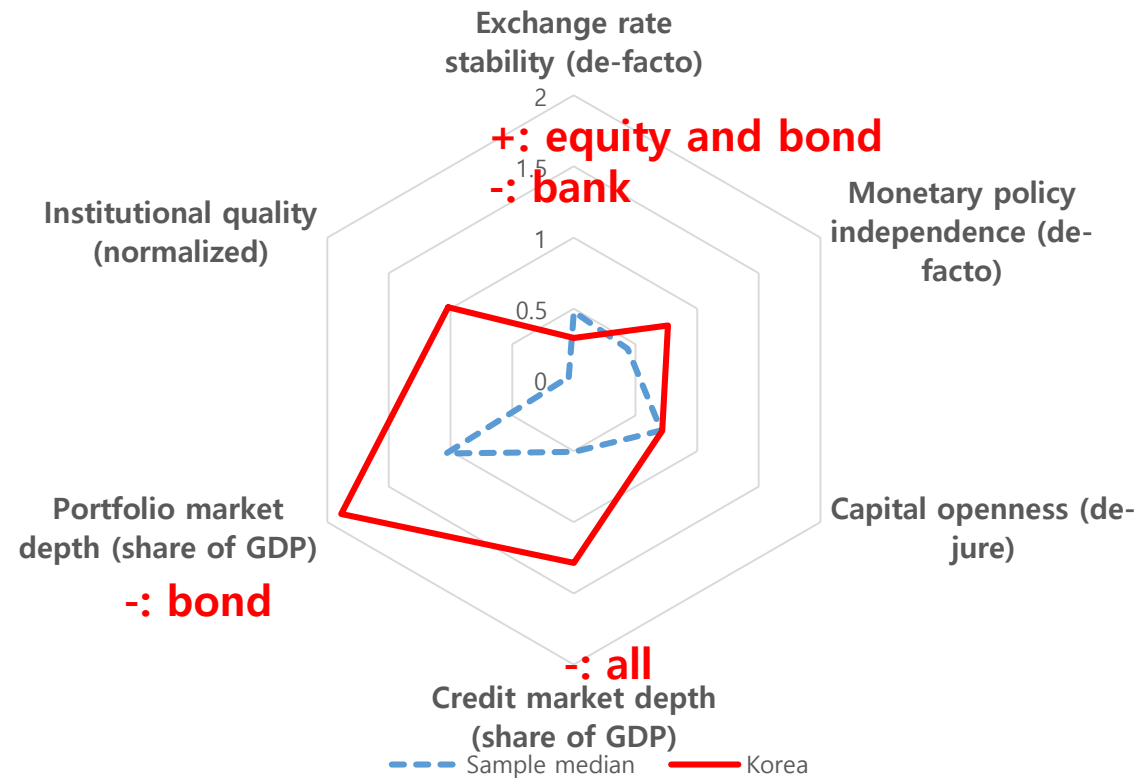
■ IMPLICATIONS FOR KOREAN ECONOMY

- Domestic uncertainty remained fairly low during the pandemic.



■ IMPLICATIONS FOR KOREAN ECONOMY

- Korea vs. the rest of the world (as of 2015)



■ CONCLUSION

- Systematic empirical analysis of response of foreign capital inflows to domestic uncertainty.
- After controlling for global push factors and well-known local pull factors, economic and political uncertainty surrounding the domestic economy reduces foreign capital inflows.
- However, there also exists a great deal of heterogeneity in the magnitude of effects.
- Need a unified narrative and coherent theoretical explanation required to understand the heterogeneity.