

The Dollar and Emerging Market Economies: Channels and Impacts *

Bruno Cavani[†] Samer F. Shousha[‡]

June 2026

Abstract

This paper shows that dollar appreciations reduce GDP, investment, and private credit in emerging market economies, and documents the relative contribution and dynamics of four transmission channels, finding that financial channels dominate trade channels. Higher dollar-denominated credit generates persistent contractions, with GDP falling 0.3 and investment 0.5 percentage points in the medium term. Low monetary policy credibility amplifies the initial GDP contraction by 0.2-0.3 percentage points, but only in the short run. The traditional Mundell-Fleming trade channel is muted, as dominant currency pricing and global value chain integration weaken the link between exchange rates and trade flows.

Keywords: Dollar, Balance Sheet Mismatch, Dominant Currency Paradigm, Global Value Chain, Monetary Policy Credibility.

JEL Codes: F31, F34, F36, F41, F44.

*We thank Shaghil Ahmed for extensive comments and suggestions on an earlier draft of this paper. We would also like to thank, for very useful comments and suggestions, Danilo Cascaldi-Garcia, Stephanie Curcuru, John Donaldson, Amanda Dos Santos, Christopher Erceg, Thiago Ferreira, Felipe Iachan, Matteo Iacoviello, Joao Victor Issler, Steve Kamin, Friederike Niepmann, Andre Silva, Alejandro Vicondoa, Frank Warnock, and seminar participants at the Bank of International Settlements (BIS), Brazilian Econometric Society (SBE) annual meeting, Central Bank Research Association (CEBRA) annual meeting, Columbia University, FGV-EPGE, IMF, and the International Finance Workshop of the Federal Reserve Board. We are also grateful to Camila Casas for kindly sharing the data on trade invoicing for Colombia.

[†]Columbia Business School. Email: bc3070@columbia.edu.

[‡]Inspir. Email: samershousha@gmail.com.

1. INTRODUCTION

Recent decades have presented a challenge to prevailing predictions in international macroeconomics. Contrary to what would be expected based on the conventional textbook trade channel, a strengthening U.S. dollar (referred to as the dollar) has been consistently associated with a downturn in real economic activity within Emerging Market Economies (EMEs). This puzzling phenomenon is illustrated in [Figure 1](#), which clearly demonstrates the contradiction with established theories.¹ We show that this apparent puzzle reflects the interplay of multiple transmission channels operating over distinct time horizons. Dollar appreciations lead to significant contractions in EME economic activity primarily through financial rather than trade channels. A one standard deviation dollar appreciation reduces GDP by 0.3 percentage points and investment by 0.5 percentage points in economies with high dollar-denominated debt, with effects amplified by an additional 0.2 to 0.3 percentage points in countries with lower monetary policy credibility. Crucially, these channels exhibit distinct temporal dynamics: monetary policy credibility effects materialize quickly but are temporary, while balance-sheet vulnerabilities generate persistent medium-term impacts. Using a panel VAR model with sixteen EMEs, we first establish that dollar shocks are important sources of business cycle fluctuations, leading to reductions in GDP, investment, and credit while increasing sovereign spreads. We then propose an exposure-factor analysis using local projections ([Jordà, 2005](#)) to decompose the effects across four distinct transmission channels documented by the literature, revealing crucial differences in both their relative importance and temporal dynamics.

1. *Dominant currency pricing*: the widespread practice of dollar invoicing² in trade ([Figure 2](#)) leads to trade prices being sticky in dollars rather than in local currency, mitigating the effects of dollar movements on exports while amplifying their effects on imports.³
2. *Global value chain integration*: as the import content of exports increases, imports and

exports tend to move together,⁴ mitigating the effects of exchange rate movements on the trade balance.⁵

3. *Balance-sheet vulnerabilities*: in economies with substantial dollar-denominated debt, dollar appreciations expand the domestic-currency value of liabilities relative to assets, weakening balance sheets and tightening financial conditions.⁶ This mechanism operates through interacting demand- and supply-side forces: borrowers experience balance sheet deterioration, while local banks that rely on cross-border dollar lending face higher funding costs and credit risk due to currency mismatches. The resulting deleveraging of global banks leads to an overall tightening of financial conditions (Bruno and Shin, 2015).⁷
4. *Lack of monetary policy credibility*: countries with less anchored inflation expectations present considerably higher exchange rate pass-through to domestic inflation, potentially leading to procyclical monetary tightening in response to dollar appreciations.⁸

The inclusion of these transmission channels is motivated by their distinct roles in modifying the dynamics underlying traditional exchange rate mechanisms. The relaxation of producer currency pricing assumptions and incorporation of international supply chain structures, specifically through dominant currency pricing and global value chain integration, serve as moderating forces on the conventional trade channel. In contrast, balance-sheet vulnerabilities and lack of monetary policy credibility can potentially reverse traditional trade channel effects, amplifying contractionary pressures during episodes of domestic currency depreciation. This paper does not identify the fundamental sources of dollar fluctuations, which, as the “exchange rate disconnect” literature documents, are largely disconnected from macroeconomic fundamentals over short horizons (Meese and Rogoff, 1983; Obstfeld and Rogoff, 2000; Itskhoki and Mukhin, 2021).⁹ Our objective is to understand how EMEs react to broad real dollar movements and which country charac-

teristics matter most for transmission.

Related literature. This paper is related to a growing body of the literature that studies the role of the dollar as the world’s dominant currency and how different characteristics of the modern international trade and financial system influence the transmission of U.S. dollar movements to the rest of the world. First, we examine how dollar dominance in global trade shapes its transmission to EMEs. In a seminal contribution, [Gopinath et al. \(2020\)](#) show that a “dominant currency” alters the transmission of exchange rate fluctuations to terms-of-trade, trade quantities, and import-price pass-through. [Bruno, Kim, et al. \(2018\)](#) and [Bruno and Shin \(2023\)](#) further show that, combined with the dollar denomination of trade credit—the working capital channel—the dominant currency paradigm renders local depreciations neutral or even contractionary for exports. We contribute by showing that EME exports remain largely unchanged after dollar appreciations, corroborating these findings.¹⁰ We further show that in EMEs with a higher share of dollar-invoiced trade, imports contract more sharply after dollar appreciations, consistent with the dominant currency paradigm. Second, this work supports the literature on how international supply chains shape the transmission of exchange rates to real activity and prices. [Amiti et al. \(2014\)](#) develop a framework predicting that firms with high import shares and large market shares exhibit low pass-through into export prices, confirmed using Belgian firm-product data. [Johnson \(2014\)](#) shows that supply-chain integration alters how exchange rates pass through to export prices, with the import content of exports playing a key role. We contribute by showing that greater GVC integration weakens the traditional trade channel, consistent with the closer co-movement of exports and imports in integrated economies. Third, the paper relates to work challenging the textbook view that local depreciations are expansionary via net exports, arguing that financial channels can offset the trade channel. When foreign-currency debt is large, a weaker currency erodes bank and firm balance sheets, depresses investment, and becomes contractionary ([Krugman, 1999](#); [Céspedes et al., 2004](#); [Bruno and Shin, 2015](#); [Blanchard et al., 2016](#)). [Dos](#)

Santos (2024) provides causal evidence that domestic bond market development mitigates these balance sheet constraints, with real implications for EMEs.¹¹ Avdjiev et al. (2019) emphasize that dollar movements affect not only borrowers’ balance sheets but also lenders’ risk-taking, amplifying contractionary effects—amplified further by the rise in EME corporate foreign-bond issuance since the 2000s (Caballero et al., 2019).¹² We contribute by showing that GDP, investment, and private credit contract after dollar appreciations in EMEs, more so where dollar debt is higher. While Kohn et al. (2020) finds financial channels have modest effects on exports, our exposure-factor analysis shows muted effects in the first few quarters but a sharper decline thereafter for countries with greater balance-sheet vulnerabilities (consistent with Alessandria et al. (2020)). Finally, this study connects to work linking monetary policy credibility, pass-through, and the real effects of depreciations. Several papers find higher and more persistent pass-through to consumer prices in countries with weaker credibility (Taylor, 2000; Devereux et al., 2004; Bouakez and Rebei, 2008; Ha et al., 2020; Bems, Caselli, et al., 2021). We contribute by showing that the credibility channel also helps explain the contractionary effect of dollar appreciations on EME real activity. Our channel-based analysis also complements recent work by Fukui et al. (2025), who study “regime-induced” depreciations by comparing dollar peggers to floaters, reflecting the dollar’s broad influence in the international monetary system where many EMEs show significant dollar sensitivity even without formal pegs (Calvo and Reinhart, 2002).

Outline. The remainder of the paper is organized as follows. Section 2 presents the panel VAR and baseline results. Section 3 evaluates the relative importance of each transmission channel. Section 4 presents robustness checks. Section 5 concludes.

2. EMPIRICAL MODEL AND RESULTS

Initially, we estimate a structural panel VAR on a sample of sixteen EMEs, with the aim of assessing the impact of dollar shocks.

2.1. Data and Panel VAR Specification

Our empirical model takes the form of a first-order VAR:

$$\mathbf{A}\mathbf{y}_{i,t} = \eta_i + \sum_{k=1}^p \mathbf{B}_k \mathbf{y}_{i,t-k} + \epsilon_{i,t} \quad (1)$$

where i denotes countries, t refers to time period, η_i is a country fixed effect, and

$$\mathbf{y}_{i,t} = [gdp_t^{US}, r_t^{US}, vix_t, reer_t^{US}, gdp_{i,t}, inv_{i,t}, exp_{i,t}, imp_{i,t}, crt_{i,t}, r_{i,t}, reer_{i,t}] \quad (2)$$

in which gdp_t^{US} indicates the U.S. GDP, r_t^{US} corresponds to the U.S. 2-year real interest rate, vix_t symbolizes the index of the implied volatility in S&P500 stock index option prices (VIX) from the Chicago Board Options Exchange (CBOE), $reer_t^{US}$ denotes the broad trade-weighted U.S. real exchange rate, $gdp_{i,t}$ expresses the real gross domestic product, $inv_{i,t}$ represents real gross fixed capital formation, $exp_{i,t}$ points to real exports, $imp_{i,t}$ designates real imports, $crt_{i,t}$ refers to real credit volume to the non-financial private sector, $r_{i,t}$ expresses the country-specific interest rate, and $reer_{i,t}$ indicates the real exchange rate. All variables are log deviations from a log-linear and a log-quadratic trend with the exception of U.S. GDP, VIX, interest rates, and exchange rates which are deviations from a linear trend. We also remove the sample mean after detrending for each variable separately.¹³ The estimation of the panel VAR model incorporates a sample of sixteen EMEs, namely Argentina, Brazil, Chile, Colombia, Czech Republic, Hungary, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, South Africa, Thailand, and Turkey. This study utilizes quarterly data spanning the period from 1996 to 2019. The chosen countries are characterized by well-developed financial markets and a data history of at least 15 years. The data sources are listed in [Online Appendix A.I. Table I](#) provides a summary of business cycle statistics, computed by averaging over country-specific moments for the sample countries. As previously highlighted in [Figure 1](#), there is a strong negative

correlation between real activity variables (GDP and investment) and the dollar (second column of [Table I](#)). More surprisingly, even exports are negatively correlated with the dollar. Also, consistent with prior research, the country interest rate is countercyclical in EMEs (third column). Finally, the country interest rate in EMEs presents a positive correlation with the dollar. The panel VAR is identified through a straightforward recursive structure. Specifically, by imposing that the matrix $\mathbf{A}$ in [Equation 1](#) is lower triangular, with the variables arranged in the same order as presented in $\mathbf{y}_{i,t}$. This configuration implies that the dollar can have both contemporaneous and lagged effects on EME variables, while it affects other U.S. variables only with a lag. The purpose of this arrangement is to isolate dollar shocks that are independent of contemporaneous movements in U.S. GDP, U.S. 2-year real interest rate, and the VIX.¹⁴ For each group, the panel VAR is estimated using the Least Square Dummy Variable (LSDV) estimator. As $T \gg N$, the LSDV approach is preferred to Generalized Methods of Moments (GMM) estimators as it has better finite sample properties and efficiency, especially if the degree of cross-section to time series variation is large. Also, with a large T , [Nickel \(1981\)](#) critique concerning the bias of the LSDV estimator is less important. We employ the Akaike Information Criteria (AIC) to determine the optimal lag length, which turns out to be $p = 2$. The error bands are computed utilizing bootstrap methods.

2.2. *Baseline Results*

[Figure 4](#) shows the impulse response functions corresponding to a 10% positive shock to the dollar on the variables in the model. Dollar appreciations lead to contractions in GDP, investment, and real credit as well as, an increase in sovereign risk in EMEs.¹⁵ This finding contradicts the conventional textbook notion that currency depreciation is expansionary through its effect on net exports. The results are generally statistically significant and the contraction in investment and real credit to the private sector is particularly strong, consistent with the results obtained by [Avdjiev et al. \(2019\)](#). Furthermore, we find

a negligible effect and even an initial small contraction in exports, consistent with the interaction between the dominant currency paradigm and the working capital channel of trade fluctuations (Bruno, Kim, et al., 2018; Bruno and Shin, 2023). Finally, imports experience a strong contraction. We note that our analysis examines exports and imports in levels rather than net exports over GDP or the current account over GDP. While scaling trade flows by aggregate expenditure would more cleanly isolate expenditure-switching effects from general equilibrium forces, the separate responses of exports and imports – combined with the exchange rate regime analysis in [Online Appendix A.IX](#) – remain informative about the transmission mechanisms.¹⁶ To quantify and understand the contribution of each shock for different variables, we perform a variance decomposition of the forecast errors. The findings are presented in [Table 2](#). According to our estimates, innovations in the dollar are responsible for approximately 14% and 18% of GDP and investment fluctuations in EMEs, respectively. For credit to the non-financial private sector, dollar innovations are responsible for around 28% of fluctuations in EMEs. Moreover, dollar innovations explain around 17% of the variance of forecast errors for imports, while for exports the share is much lower, at about 8%. This aligns with the dominant currency paradigm, which anticipates that dollar movements would exert negligible effects on exports. Lastly, the share of variance in country interest rate forecast errors attributable to dollar innovations is relatively minor, at approximately 11%. We also examine the standard Mundell–Fleming predictions by comparing pegged and floating economies, which face the same dollar shock and alleviate concerns about the endogeneity of the exchange rate. Estimating the panel SVAR separately for each group, following [Ilzetzki et al. \(2019\)](#), yields overlapping confidence bands and no statistically significant differences across regimes ([Online Appendix A.IX](#)). Floaters exhibit neither the smaller GDP contraction nor the more favorable net-export response that Mundell–Fleming would predict. Because the exchange-rate classification itself does not generate this heterogeneity, the pooled baseline SVAR — which aggregates across countries with different institutional

structures — is likely to conflate distinct transmission mechanisms rather than to reveal them. The complementary LP-based exposure-factor analysis in [Online Appendix A.X](#), which re-estimates the exposure model separately within each regime group, supports the interpretation that monetary policy credibility, rather than the exchange rate regime, drives the relevant margin of heterogeneity.

3. EVALUATING THE IMPORTANCE OF THE CHANNELS

To quantify the relative contribution and dynamic evolution of the four transmission channels introduced in [Section 1.](#), we construct indices that rank countries by their exposure to each mechanism — dominant currency pricing, global value chain integration, balance-sheet vulnerabilities, and monetary policy credibility — and then embed all four exposures in a nested-form local-projections specification. The detailed construction of the indices, together with a preliminary subgroup analysis that partitions countries into high- and low-exposure groups and estimates separate panel VARs for each group, is relegated to [Online Appendix A.VI](#) and [Online Appendix A.VII](#). The preliminary evidence of systematic heterogeneity between exposure groups across all channels is informative, however, examining each channel in isolation cannot address either the relative importance of the channels or the dynamic interactions among them.¹⁷ Both are central to the subsequent analysis.

3.1. *Exposure-Factor Analysis*

Following [Iacoviello and Navarro \(2019\)](#), we propose a nested-form setting to examine both the relative contribution and temporal dynamics of each channel in explaining the response of real economic activity to a dollar shock. Due to data sparsity, this investigation relies on a two-step statistic procedure to generate a balanced series for each channel at a quarterly frequency. Initially, we balanced the annual panel of exposure measures us-

ing the Multivariate Imputation by Chained Equations (Meghanadh et al., 2019) drawing on benchmark studies in the field of economics (e.g., Scheve and Slaughter, 2001; Schank et al., 2007). Subsequently, we developed a quarterly series for each channel by employing a state-space model.¹⁸ The exposure-factor analysis proceeds based on the estimation of local projections (LP) models (Jordà, 2005). This approach aims to enhance the accuracy of impulse response function estimates, specifically addressing the problem of potential misspecification in traditional multivariate time series models (Jordà et al., 2024). Recent work show that the efficiency losses typically associated with less restrictive models, as in LPs, can often be considerably reduced (Montiel Olea and Plagborg-Møller, 2021; Li et al., 2024). In our study, LPs let us compare conditional means of each future macroeconomic variable, given current available information, one of which is subject to a higher exposure to the associated factor. Consistent with the subgroup analysis, the share of exports invoiced in dollars captures dominant currency pricing, the import content of exports captures global value chain integration, and the share of credit to the non-financial private sector captures balance-sheet vulnerabilities. The only exception concerns monetary policy credibility, which we measure using average inflation rather than the inflation expectations anchoring index, as the latter is too sparse to support the balancing procedure.¹⁹ For the same reason, we exclude South Africa from this exercise, leaving a total of fifteen EMEs. To estimate how exposure relatively affects the economy's response to a broad dollar shock, we estimate broad dollar variations that are orthogonal to macroeconomic fundamentals, so that the identified shock interacts with exposure measures. In particular, we estimate u_t as the residual in the following regression:

$$reer_t^{US} = \theta_0 + \sum_{j=1}^p \theta_j \cdot reer_{t-j}^{US} + \sum_{k=0}^p \beta_k \mathbf{X}_{t-k} + u_t \quad (3)$$

where $p = 4$ and $\mathbf{X}_t = [gdp_t^{US}, r_t^{US}, vix_t]$. By incorporating current macroeconomic variables as controls, our method is analogous to a Cholesky identification in a VAR model

that orders the broad dollar last, as done in the seminal [Christiano et al. \(2005\)](#) for monetary policy shocks.²⁰ We now turn to estimating how the dynamic response of an emerging country to a dollar shock *relatively* depends on dominant currency pricing, global value chain integration, balance sheet, and monetary policy credibility channels. More precisely, we estimate the local projection specified as follows:

$$\mathbf{y}_{t+h} = \mathbf{D}^h \mathbf{x}_t + \mathbf{\Gamma} \mathbf{z}_t + \mathbf{e}_{t+h} \quad (4)$$

where

$$\mathbf{y}_t = [\text{gdp}_t, \text{inv}_t, \text{exp}_t, \text{imp}_t, \text{crt}_t, \text{r}_t, \text{reer}_t] \quad (5)$$

$$\mathbf{x}_t = \left[\left(e_t^{\text{DCP}} u_t \right)^\perp, \left(e_t^{\text{GVC}} u_t \right)^\perp, \left(e_t^{\text{MP}} u_t \right)^\perp, \left(e_t^{\text{BS}} u_t \right)^\perp \right] \quad (6)$$

$$\mathbf{z}_t = [\mathbf{y}_t, \mathbf{y}_{t-2}, u_t] \quad (7)$$

and $e_{i,t}^k$ is a transformation of the exposure index $l_{i,t}^k$. The interaction term $(e_t^k u_t)^\perp$ is constructed so that the coefficient in $\mathbf{\Gamma}$ associated with u_t captures the response to the shock when the exposure measures are at their median values, and the vector of coefficients in $\mathbf{D}^h$ related to $(e_t^k u_t)^\perp$ represents the dynamic multiplier of exposure k at horizons in $\{1, \dots, h\}$. We construct the interaction term $(e_t^k u_t)^\perp$ through a three-step process, which is an extension of $l_{i,t}^k$ outlined in [Online Appendix A.VI](#). This approach is adopted to enhance the comparability among exposures. First, we re-center $l_{i,t}^k$ in terms of the distance between its 50th and 95th percentiles, namely we compute $e_{i,t}^k = (l_{i,t}^k - l_{i,50}^k) / (l_{i,95}^k - l_{i,50}^k)$, where $l_{i,p}^k$ denotes the p^{th} percentile of $l_{i,t}^k$. Second, we construct the interaction term $(e_t^k u_t)$. Finally, we orthogonalize $(e_t^k u_t)$ using a recursive structure: for the first exposure variable k_1 , we regress $(e_t^{k_1} u_t)$ on $[u_t, \mathbf{y}_t]$ and obtain the residual $(e_t^{k_1} u_t)^\perp$; for the second variable k_2 , we regress $(e_t^{k_2} u_t)$ on $\left[u_t, \mathbf{y}_t, (e_t^{k_1} u_t)^\perp \right]$ and obtain the residual $(e_t^{k_2} u_t)^\perp$. We proceed likewise with the next factors. The re-centering step allows us to interpret

the coefficients as deviations from median levels of exposure. Consequently, the coefficient related to the dollar shock u_t stores the effect of the dollar when all exposures are at their median values. The orthogonalization step also facilitates interpretation and comparison: because each additional exposure measure is orthogonal to those preceding, at each horizon h , we can interpret the coefficient associated with exposure k as the marginal effect of variable k on the transmission of the dollar shock to the outcome variable when k moves from the median to a higher percentile of its distribution. Our empirical analysis reveals substantial heterogeneity in both the relative importance and temporal dynamics of transmission channels. As shown in [Figure 5](#), the monetary policy credibility channel exhibits the fastest transmission dynamics. Our estimates show peak effects on GDP and investment within the first few quarters following the shock: when monetary policy credibility is low (i.e., higher average inflation), GDP contracts by an additional 0.2 – 0.3 percentage points in the first two quarters after the shock, while investment falls by about 0.5 – 0.6 percentage points over the same horizon. These magnitudes are economically significant, being up to twice as large as the effects estimated at median credibility levels. This rapid transmission aligns with the literature on monetary policy in emerging markets that emphasizes how incomplete credibility can amplify external shocks through quick adjustments in market expectations and risk premia (e.g., [Calvo and Reinhart, 2000](#); [Calvo and Reinhart, 2002](#)). The fast-acting but temporary nature of these effects provides new evidence on the dynamic role of credibility, extending previous work that has focused on contemporaneous policy constraints ([Eichengreen et al., 2007](#)) and cyclical responses ([Vegh and Vuletin, 2014](#)) in emerging markets. In contrast, as illustrated in [Figure 6](#), the balance sheet channel demonstrates strong state dependence with particularly pronounced effects in the medium term. The negative impact on GDP is most evident between 5 – 10 quarters after the shock, maintaining around –0.3 percentage points and remaining statistically significant through the 15-quarter horizon. Investment shows an even stronger pattern, with effects intensifying from –0.2 to –0.5 percent-

age points over the same period. This temporal pattern extends the evidence supporting traditional balance sheet channel models (e.g., [Williamson, 1987](#); [Bernanke and Gertler, 1989](#)) by revealing that currency mismatches are especially impactful over medium-term horizons with cumulative effects ([Céspedes et al., 2004](#)). While existing work emphasizes how dollar appreciation tightens financial conditions through bank lending ([Bruno and Shin, 2015](#)), our results show that balance sheet deterioration triggers a prolonged cycle of declining investment and economic activity that persists well beyond the initial financial tightening.²¹ The dominant currency pricing channel reveals novel temporal asymmetries in trade responses, as depicted in [Figure 7](#). When dominant currency pricing exposure is high, imports show an immediate negative response of about -0.2 to -0.3 percentage points in the first year, consistent with the direct pass-through effects emphasized in [Gopinath et al. \(2020\)](#). However, export dynamics display a more complex pattern: effects are initially statistically insignificant but turn positive after eight quarters, reaching approximately 0.5 percentage points. This delayed export response aligns with the mechanism highlighted in [Kohn et al. \(2020\)](#), where financial frictions and export entry costs create gradual trade adjustments following exchange rate movements. While their focus is on large devaluations, our results suggest similar dynamics operate even for moderate dollar fluctuations when dominant currency pricing is prevalent. The sign reversal in exports also extends the findings of [Boz, Gopinath, et al. \(2017\)](#); [Boz, Casas, et al. \(2022\)](#), who focus on contemporaneous trade elasticities.²² The overall GDP response follows a similar temporal evolution, moving from an initial muted impact to a positive effect of 0.2 percentage points after two years, while investment oscillates between no effect and a decline of around -0.3 to -0.5 percentage points throughout the period. These results suggest that dominant currency pricing creates richer dynamic patterns than predicted by static models, with competitive gains materializing only after one to two years. The global value chain channel demonstrates no statistically significant effects on macroeconomic variables ([Figure 8](#)). When global value chain exposure is high (moving from the 50th to

the 95th percentile of supply chain integration), GDP and investment show fluctuations around zero with confidence bands that consistently include zero throughout the horizon. Trade flows show similarly muted responses: while point estimates suggest some movements in exports and imports, these effects are not statistically distinguishable from zero at conventional significance levels throughout the 15-quarter horizon. The pattern of overall muted responses aligns with findings in [Amiti et al. \(2014\)](#), who show that trade intensity and market share are the prime determinants of low aggregate exchange rate pass-through and exchange rate disconnect observed in the data. Taken together, these results show that transmission channels dominate at different horizons. Monetary policy credibility shapes the short-run response, while balance-sheet vulnerabilities drive the persistent medium-term contraction. This has implications for both empirical and theoretical work: approaches that average effects over fixed windows risk conflating channels operating on different timescales, and models that treat these mechanisms as static miss the dynamics through which dollar shocks propagate to EMEs.

4. ROBUSTNESS ANALYSIS

This section presents robustness checks for the exposure-factor analysis. Supplementary exercises using the structural panel VAR approach are presented in [Online Appendix A.III](#).

4.1. *Feedback Effects of EMEs on the Dollar*

To address potential feedback effects from EMEs on the U.S. dollar, we employ an alternative local-projection specification. We substitute the Real Broad U.S. Dollar Index with the Real Advanced Foreign Economies (AFE) U.S. Dollar Index, and proceed as described in [Equation 3](#). The rationale behind this substitution is to isolate the impact of the dollar movements related to advanced economies, allowing us to discern whether

shifts in the economic dynamics of EMEs contribute significantly to the fluctuations of the U.S. dollar, and thereby accounting for potential feedback effects from EMEs. [Figure 9](#) compares the impulse response functions generated under both indices. The similarity between these responses suggests that feedback effects from EMEs on the U.S. dollar play a minor role. This finding reinforces the stability of our initial results and indicates that the mechanisms through which U.S. dollar shocks affect EMEs remain largely unchanged when accounting for potential EME influences.

4.2. Pre-Global Financial Crisis

[Lilley et al. \(2022\)](#) document a post-Global Financial Crisis (GFC) correlation between changes in U.S. foreign bond holdings and the dollar. Additionally, several global risk factor proxies begin to strongly co-move with the dollar and changes in U.S. foreign bond holdings around 2007, suggesting risk plays a key role in this relationship.²³ To further validate our findings, we conduct a robustness check by estimating the baseline LP model restricting data to the pre-GFC period, when this co-movement was absent. We exclude Indonesia from this analysis due to limited data availability. The results, presented in [Figure 10](#), show that the estimates for EME variables consistently align with the baseline scenario. These findings suggest that dollar appreciations remain contractionary for EMEs, even when the underlying drivers of dollar movements differ.

4.3. Commodity Prices and the Dollar

The subgroup analysis reveals that commodity exporters typically experience more severe economic contractions following U.S. dollar appreciations. This observation highlights the potential critical link between commodity prices and the dollar. To further explore this connection, we incorporated commodity prices alongside the U.S. dollar into the LP framework. The impulse responses from this adjusted model closely align with those from the baseline estimation, as depicted in [Figure 11](#). These results suggest

that while commodity prices are crucial for certain subgroups, particularly commodity exporters, their inclusion does not fundamentally alter our broader conclusions about the impact of dollar appreciations on EMEs. This robustness check reinforces our initial findings, indicating that the effects of U.S. dollar fluctuations on EMEs are accurately captured, even when accounting for the potential confounding influence of commodity prices.

5. CONCLUSION

This paper establishes that U.S. dollar appreciations lead to significant contractions in emerging market economies, with effects transmitted primarily through financial rather than trade channels. Using both panel VAR and local projection approaches, and confirming these findings with a suite of robustness checks, we document that a one standard deviation dollar appreciation reduces GDP by 0.3 percentage points and investment by 0.5 percentage points in EMEs. A second key contribution is the documentation of how different transmission channels operate at distinct time horizons. While traditional analyses treat these channels as parallel mechanisms, we show that monetary policy credibility effects materialize quickly but are temporary, peaking within two quarters. In contrast, balance-sheet vulnerabilities generate more persistent medium-term impacts that can last beyond three years, particularly affecting investment decisions. This temporal heterogeneity has important implications for both theory and policy. Our findings challenge the conventional Mundell-Fleming framework in two ways. First, we show that the traditional trade channel plays a quantitatively small role compared to financial channels, consistent with work by [Bruno and Shin \(2015\)](#). In particular, [Hofmann et al. \(2017\)](#) and [Avdjiev et al. \(2019\)](#) show that currency depreciation against dollar eases financial conditions, narrow bond spreads, boost cross-border dollar flows, and raise real investment. Second, we demonstrate that dominant currency pricing and global value chain integration fundamentally alter how exchange rates affect trade flows, helping explain why EMEs'

trade balances respond weakly to dollar movements. Although we find fewer benefits from exchange rate flexibility than traditional models would suggest, this does not imply that EMEs would be better off by adopting fixed or heavily managed exchange rates.²⁴ Instead, our findings highlight the importance of building strong institutions to reduce financial vulnerabilities, particularly through credible monetary policy frameworks and macroprudential measures to manage vulnerabilities derived from foreign currency borrowing. Future research could further explore the interaction between trade and financial channels, particularly how dominant currency pricing in both trade and finance reinforces the contractionary effects of dollar appreciations. Additionally, while our empirical strategy robustly identifies the effects of dollar movements, understanding how different sources of dollar fluctuations (e.g., whether from U.S. monetary policy, growth prospects, or global risk perception) might generate distinct impacts on EMEs remains an important area for investigation.

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NOTES

¹The conventional textbook trade channel posits that a depreciation of the local currency (or equivalently, a dollar appreciation) should make exports relatively cheaper and imports costly (e.g., [Mundell, 1963](#); [Fleming, 1962](#)), typically resulting in an increase in net exports and a consumer shift from imported to domestic goods, thereby stimulating an expansion in real activity.

²Throughout this discussion, the terms “pricing” and “invoicing” are used interchangeably, both referring to price stickiness in the currency of denomination.

³See, among others, [Gopinath \(2016\)](#); [Gopinath et al. \(2020\)](#); [Bruno and Shin \(2023\)](#); [Boz, Casas, et al. \(2022\)](#). Additionally, approximately 80 percent of bank trade credit is denominated in dollars ([Bruno and Shin, 2023](#)), extending the dollar’s influence to working capital conditions.

⁴In the presence of dominant currency pricing, this effect is amplified, as export prices and marginal costs often move together.

⁵For further discussion, see [Bems \(2014\)](#); [Amiti et al. \(2014\)](#); [Johnson \(2014\)](#); [Bems and Johnson \(2017\)](#).

⁶Notable contributions include [Krugman \(1999\)](#); [Céspedes et al. \(2004\)](#); [Bruno and Shin \(2015\)](#); [Caballero \(2021\)](#).

⁷As shown in [Figure 3](#), the broad real dollar is inversely related to both cross-border dollar bank lending to non-U.S. residents and international dollar bonds issued by EME non-financial corporates, consistent with this mechanism and documented by [Shin \(2018\)](#).

⁸Exchange rate pass-through is significantly lower in countries with more anchored

inflation expectations and higher monetary policy stability (Taylor, 2000; Devereux et al., 2004; Bouakez and Rebei, 2008; Ha et al., 2020; Bems, Caselli, et al., 2021).

⁹We control for the VIX, U.S. 2-year real interest rate, and U.S. real GDP to mitigate endogeneity concerns. While additional fundamentals as in Engel and Wu (2024) could further strengthen identification, our pre-GFC robustness analysis confirms that dollar appreciations remain contractionary even absent co-movement between the dollar and risk proxies.

¹⁰Kohn et al. (2020) document export effects from large depreciations via market reallocation, a nonlinearity our linear model cannot capture.

¹¹See also Kim et al. (2015); Kalemli-Ozcan et al. (2016); Niepmann and Schmidt-Eisenlohr (2022); Hardy (2023); Caballero (2021).

¹²In contrast, Bonomo et al. (2003) and Bleakley and Cowan (2008) find that dollar-indebted firms in 1990s Latin America did not invest less after depreciations, suggesting they matched liability currency to profit sensitivity.

¹³We use distinct detrending methods for U.S. and EME variables because business cycle fluctuations have moderated in developed economies (Stock and Watson, 2005), while emerging markets exhibit more volatile trends and cycles; see Uribe and Schmitt-Grohé (2017) for further discussion.

¹⁴We use the 2-year real interest rate as a control variable, in order to account for alterations in future monetary policy expectations, beyond the current policy stance.

¹⁵In placebo tests replacing the U.S. dollar with other major currencies (yen, pound, euro) ordered after the dollar in the Cholesky decomposition, we find no statistically significant effects on EME outcomes, consistent with the dominant currency pricing literature (e.g., Gopinath et al., 2020). See Online Appendix A.IV.

¹⁶The response of the nominal bilateral exchange rate to the dollar shock is shown in [Online Appendix A.VIII](#), confirming that EME currencies depreciate in nominal terms as expected.

¹⁷The subgroup analysis presented in [Online Appendix A.VII](#) shows that countries with higher dollar invoicing and lower global value chain integration have larger import contractions; those with greater balance-sheet vulnerabilities experience more severe contractions in GDP, investment, and credit; and countries with lower monetary policy credibility face amplified contractionary effects.

¹⁸Further references and method details are provided in [Online Appendix A.II](#).

¹⁹In the subgroup analysis presented in [Online Appendix A.VII](#), replacing average inflation with the inflation expectations anchoring index as an indicator of monetary policy credibility does not significantly alter the findings.

²⁰Using changes in the broad U.S. dollar index instead of our orthogonalized shocks yields qualitatively similar but quantitatively larger impulse responses. The amplification likely reflects endogenous responses to U.S. macroeconomic developments that affect EMEs through non-dollar channels, which our orthogonalization is designed to purge.

²¹This medium-term amplification is consistent with the firm-level evidence in [Caballero \(2021\)](#). Using a panel of emerging-market firms, they find that the negative effect of local currency depreciation on investment not only persists but intensifies over time.

²²A chapter in the 2019 IMF External Sector Report ([Adler et al., 2019](#)), building on their work, documents that higher dollar invoicing shifts short-term external adjustment from export quantities toward prices and markups. Over the medium term, however, greater price flexibility restores symmetry in volume responses and the conventional expenditure-switching mechanism re-emerges.

²³We are grateful to Stephanie Curcuru and Friederike Niepmann for highlighting this fact.

²⁴For instance, [Kalemli-Ozcan \(2019\)](#) shows that free-floating EMEs are more insulated from international risk spillovers than EMEs with managed floats.

TABLES

TABLE 1: Summary Statistics for Detrended Variables

	σ_X	$\rho(X_t, \text{BroadUSD}_t)$	$\rho(X_t, Y_t)$
GDP	0.02	−0.76	1.00
Investment	0.09	−0.80	0.97
Exports	0.04	−0.29	0.68
Imports	0.08	−0.73	0.95
Credit	0.07	−0.45	0.42
R	0.02	0.84	−0.68
REER	0.05	−0.85	0.77

Notes: The data constitutes simple average of the indicators for Argentina, Brazil, Chile, Colombia, Czech Republic, Hungary, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, South Africa, Thailand, and Turkey; sampled quarterly from 1996:Q1 to 2019:Q4. Sources are listed in [Online Appendix A.I](#). The rows refer to detrended GDP, investment, real exports, real imports, real credit, country real interest rate, and real effective exchange rate. The term σ_X represents the standard deviation of each variable, $\rho(X_t, \text{BroadUSD}_t)$ represents the correlation of each variable with the broad real dollar, and $\rho(X_t, Y_t)$ represents the correlation of each variable with detrended output.

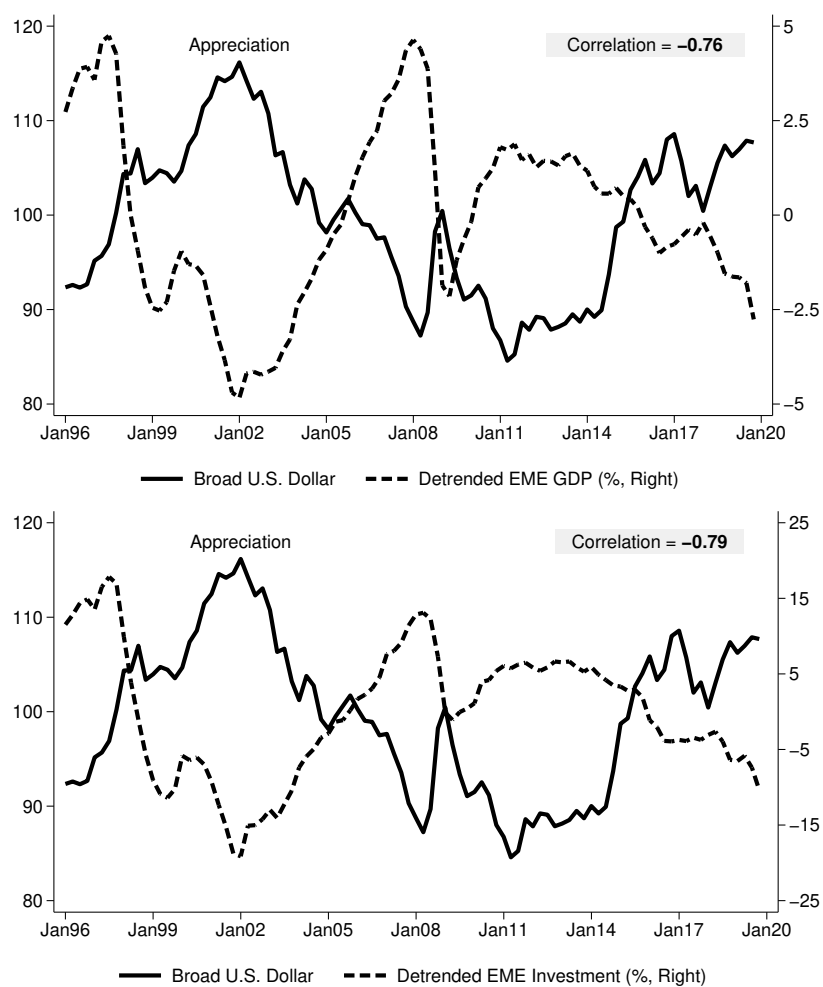
TABLE 2: Variance Decomposition of Detrended Variables:
Percent of Variation Explained by Broad Dollar Shocks

Forecast horizon	GDP	Investment	Exports	Imports	Credit	R	REER
1	4%	2%	1%	3%	0%	1%	1%
4	10%	10%	5%	11%	1%	3%	3%
8	13%	15%	6%	15%	6%	6%	6%
12	14%	18%	5%	17%	12%	8%	9%
24	14%	18%	8%	17%	25%	9%	11%
60	14%	18%	8%	17%	28%	11%	11%

Notes: The columns refer, respectively, to detrended gross domestic product, investment, real exports, real imports, real credit, country real interest rate and real effective exchange rate.

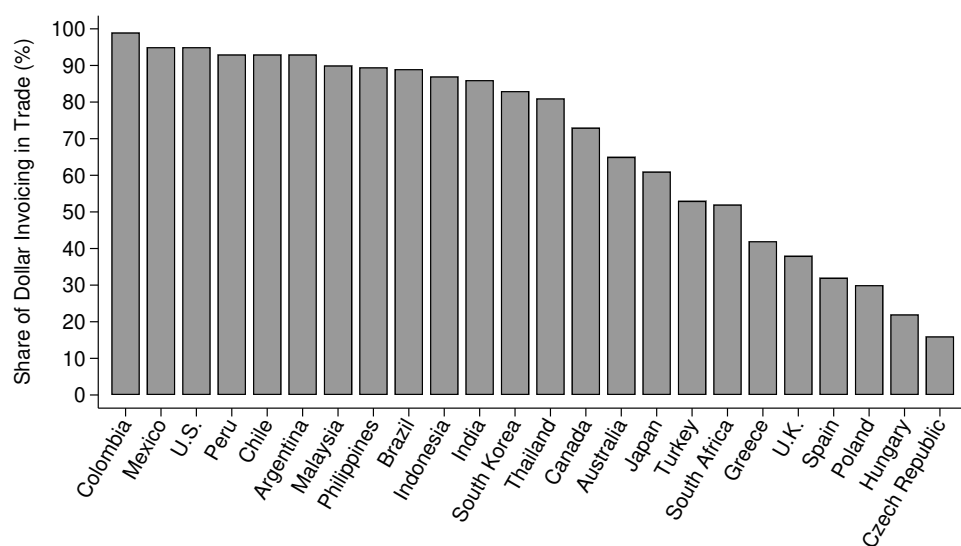
FIGURES

FIGURE 1: Dollar and Emerging Market Economies Business Cycles



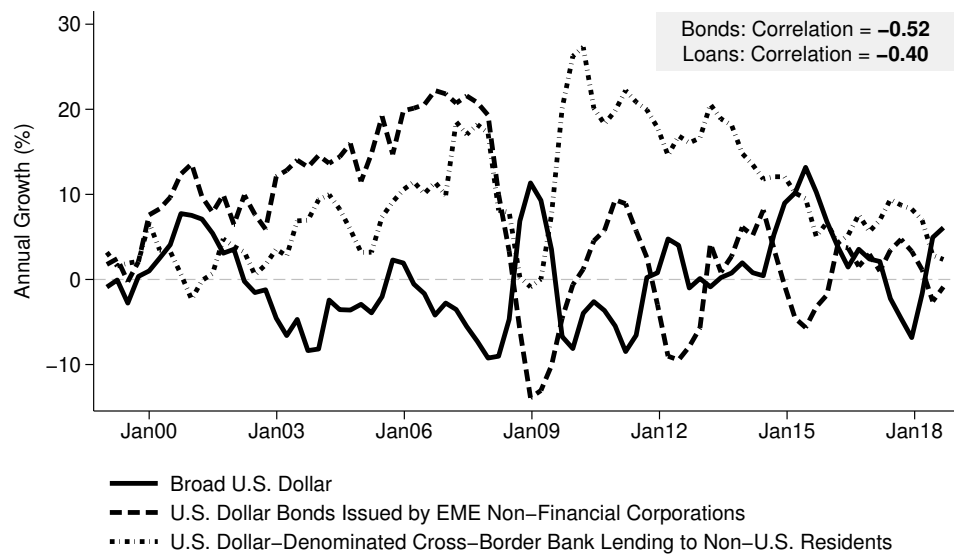
Notes: The broad real U.S. dollar is a weighted average of the foreign exchange value of the U.S. dollar against the currencies of a broad group of major U.S. trading partners in real terms (adjusted using the respective consumer price indexes). Index: 2005 = 100. **Sources:** National sources and FRED.

FIGURE 2: Dollar Dominance in Trade Invoicing



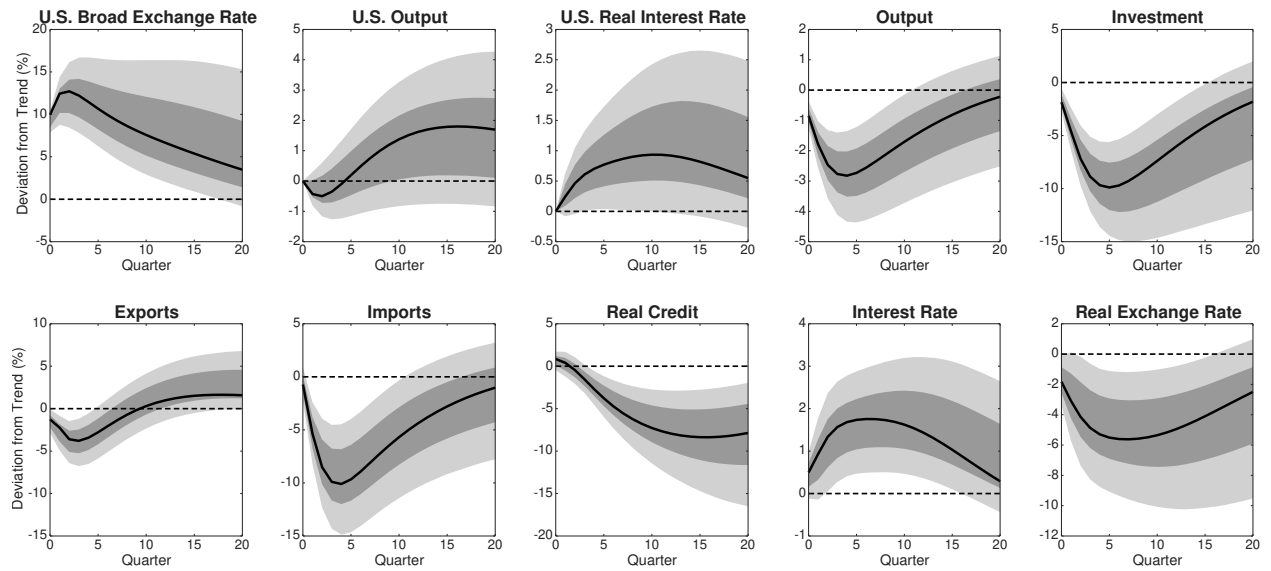
Sources: National sources, [Kamps \(2006\)](#), [Goldberg and Tille \(2009\)](#), [Gopinath \(2016\)](#), [Castellares \(2017\)](#), [Labbe \(2018\)](#), [Giuliano and Luttini \(2020\)](#), and [Boz, Casas, et al. \(2022\)](#).

FIGURE 3: Broad Dollar and Dollar Loans and Bonds



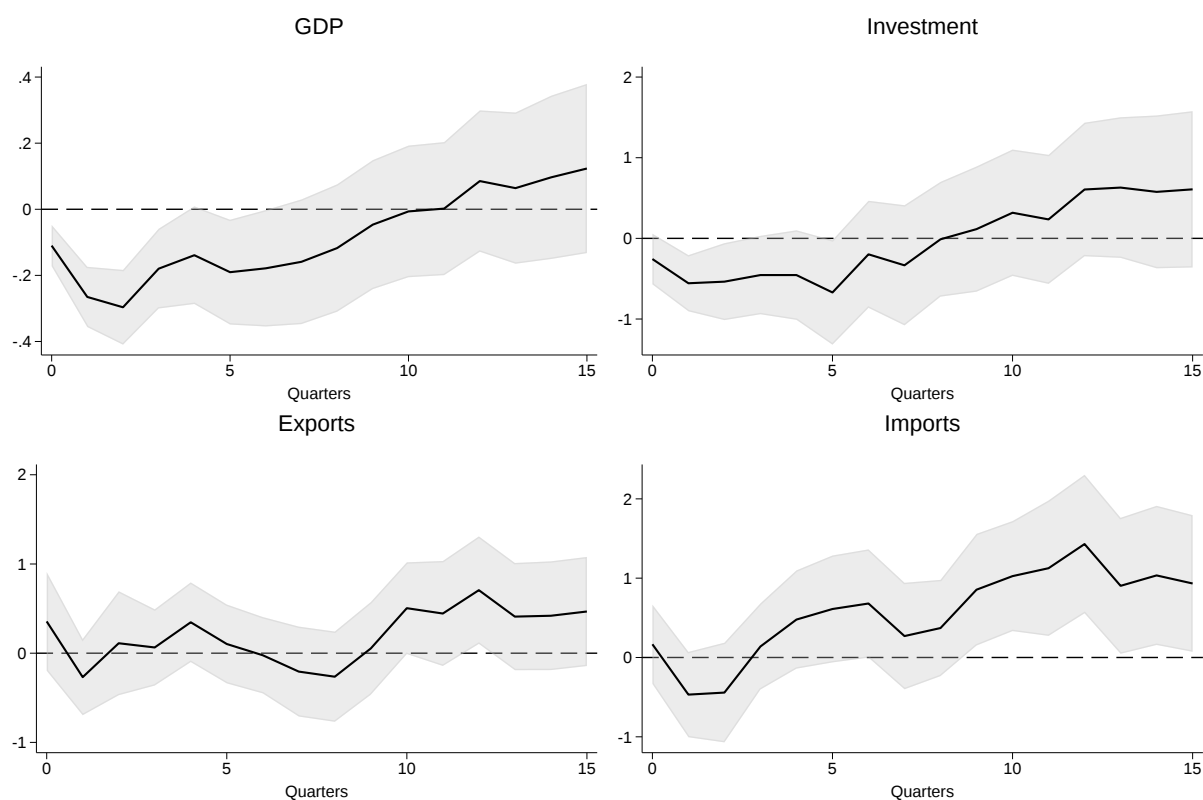
Sources: BIS Locational Banking Statistics and FRED.

FIGURE 4: Impulse Response to a 10% Dollar Shock



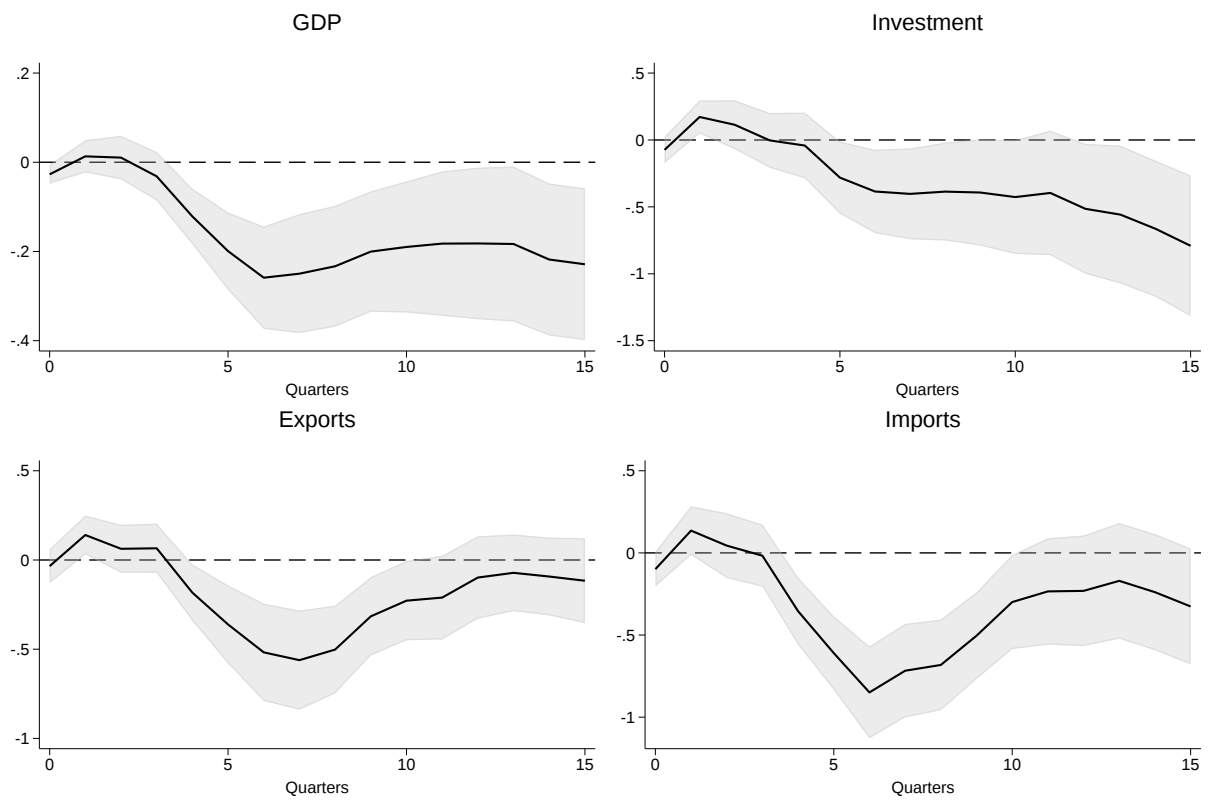
Notes: Marked black lines show point estimates of impulse responses for the baseline panel VAR; and 1 standard deviation and 95% confidence bands are depicted with dark-gray and light-gray shaded areas, respectively. Bootstrap confidence bands are based on 100,000 repetitions.

FIGURE 5: Monetary Policy Credibility – Dynamic Multipliers to a 1 SD Dollar Shock



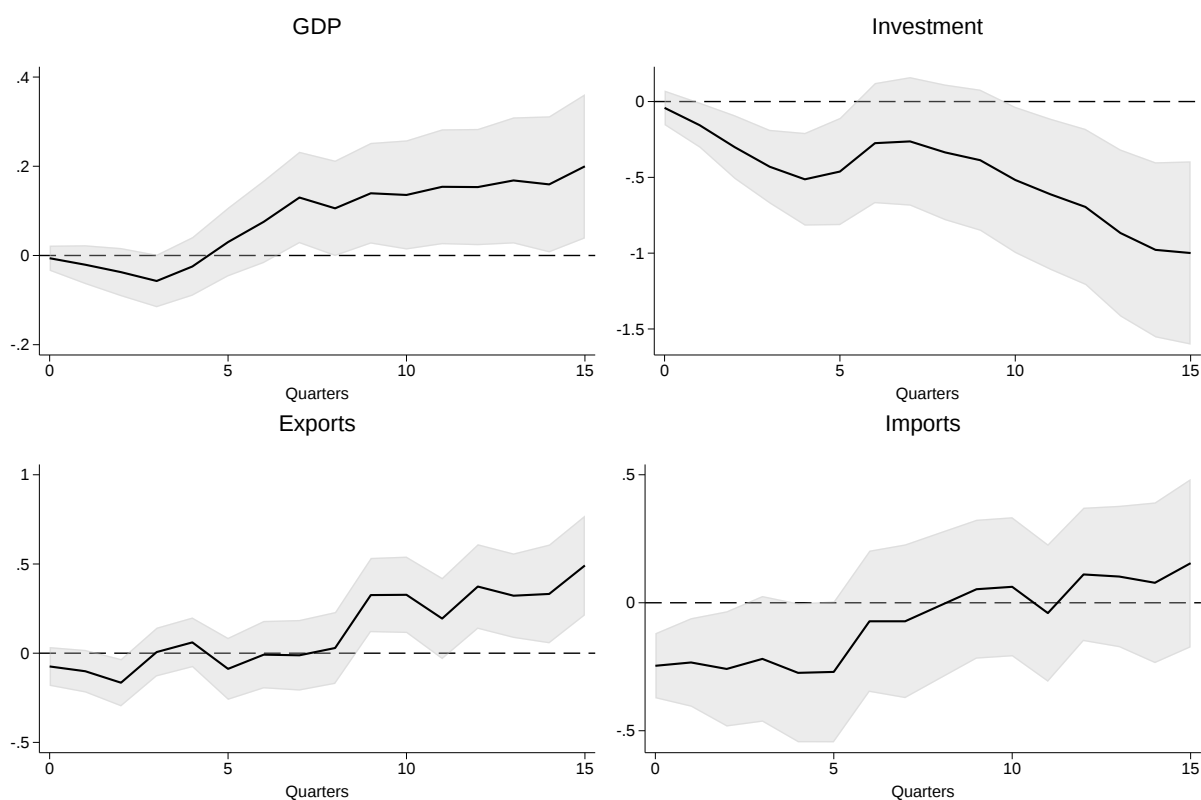
Notes: Solid lines show point estimates of impulse responses for each macroeconomic variable after a dollar shock with monetary policy credibility exposure; gray shaded areas represent 1 standard deviation confidence bands for each variable.

FIGURE 6: Balance Sheet – Dynamic Multipliers to a 1 SD Dollar Shock



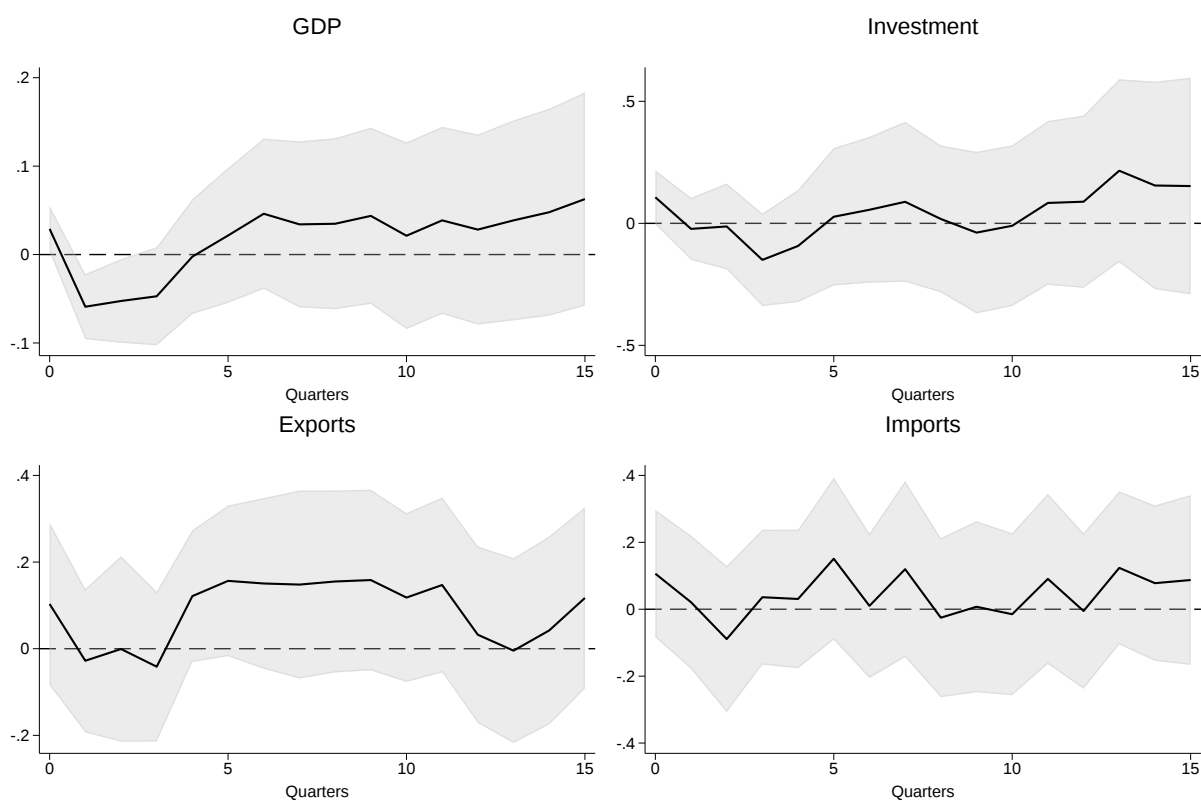
Notes: Solid lines show point estimates of impulse responses for each macroeconomic variable after a dollar shock with balance sheet exposure; gray shaded areas represent 1 standard deviation confidence bands for each variable.

FIGURE 7: Dominant Currency – Dynamic Multipliers to a 1 SD Dollar Shock



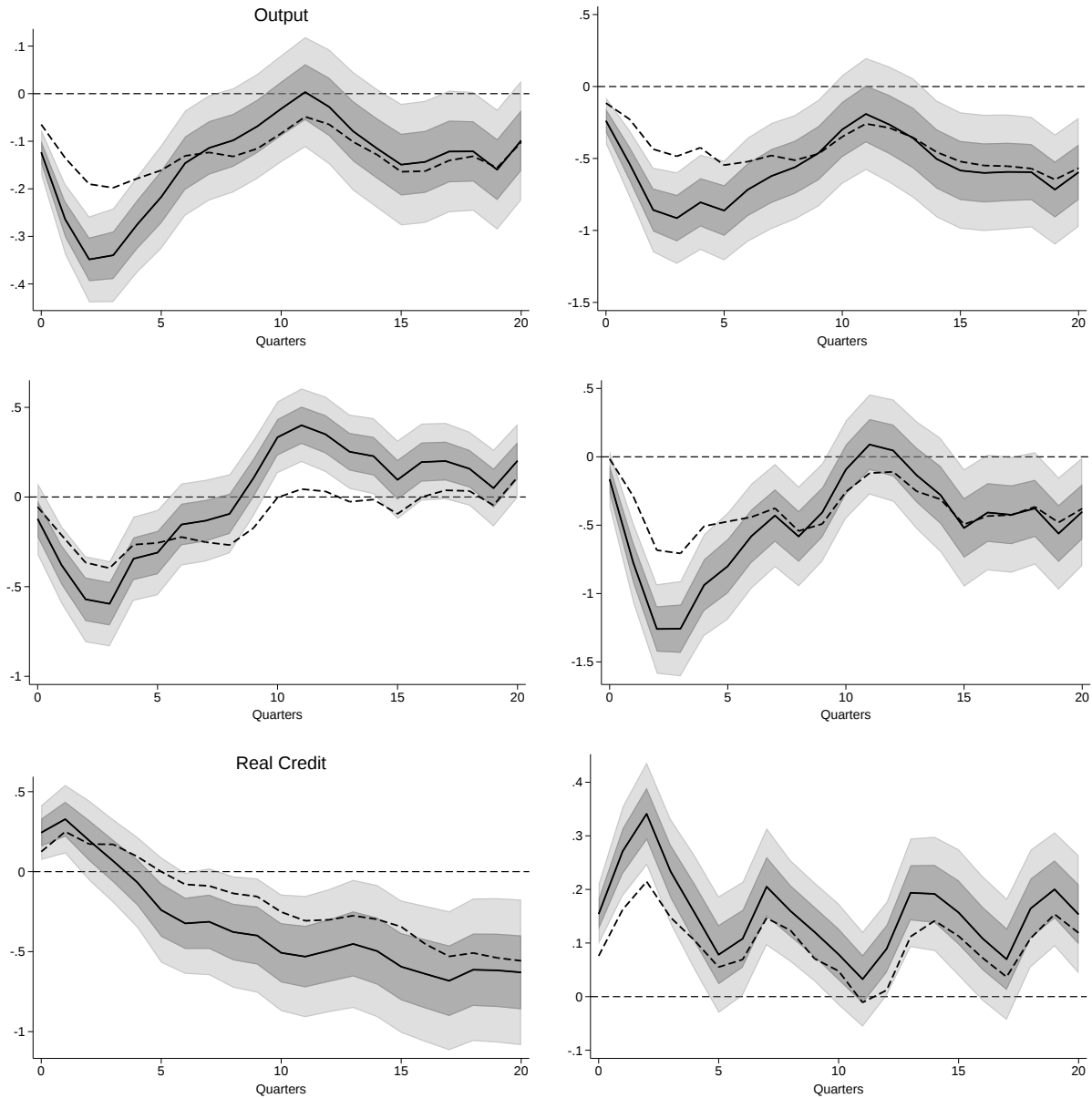
Notes: Solid lines show point estimates of impulse responses for each macroeconomic variable after a dollar shock with dominant currency pricing exposure; gray shaded areas represent 1 standard deviation confidence bands for each variable.

FIGURE 8: Global Value Chain – Dynamic Multipliers to a 1 SD Dollar Shock



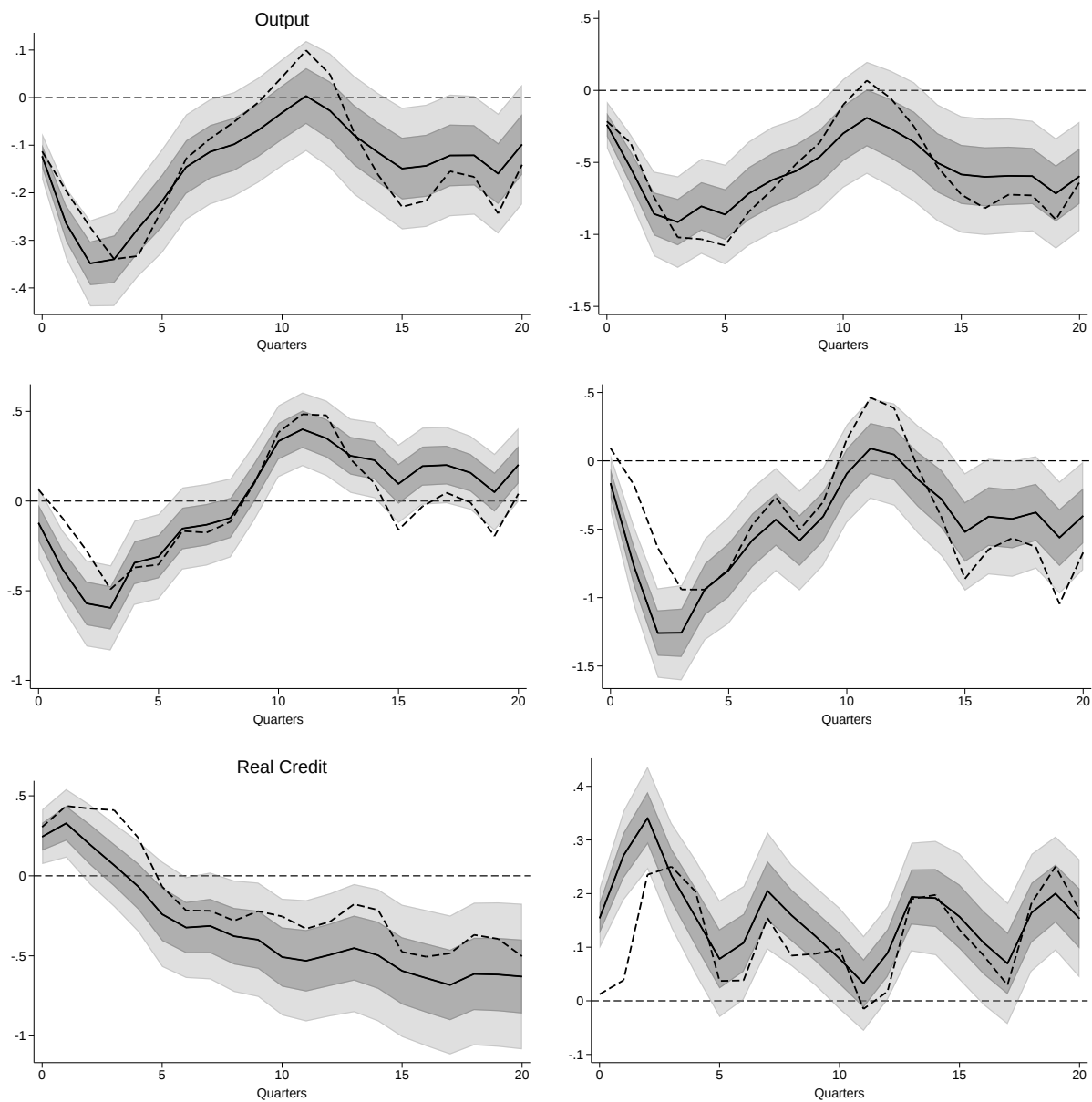
Notes: Solid lines show point estimates of impulse responses for each macroeconomic variable after a dollar shock with global value chain exposure; gray shaded areas represent 1 standard deviation confidence bands for each variable.

FIGURE 9: Feedback Effects – Dynamic Multipliers to 1 SD AFE U.S. Dollar Shock



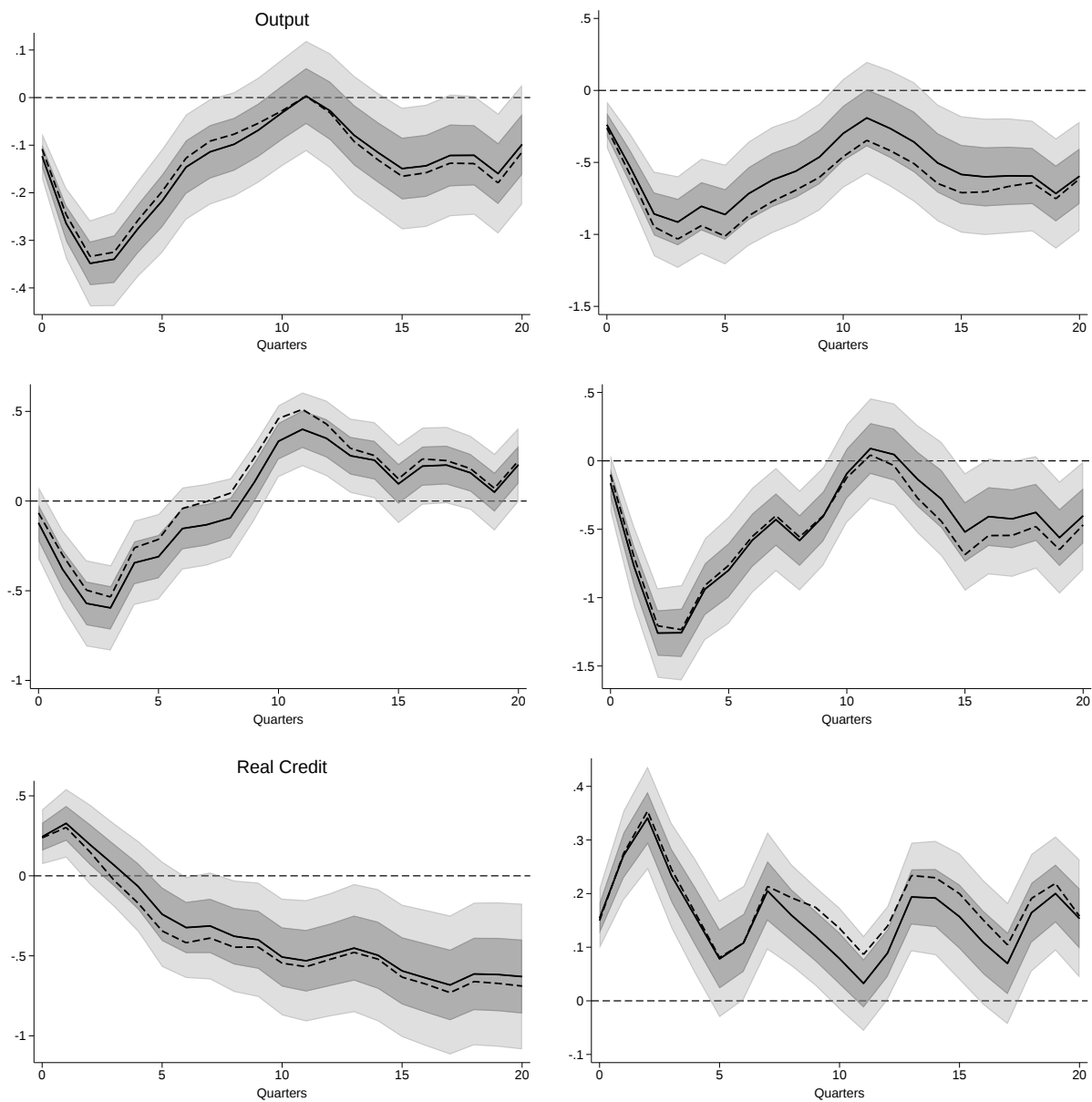
Notes: Solid and dashed lines show estimates of impulse responses, respectively, for the baseline LP and the LP using the Real Advanced Foreign Economies U.S. Dollar Index in place of the Real Broad U.S. Dollar Index; 1 standard deviation and 95% confidence bands associated with the baseline model are depicted with dark-gray and light-gray shaded areas, respectively.

FIGURE 10: Pre-GFC Period – Dynamic Multipliers to 1 SD U.S. Dollar Shock



Notes: Solid and dashed lines show estimates of impulse responses, respectively, for the baseline LP and the LP using data restricted to the pre-GFC period; 1 standard deviation and 95% confidence bands associated with the baseline model are depicted with dark-gray and light-gray shaded areas, respectively.

FIGURE 11: Commodity Prices – Dynamic Multipliers to 1 SD U.S. Dollar Shock



Notes: Solid and dashed lines show estimates of impulse responses, respectively, for the baseline LP and the LP controlling for commodity prices; 1 standard deviation and 95% confidence bands associated with the baseline model are depicted with dark-gray and light-gray shaded areas, respectively.