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A Comparative Assessment of the Global Effects of US Monetary and Fiscal Policy Uncertainty Shocks

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Abstract

Purpose: We evaluate the comparative effects of US monetary and fiscal policy uncertainty shocks on real equity prices and real gross domestic product in developed and emerging economies.

Design/Methodology/Approach: We employ the Global Vector Autoregressive (GVAR) model to trace the propagation effects of both U.S. monetary and fiscal policy uncertainty shocks on real equity prices and real gross domestic product. We utilize the GVAR database covering both the advanced and emerging countries (including the US) throughout 1985Q1 to 2019Q4 whose scope is governed by the availability of dataset for the equity market volatility-based monetary and fiscal policy uncertainty indices.

Findings: We find that both the US fiscal and monetary policy uncertainty shocks have greater negative effects on the advanced markets than their emerging market counterparts. However, regardless of the market classification, we show that real equity prices respond more to monetary policy uncertainty than real gross domestic product while the reverse holds for fiscal policy uncertainty shock.

Originality/Value: The current literature on parsed US policy uncertainty shock with specific focus on real equity prices and real gross domestic product dwells on either monetary policy or fiscal policy uncertainty with a limited focus on country specific or few group of countries in a panel framework. We contribute to the literature by evaluating the comparative effects of both US monetary and fiscal policy uncertainty shocks that account for the international transmission effect of the uncertainty shock within a GVAR framework.

Practical Implications: International investors need to understand the extent to which their returns can be undermined by US policy actions and potential diversification strategies based on the heterogeneous response of individual markets to the US uncertainty shocks.

Keywords: Fiscal Policy Uncertainty, Monetary Policy Uncertainty, Real equity prices, Real Gross Domestic Product, GVAR Model, US

JEL Classifications: C32, E63 G15, O47

Introduction

The impact of policy uncertainty on the level of real economic activity can be explained from two perspectives. First is the "wait-and-see" perspective (see Bernanke, 1983) which applies to irreversible investments that operate within certain (upper and lower) thresholds. In other words, investment occurs when there is an improvement in demand to some upper thresholds, while investment does not occur if demand falls below some lower thresholds. Given the connection between uncertainty and investment where higher uncertainty reduces the responsiveness of investment to demand shocks (Bloom, 2009; Bloom et al., 2009), firms would prefer to "wait-and-see" than undertake a risky and costly action in periods of high uncertainty. Equally, the household becomes wary about the future income with higher values of uncertainty and therefore raising precautionary savings by reducing consumption could help mitigate uncertainty consequences (Leduc and Liu, 2016). This effect may be contractionary to output in the short run. However, its long-run effect is ambiguous given that an increased level of savings on account of uncertainty can increase future investment and may promote long-run output growth (Bloom, 2014). The second perspective relates to the "risk premium" channel in which high incidence of uncertainty raises the risk premium and by extension borrowing costs of external finance (see Gete and Melkadze, 2018; Kurdryavtsev, 2020; Saungweme, 2021) exacerbated by financial constraints typical of most developing and emerging economies.

Our motivation is derived from the extant literature supporting the cross-border spillover effects of the (first-moment) US monetary policy shock on real economic activity, (see Laeven, and Tong, 2012; Yang, and Hanmoris, 2013; Bowman, et al., 2015; and, Chortereas, and Noikokyris, 2016 for detailed reviews) and the US fiscal policy shock (see Corsetti et al., 2013; Nicar, 2015; Faccini et al., 2016; Sommer, 2019). However, very limited evidence exists as regards the international spillover effects of both monetary and fiscal policy uncertainty shocks (second-moment shock). Nonetheless, studies dealing with domestic spillovers of monetary policy uncertainty with specific attention on the US economy include Baker et al. (2016), Creal and Wu (2017), Kaminska and Robert-Sklar (2017), Kurov and Stan (2017), Mumtaz, and Surico (2017), Tatjana and Tatevik (2018), Swanson (2018), Husted et al. (2019), Tillmann (2019), De Pooter et al. (2020), Razmi, et al. (2020), among others, and for fiscal policy uncertainty with similar attention, see Born and Pfeifer (2014), Fernandez-Villaverde et al. (2015), Popiel (2019), Anzuini et al. (2020), among others. A recent strand of the literature has investigated the

international spillover effect of US policy uncertainty (See Carriere-Swallow and Cespedes, 2013; Colombo, 2013; Klobner and Sekkel, 2014; Kamber et al., 2016; Trung, 2018, 2019; Bhattarai et al., 2019; Aor et al., 2021; Aye, 2021; Lastaukas and Nguyen, 2021) with isolated analysis of target countries or a small panel of selected economies thereby ignoring the multilateral nature of international linkages among countries and regions. Thus, we offer a broader perspective in this regard by examining the international propagation of the US monetary and fiscal policy uncertainty shocks to global real output and equity prices using the global vector autoregressive (GVAR) model suitable for tracing global, regional and country-specific shocks while the salient features of the individual countries are accommodated in the transmission of shocks. The GVAR methodology has been used by recent studies to analyse the international spillover effects of uncertainty shocks (see Salisu et al., 2021a,b) albeit with different measures of uncertainty and without isolating fiscal and monetary policy uncertainties as done in our study. We hypothesize possible heterogeneous effects of fiscal and monetary policy uncertainty shocks on real equity prices and real gross domestic product, hence, the need for distinct analyses for the two shocks. Note that monetary policy predominantly targets the financial sector while fiscal policy more often than not deals with issues such as infrastructure, unemployment, taxes, among others, that have greater linkages with the real sector of the economy. Consequently, we hypothesize a higher response of real output to fiscal policy uncertainty shock than the real equity prices while the reverse may hold for monetary policy uncertainty shock.

Our interest in the US policy uncertainty shocks is underscored by the fact that such shocks could render significant negative effects on economies with strong economic and political ties like those captured in our study (Kose et al. 2017; Chow, Vieito and Wong, 2019; Demirer et al., 2020) and therefore information about the extent of depressing effects is crucial for both investment and policy decisions. In fact, Chudik and Smith (2013) offer some theoretical and empirical support for allowing the US to be the dominant player in the world economy based on the extended GVAR model and thus, we employ the same methodology in this study. One closely related study that also examines the global effects of US uncertainty shock (although augmented with global financial cycle) is Salisu et al. (2021a). However, they adopt the uncertainty index by Ahir et al. (2018) which involves counting related words in the quarterly country reports of the US Economist Intelligence Unit. This approach generally looks at

uncertainty and does not necessarily distinguish monetary policy uncertainty from fiscal policy uncertainty. This is one of the contributions of our study. We utilize a text-search-based equity market volatility tracker index by Baker et al. (2019) that distinctly identifies monetary and fiscal policy uncertainties. It is the most recent and outstanding indices that describe policy uncertainty within the framework that evaluates who makes policy decisions; what and when policy actions will be taken, and the effects of policy actions in both the near and long term (Baker et al., 2019). Also, the text-based newspaper and medial search nature of the indexes, command more power to drive the behavior of economic agents at a comprehensive dimension that best describes US policy uncertainty with potency to drive wider fluctuations in the global economy. Our results validate the study hypotheses of heterogenous responses to the two uncertainty shocks and we highlight meaningful implications of our findings for investment and policy decisions.

The remainder of the paper is structured thus. We present methodology and data issues in Section 2, results and discussion in Section 3 and conclusion in Section 4.

Methodology and Data

Methodology

We adopt the GVAR framework to explore the transmission of monetary and fiscal policy uncertainty shocks originating in the US on equity markets and real gross domestic product of other advanced and emerging countries. The GVAR modeling approach begins with the individual country vector autoregressive $\left(VARX^{*}(p_i, q_i)\right)$ models across thirty-three emerging and developed countries including the US which serves as the reference country being the source of the uncertainty shocks. By stacking the country VARX* models, we are able to build a global VAR model used to assess the impact of global factors on the individual economies. The estimated GVAR model is formulated as:

$$y_{it} = \sum_{\ell=1}^{p_i} \Phi_{i\ell} y_{i,t-\ell} + \Lambda_{i0} y_{it}^{*} + \sum_{\ell=1}^{q_i} \Lambda_{i\ell} y_{i,t-\ell}^{*} + \Gamma_{i0} g_{it} + \sum_{\ell=1}^{s_i} \Gamma_{i\ell} g_{i,t-\ell} + \varepsilon_{it} \qquad (1)$$

where y_{it} is a $k_i \times 1$ vector of domestic variables (i.e., the log of real GDP, y_{it}, the rate of inflation, dp_{it}, the short-term interest rate, r_{it}, the long-term interest rate, lr_{it}, the log of real exchange rate, ep_{it}, and the log real equity prices, eq_{it},) specific to each cross-section unit i ($i = 1,2, \dots, N$) in period t ($t = 1,2, \dots, T$); y_{it}^{*} is the corresponding $k_i^{*} \times 1$ vector of foreign variables which are usually estimated as $y_{it}^{*} = \sum_{j=1}^{N} w_{ij} y_{jt}$ where $\sum_{j=1}^{N} w_{ij} = 1$, and $w_{ii} = 0$; $\Phi_{i\ell}$, for $\ell =$

$1,2,\ldots,p_i$, is a $k_i \times k_i$ matrix of unknown parameters for domestic variables; $\Lambda_{i\ell}$, for $\ell = 0,1,2,\ldots,q_i$, is a $k_i^* \times k_i^*$ matrix of unknown parameters for foreign variables; $\Gamma_{i\ell}$, for $\ell = 0,1,2,\ldots,s_i$, $k_i \times k_i$ matrix of unknown parameters for external common (global) factors (g_{it}) (i.e. fiscal and monetary policy uncertainties which are distinctly captured in the estimation process along with other global variables such as log of oil price and log of base metal prices), and repeated for all the cross-sections while ε_{it} is a $k_i \times 1$ vector of errors. Note that both the foreign and global factors are treated as weakly exogenous (see Chudik and Pesaran, 2016). The estimation of country models in equation (1) is the first step of the GVAR approach, while the second step of the GVAR approach consists of stacking estimated country models to form one large GVAR model from which the impact of the fiscal and monetary policy uncertainty shocks is evaluated.

Data Issues

We utilize quarterly data for thirty-three developed and emerging economies for the period of 1985Q1-2019Q4 whose scope is determined by the available data for the uncertainty indices. The macroeconomic variables include six domestic variables, namely, the log of real GDP, y_{it}, the rate of inflation, dp_{it}, short-term interest rate, r_{it}, long-term interest rate, lr_{it}, the log of deflated exchange rate, ep_{it}, and the log of real equity prices, eq_{it}). Other variables are used to analyze global shocks and they are primarily commodity prices (oil prices, $poil_t$, agricultural raw material, $pmat_t$, and metals prices, $pmetal_t$). Our contribution lies in the inclusion of the US uncertainty indices as additional global variables in the GVAR database. Thus, with the exception of the latter, data on all the other variables are obtained from the GVAR toolbox using the updated version by Mohaddes and Raissi (2020) quarterly series covering 1979Q4-2019Q4 although our data scope is limited to 1985Q1-2019Q4 as previously noted (See link to the data: http://www.econ.cam.ac.uk/people-files/emeritus/mhp1/GVAR/GVAR.html). We adopt the policy uncertainty measures by Baker et al. (2019) which distinctly capture equity volatility related (EMV) uncertainty for fiscal and monetary policies. The two uncertainty indices are text-based search of US newspapers constructed as scaled frequency counts of newspaper articles that are parsed from the main economic policy uncertainty focusing on monetary and fiscal policy uncertainties. The text-based search is used to track the frequency of newspaper articles related to both monetary and fiscal policy uncertainties using the ProQuest Newsstand and historical

archives. The indexes are constructed by searching for key words related to monetary and fiscal policies separately such as uncertainty, uncertain, monetary policy, fiscal policy, interest rate, Federal Fund, tax reform, tax rate in major US newspapers articles. Data for the fiscal and monetary policy uncertainties can be respectively obtained from https://fred.stlouisfed.org/series/EMVMONETARYPOL and https://fred.stlouisfed.org/series/EMVFISCALPOL of the Federal Reserve Bank of St. Louis. We refer technically-mined readers to Baker et al. (2021) on the computational details of the uncertainty indices. Our estimation covers the period of 1985Q1 to 2019Q4 whose scope is determined by the start date of the uncertainty indices.

Results and Discussion

This study traces the propagation of US-originated fiscal and monetary policy uncertainty shocks to real equity markets and real gross domestic product of selected developed and emerging markets. We rely on the impulse response functions (IRFs) (obtained for both individual markets and group of markets) and Figures 1 to 8 depict the IRFs. Note that Figures 1 to 4 are for the monetary policy uncertainty shock while Figures 5 to 8 are for the fiscal policy uncertainty shock. Furthermore, we present the group IRFs respectively for the real gross domestic product and real equity prices in Figures 1 and 2 (Figures 5 and 6) when monetary policy uncertainty (fiscal policy uncertainty shock) is considered while those of individual market IRFs are presented in Figures 3 and 4 (Figures 7 and 8) in the same order of variables. Note that the group IRFs are equally presented in Tables 1-4 for ease of interpretation (the country-specific IRFs tabular presentations would be made available upon request for want of space). We interpret the median estimates of the IRFs (in solid lines) while the upper and lower bootstrapped 95% error bands (in dashed lines) are also included to determine statistical significance. We multiply the median estimates by 100 to be able to interpret the impulse responses in percentages.

The group-based IRFs in Figure 1 and Table 1 depict negative effects of US monetary policy uncertainty on real gross domestic product for both the developed and emerging economies. However, the effects appear to be significant only for the developed economies which is in contrast to the group-based IRFs in Figure 2 and Table 2 which show negative and significant responses of US monetary policy uncertainty shock on real equity prices for both the developed and emerging economies. This outcome supports the heterogeneous response of real

output and real equity prices to monetary policy uncertainty shocks with greater impacts observed on the latter than the former as hypothesized. Similarly, the IRFs also differ across groups where, for example, at about the horizon where the impact is highest, real gross domestic product declines by 1.2% in the advance markets excluding the US and by about half of that (0.65%) in emerging markets, following the US monetary policy uncertainty shock.

Table 1: Group-based impulse responses of real gross domestic product to a one standard deviation positive shock to US monetary policy uncertainty

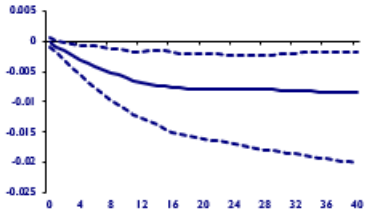
Region	Forecast Horizon	Confidence Interval		
		Median	Lower bounds	Upper Bounds
ADVANCED	0	-0.0001	-0.0009	0.0006
	4	-0.0030	-0.0056	-0.0007
	8	-0.0051	-0.0097	-0.0011
	12	-0.0067	-0.0126	-0.0017
	16	-0.0077	-0.0150	-0.0017
	20	-0.0079	-0.0161	-0.0021
	24	-0.0078	-0.0171	-0.0023
	28	-0.0079	-0.0179	-0.0023
	32	-0.0082	-0.0186	-0.0020
	36	-0.0084	-0.0194	-0.0018
ADVANCED LESS USA	0	0.0001	-0.0009	0.0010
	4	-0.0035	-0.0067	-0.0007
	8	-0.0064	-0.0119	-0.0013
	12	-0.0088	-0.0161	-0.0021
	16	-0.0104	-0.0198	-0.0021
	20	-0.0110	-0.0220	-0.0028
	24	-0.0113	-0.0238	-0.0033
	28	-0.0116	-0.0253	-0.0033
	32	-0.0119	-0.0267	-0.0031
	36	-0.0122	-0.0281	-0.0027
EMERGING	0	-0.0004	-0.0020	0.0011
	4	-0.0029	-0.0074	0.0015
	8	-0.0046	-0.0114	0.0017
	12	-0.0057	-0.0147	0.0020
	16	-0.0063	-0.0167	0.0019
	20	-0.0065	-0.0169	0.0020
	24	-0.0063	-0.0173	0.0025
	28	-0.0062	-0.0183	0.0029
	32	-0.0063	-0.0188	0.0032
	36	-0.0064	-0.0195	0.0035

Table 2: Group-based impulse responses of real equity prices to a one standard deviation positive shock to US monetary policy uncertainty

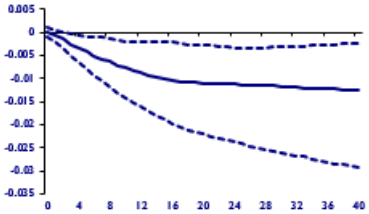
Region	Forecast Horizon	Confidence Interval		
		Median	Lower bounds	Upper Bounds
ADVANCED	0	-0.0275	-0.0369	-0.0181
	4	-0.0657	-0.0990	-0.0349
	8	-0.0827	-0.1351	-0.0387
	12	-0.0884	-0.1537	-0.0378
	16	-0.0863	-0.1617	-0.0341
	20	-0.0817	-0.1592	-0.0311
	24	-0.0807	-0.1572	-0.0272
	28	-0.0829	-0.1588	-0.0248
	32	-0.0835	-0.1650	-0.0223
	36	-0.0846	-0.1716	-0.0222
ADVANCED LESS USA	0	-0.0272	-0.0379	-0.0162
	4	-0.0757	-0.1143	-0.0394
	8	-0.1028	-0.1596	-0.0525
	12	-0.1185	-0.1907	-0.0564
	16	-0.1231	-0.2119	-0.0582
	20	-0.1245	-0.2218	-0.0608
	24	-0.1266	-0.2280	-0.0644
	28	-0.1307	-0.2337	-0.0646
	32	-0.1328	-0.2422	-0.0643
	36	-0.1345	-0.2517	-0.0638
EMERGING	0	-0.0282	-0.0424	-0.0131
	4	-0.0777	-0.1181	-0.0353
	8	-0.0975	-0.1678	-0.0339
	12	-0.1098	-0.1921	-0.0405
	16	-0.1135	-0.2019	-0.0421
	20	-0.1120	-0.2009	-0.0439
	24	-0.1114	-0.2014	-0.0441
	28	-0.1106	-0.2066	-0.0427
	32	-0.1151	-0.2171	-0.0408
	36	-0.1168	-0.2258	-0.0397

Figure 1: Group-Based Impulse Responses of Real Gross Domestic Product to a One Standard Deviation Shock to US Monetary Policy Uncertainty

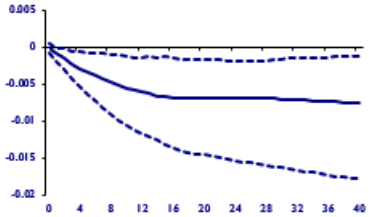
Advanced Economies



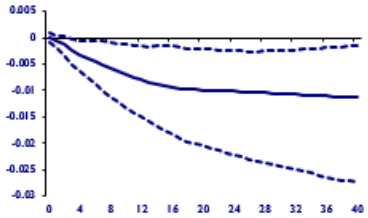
Advanced less USA



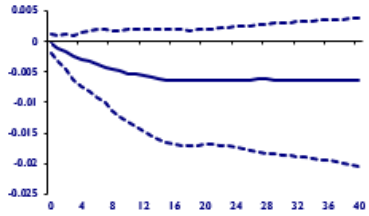
G-7 Economies



G-7 less USA



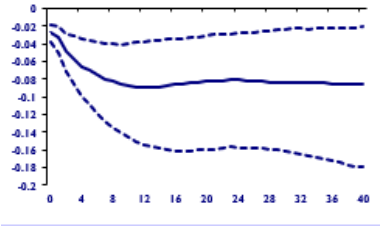
Emerging Economies



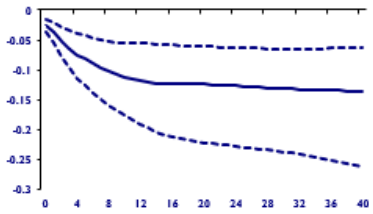
Note: We present the 5%–95% lower and upper bootstrapped error bands for the IRFs in dotted lines and the median estimates in solid lines based. We multiply the latter by 100 to be able to interpret the impulse responses in percentages.

Figure 2: Group-Based Impulse Responses of Real Equity Prices to a One Standard Deviation Shock to US Monetary Policy Uncertainty

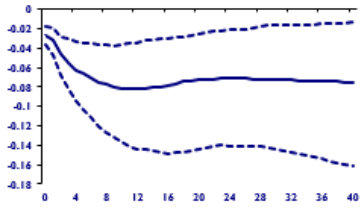
Advanced Economies



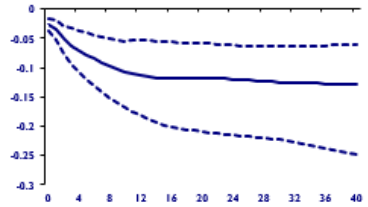
Advanced less USA



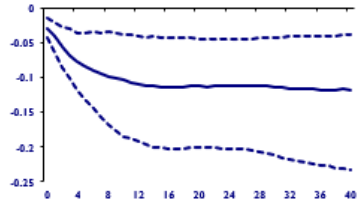
G-7 Economies



G-7 less USA



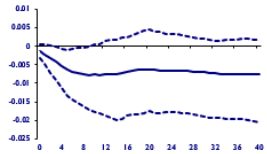
Emerging Economies



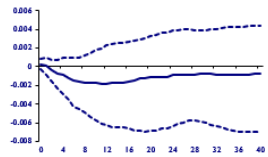
Note: We present the 5%–95% lower and upper bootstrapped error bands for the IRFs in dotted lines and the median estimates in solid lines based. We multiply the latter by 100 to be able to interpret the impulse responses in percentages.

Figure 3: Country- Specific Impulse Responses of Real Gross Domestic Product to a One Standard Deviation Shock to US Monetary Policy Uncertainty

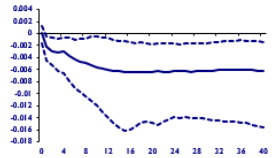
Argentina



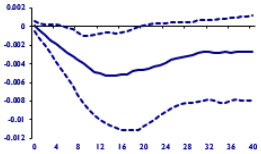
Australia



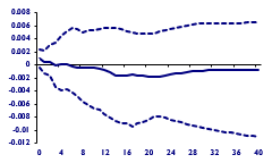
Brazil



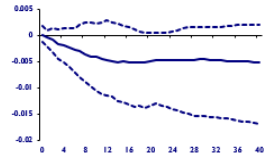
Canada



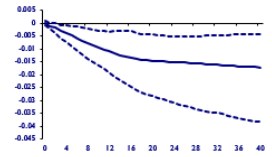
China



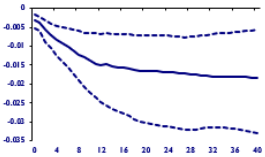
Chile



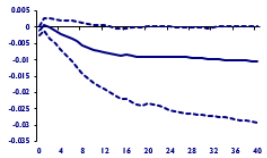
Euro



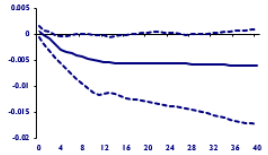
India



Indonesia



Japan



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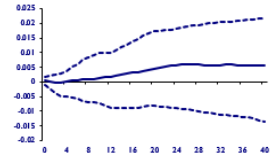

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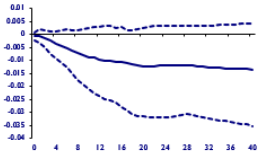

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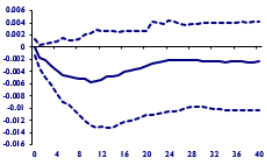

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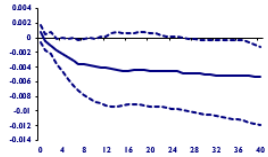

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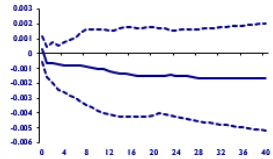

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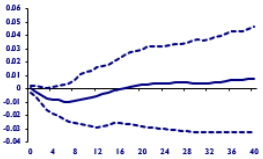

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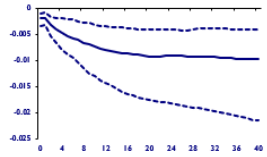

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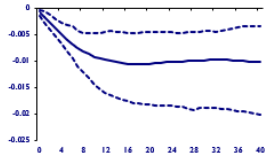

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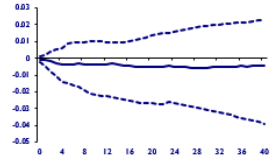

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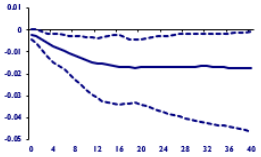

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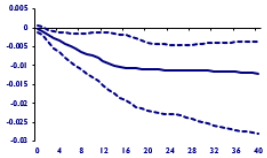

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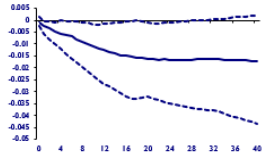

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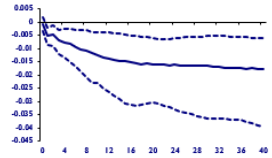

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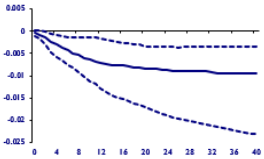
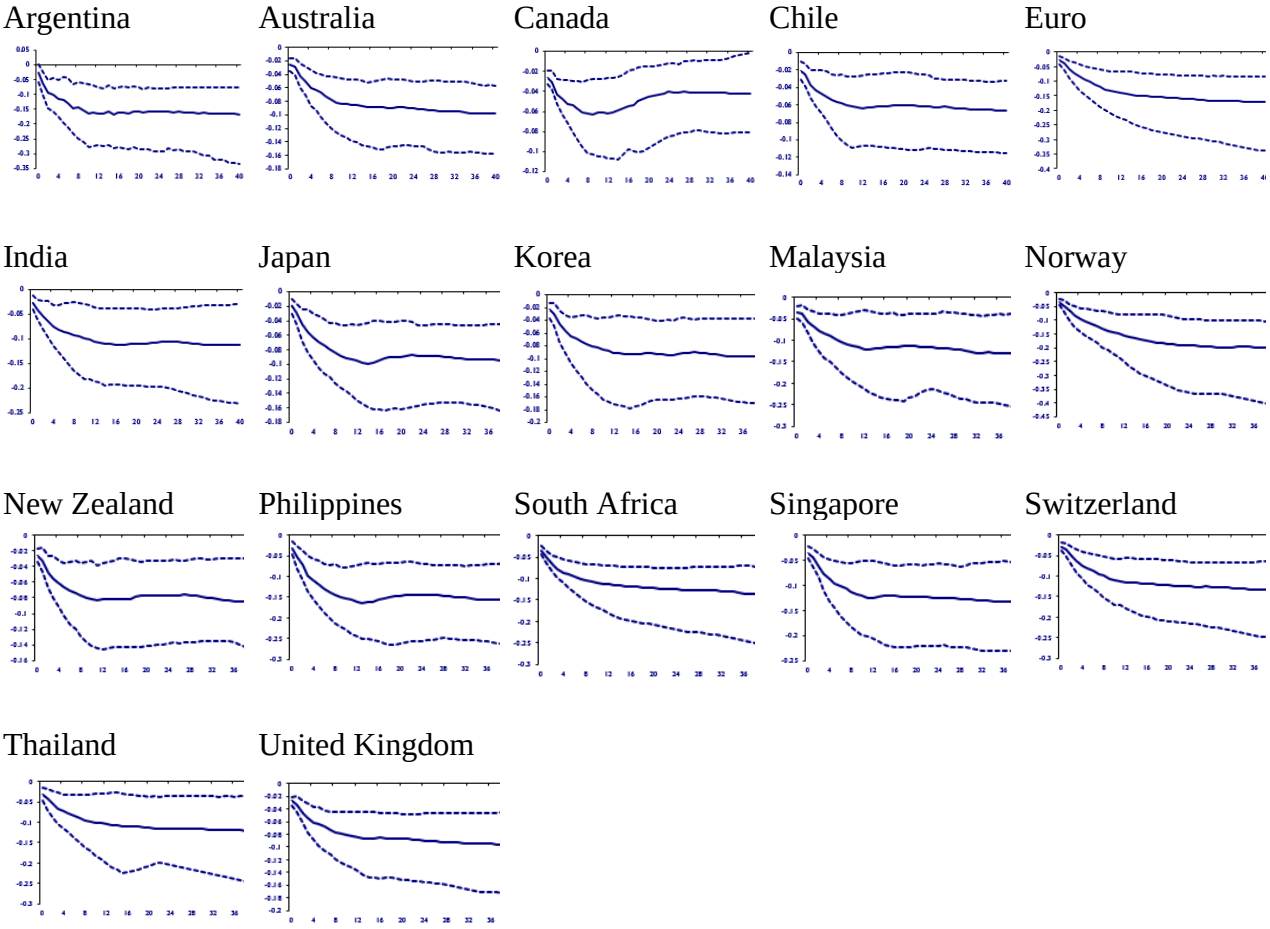


Note: We present the 5%–95% lower and upper bootstrapped error bands for the IRFs in dotted lines and the median estimates in solid lines based. We multiply the latter by 100 to be able to interpret the impulse responses in percentages.

Figure 4: Country- Specific Impulse Responses of Real Equity Prices to a One Standard Deviation Shock to US Monetary Policy Uncertainty



Note: We present the 5%–95% lower and upper bootstrapped error bands for the IRFs in dotted lines and the median estimates in solid lines based. We multiply the latter by 100 to be able to interpret the impulse responses in percentages.

Similarly, the real equity prices on account of monetary policy uncertainty shock decrease by 13.4% in developed markets excluding the US, and by 11.6% in emerging economies. Hence, these findings suggest that the US monetary policy uncertainty shock propagates higher global spillover effects on real equity prices compared to real gross domestic product. This may be on account of the high interdependence of money and equity market dynamics relative to the real sector. This outcome further underscores the greater connection of the developed countries with the US relative to the emerging economies (Chulia et al., 2017; Salisu et al., 2022). The heterogeneous nature of the effects between developed and emerging

markets provides portfolio diversification destination options towards emerging markets and countries with less impact when US policy uncertainty is on the rise.

The country-specific IRFs in Figures 3 and 4 also align with the group IRFs. For instance, Figure 3 renders the negative impact of US monetary policy uncertainty shock on the real gross domestic products of all the countries with the majority of them exhibiting varying magnitudes of impulse responses. Figure 4 equally renders a more depressing and significant effect of US monetary policy uncertainty shock on real equity prices of individual countries. This further confirms our earlier hypothesis of the higher effect of the monetary policy uncertainty shock on equity prices relative to gross domestic product. It further affirms that the level of economic development matters in propagating the global effects of US monetary policy uncertainty as greater responses are attributed to the developed markets.

We further present the impulse responses for US fiscal policy uncertainty shock in Figures 5 and 6 for group-based IRFs and Figures 7 and 8 for country-specific IRFs following the same arrangements as monetary policy uncertainty shock. The group-based IRFs in Figure 5 and Table 3 depict a negative and significant effect of fiscal policy uncertainty shock on the real gross domestic product of both developed and emerging markets, albeit, a short-lived significant effect on emerging markets. For instance, at about the horizon where the impact is highest, there is a decline in real gross domestic product by 7.5% in advanced markets excluding the US and by 6.7% in emerging markets following a US fiscal policy uncertainty shock. This is reflective of the fact that fiscal policy uncertainty shock renders significant negative effects on real gross domestic products in emerging economies, relative to monetary policy uncertainty shock where it fails to render a significant effect on the same group. Similarly, Figure 6 and Table 4 reveal a negative and significant effect of fiscal policy uncertainty shock on real equity prices of both developed and emerging economies, albeit, with a less depressing effect relative to monetary policy uncertainty effects. The real equity prices reduce by 0.95% in advanced markets excluding the US, and by 0.69% in emerging markets following a US fiscal policy uncertainty shock. These findings suggest that fiscal measures (taxation and fiscal expenditure) impact the real sector directly and uncertainty about the current and future path of fiscal policy will render a higher depressing effect on real output than real equity prices. In sum, we find that, first, both US monetary and fiscal policy uncertainty shocks negatively affect developed and emerging markets. Second, the monetary policy uncertainty shock renders higher depressing effects on real equity

prices than real gross domestic products. Third, US fiscal policy uncertainty shock depicts higher effects on real gross domestic product than real equity prices. Fourth, the effects are heterogeneous across regions.

Table 3: Group-based impulse responses of real gross domestic product to a one standard deviation positive shock to US fiscal policy uncertainty

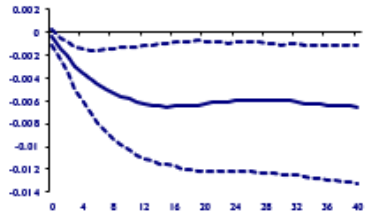
Region	Forecast Horizon	Confidence Interval		
		Median	Lower bounds	Upper Bounds
ADVANCED	0	-0.0270	-0.0375	-0.0168
	4	-0.0486	-0.0832	-0.0181
	8	-0.0527	-0.0997	-0.0052
	12	-0.0500	-0.1041	0.0021
	16	-0.0415	-0.1002	0.0158
	20	-0.0361	-0.0960	0.0229
	24	-0.0333	-0.0951	0.0250
	28	-0.0337	-0.0977	0.0191
	32	-0.0354	-0.1003	0.0144
	36	-0.0362	-0.1022	0.0152
ADVANCED LESS USA	0	-0.0263	-0.0391	-0.0144
	4	-0.0564	-0.0992	-0.0200
	8	-0.0710	-0.1248	-0.0129
	12	-0.0746	-0.1368	-0.0092
	16	-0.0698	-0.1396	-0.0067
	20	-0.0652	-0.1399	-0.0061
	24	-0.0638	-0.1420	-0.0065
	28	-0.0642	-0.1472	-0.0085
	32	-0.0668	-0.1509	-0.0119
	36	-0.0681	-0.1546	-0.0133
EMERGING	0	-0.0292	-0.0443	-0.0147
	4	-0.0620	-0.1077	-0.0215
	8	-0.0669	-0.1266	-0.0124
	12	-0.0669	-0.1266	-0.0108
	16	-0.0601	-0.1273	-0.0041
	20	-0.0557	-0.1267	-0.0035
	24	-0.0535	-0.1298	-0.0003
	28	-0.0562	-0.1340	-0.0007
	32	-0.0599	-0.1383	-0.0048
	36	-0.0625	-0.1427	-0.0032

Table 4: Group-based impulse responses of real equity prices to a one standard deviation positive shock to US fiscal policy uncertainty

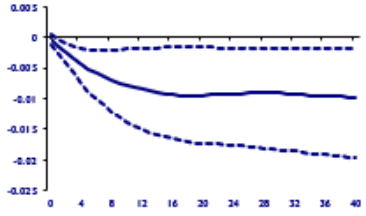
		Forecast Horizon	Confidence Interval		
Region			Median	Lower bounds	Upper Bounds
ADVANCED		0	-0.0004	-0.0011	0.0003
		4	-0.0036	-0.0061	-0.0015
		8	-0.0053	-0.0094	-0.0014
		12	-0.0063	-0.0111	-0.0012
		16	-0.0065	-0.0117	-0.0008
		20	-0.0063	-0.0122	-0.0008
		24	-0.0060	-0.0122	-0.0008
		28	-0.0059	-0.0123	-0.0009
		32	-0.0061	-0.0125	-0.0010
		36	-0.0064	-0.0129	-0.0011
ADVANCED	LESS	0	-0.0003	-0.0013	0.0005
USA		4	-0.0043	-0.0075	-0.0017
		8	-0.0069	-0.0121	-0.0020
		12	-0.0085	-0.0151	-0.0012
		16	-0.0094	-0.0164	-0.0008
		20	-0.0095	-0.0173	-0.0008
		24	-0.0092	-0.0176	-0.0017
		28	-0.0091	-0.0177	-0.0017
		32	-0.0093	-0.0186	-0.0017
		36	-0.0096	-0.0192	-0.0011
EMERGING		0	-0.0007	-0.0022	0.0008
		4	-0.0041	-0.0084	0.0000
		8	-0.0055	-0.0123	0.0006
		12	-0.0064	-0.0152	0.0013
		16	-0.0068	-0.0167	0.0014
		20	-0.0066	-0.0175	0.0017
		24	-0.0063	-0.0172	0.0017
		28	-0.0064	-0.0168	0.0016
		32	-0.0066	-0.0181	0.0016
		36	-0.0070	-0.0194	0.0017

Figure 5: Group-Based Impulse Responses of Real Gross Domestic Product to a One Standard Deviation Shock to US Fiscal Policy Uncertainty

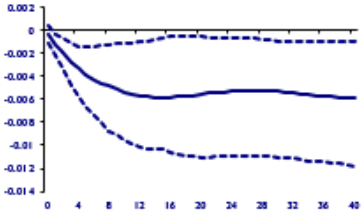
Advanced Economies



Advanced less USA



G-7 Economies



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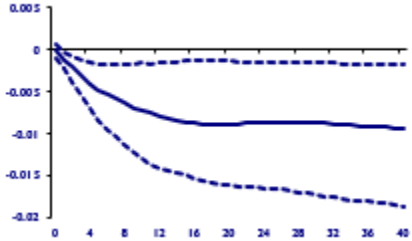

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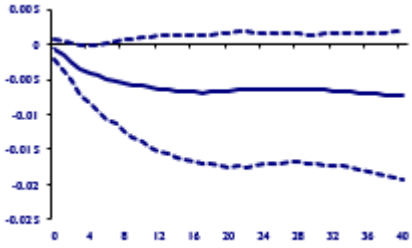
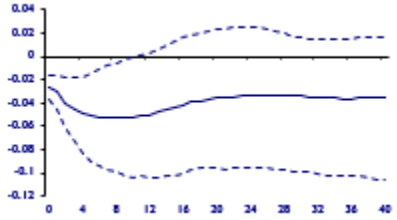


Note: We present the 5%–95% lower and upper bootstrapped error bands for the IRFs in dotted lines and the median estimates in solid lines based. We multiply the latter by 100 to be able to interpret the impulse responses in percentages.

Figure 6: Group-Based Impulse Responses of Real Equity Prices to a One Standard Deviation Shock to US Fiscal Policy Uncertainty

Advanced Economies



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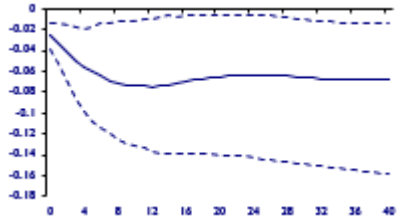
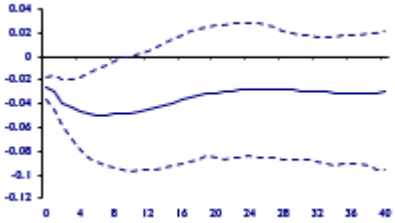


G-7 Economies



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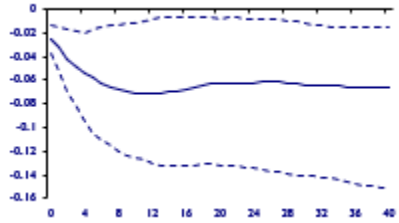

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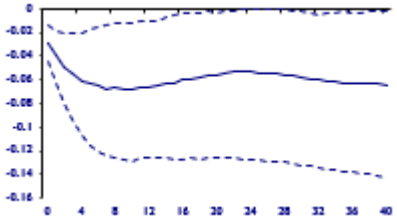
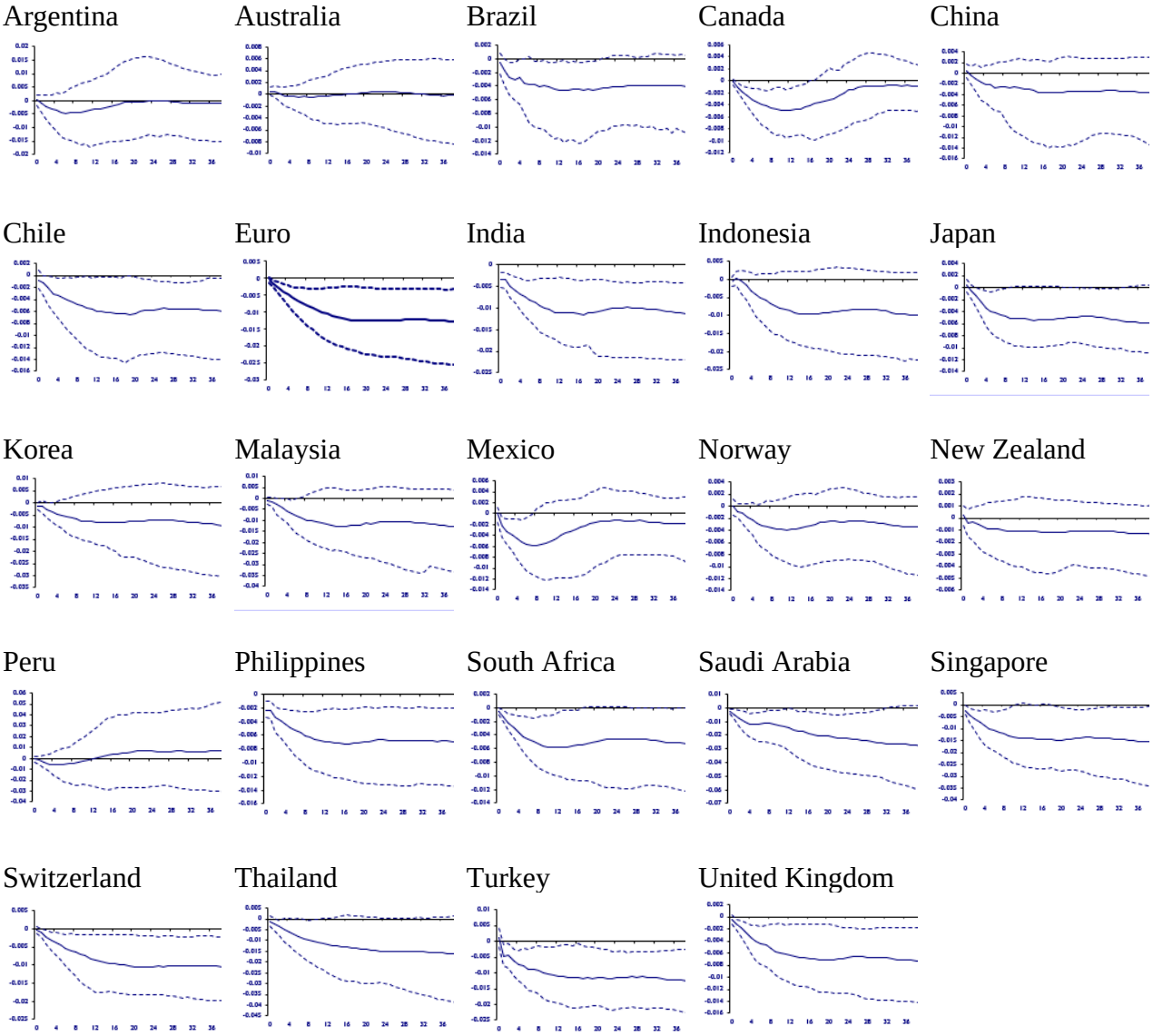


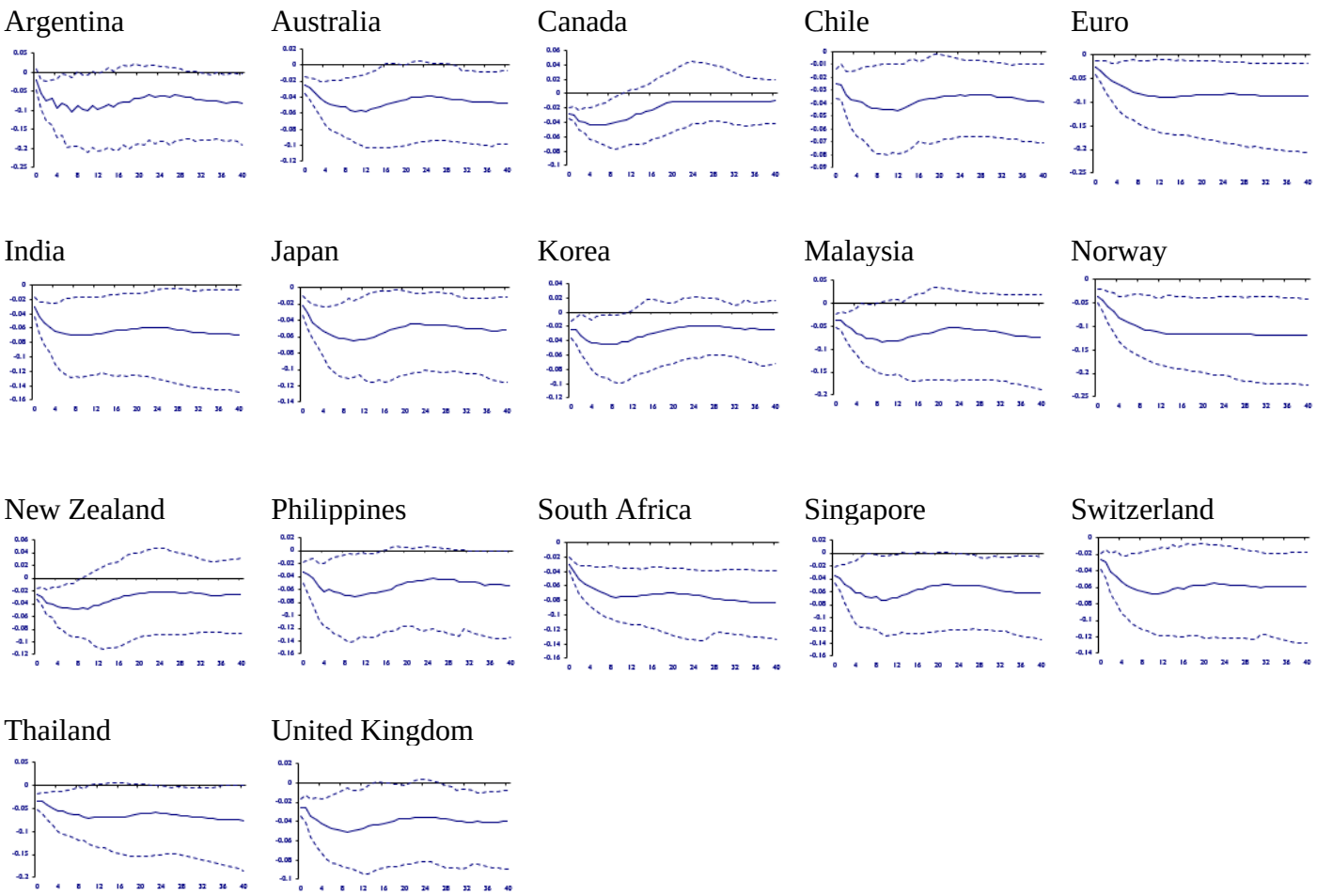
Note: We present the 5%–95% lower and upper bootstrapped error bands for the IRFs in dotted lines and the median estimates in solid lines based. We multiply the latter by 100 to be able to interpret the impulse responses in percentages.

Figure 7: Country-Specific Impulse Responses of Real Gross Domestic Product to a One Standard Deviation Shock to US Fiscal Policy Uncertainty



Note: We present the 5%–95% lower and upper bootstrapped error bands for the IRFs in dotted lines and the median estimates in solid lines based. We multiply the latter by 100 to be able to interpret the impulse responses in percentages.

Figure 8: Country-Specific Impulse Responses of Real Equity Prices to a One Standard Deviation Shock to US Fiscal Policy Uncertainty



Note: We present the 5%–95% lower and upper bootstrapped error bands for the IRFs in dotted lines and the median estimates in solid lines based. We multiply the latter by 100 to be able to interpret the impulse responses in percentages.

Conclusion

Our main objective is to trace the global effects of monetary and fiscal policy uncertainty shocks originating from the US on real gross domestic products and real equity prices of thirty-three advanced and emerging economies (including the US). The study is motivated by the dearth of work offering global perspective to the US policy uncertainties. We also add to the emerging literature on the subject-matter by evaluating the comparative effect of US fiscal and monetary policy uncertainties on the global economy. This distinction is necessary owing to the differing macroeconomic agenda of the fiscal and monetary policy authorities in most emerging and

advanced economies. While the monetary authority is primarily concerned about price and financial stability, the fiscal policy authority is often preoccupied with dealing with revenue crisis. Thus, their policy directions pursue different targets and by extension macro fundamentals may respond differently to their associated shocks. We employ the GVAR model in line with the extended formulation by Chudik and Smith (2013) and Chudik and Pesaran (2016) which ascribe a dominant role to the US. With the exception of the uncertainty indices which we obtained from Baker et al. (2019), we utilize the updated GVAR database by Mohaddes and Raissi (2020) covering virtually all the variables required to implement a GVAR model. Our data covers the period of 1985Q1 to 2019Q4 whose scope is governed by the start date of the uncertainty indices.

Overall, we document negative responses of real gross domestic product and real equity prices to both US monetary and fiscal policy uncertainty shocks regardless of the market classification. Nonetheless, we find greater impact of the uncertainty shocks on advanced markets than the emerging markets, highlighting higher trade and financial linkages between the US and other advanced markets. Also, real equity prices respond more to monetary policy uncertainty shock than real gross domestic product while the reverse holds for fiscal policy uncertainty shock. This further attests to the connection of monetary policy with the financial market while the real sector is more connected with fiscal policy. In other words, issues of tax reforms, tax incentives, infrastructure, among others, which are within the purview of the fiscal authority tend to influence the real sector than the financial sector while issues of interest including treasury bills are more closely connected with financial markets than the real sector.

Our results have two important implications for policy. First, understanding the source of policy shocks is crucial in order to provide relevant measures to mitigate them. Second, governments across emerging and other advanced economies particularly those that share close (economic and political) ties with the US should be wary of US policy actions as such tend to have greater international spillover effects. Similarly, international investors need to understand the extent to which their returns can be undermined by US policy actions and potential diversification strategies based on the heterogeneous response of individual markets to the US uncertainty shocks. Academics and financial analysts can draw lessons in terms of the need to incorporate international (US) policy uncertainty shocks when valuing stocks on the one hand and analysing domestic growth dynamics, on the other hand. In sum, understanding the vulnerability of the financial markets and by extension, the aggregate economy to international

policy uncertainties particularly those associated with the US is crucial for effective domestic policy decisions.

An extension of our study that accommodates alternative measures of policy uncertainties within the GVAR framework would further enrich the literature on the subject.

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Conflict of interest

The authors have no conflict of interest to declare.

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