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A Summary of the Presentations at the CEMLA-ECB-FRBNY-BCRP Conference on Financial Intermediation, Credit and Monetary Policy¹

Adrian Armas, the Chief Economist of the Central Reserve Bank of Peru, made the opening remarks, welcoming all participants, and expertly walking them through the program. He reminded us about the relevance of the topics being covered. In addition, he underscored the importance of understanding policies both in advanced and emerging market economies.

Ramos-Francia (2019a) provides some context to the papers and presentations. He reminded participants that it has been over a decade since the Global Financial Crisis (GFC) began in full force. In its aftermath, there was a significant surge in the interest for economic problems that were perceived as understood and, thus, manageable. For instance, there was a general perception that the global economy had become more resilient. However, the GFC proved such a perception wrong. This has led to several issues on macroeconomics and macroeconomic policy. For instance, prior to the GFC, the general perception was that if every economy maintained sensible policies then the aggregate would take care of itself. Arguably, the economic crises in the 1990s and the 2000s validated such a perception. By now, we should all recognize the extent to which economies are interconnected. While this entails benefits, it links us in ways that can be detrimental. This relates to Gräß and **Żochowski's** (2017) paper, which considers not only how the ECB monetary policy affects cross-border bank capital flows, but also how external monetary policy affects such flows. Relatedly, we should be interested in understanding policies' spillovers and spillbacks. **Albrizio**, Choi, Furceri, and Yoon (2019) and Pérez-Forero (2017) presents cases of the European Union and Latin American economies, respectively.

Presently, there is a general perception that one can identify as a growth malaise. Subdued economic growth has led to increasing pressure for extra economic growth. Thus, policy makers have sought growth abroad, mostly promoting exports. Nonetheless, under the present conditions, having several economies choosing similar policies can be problematic. There are incentives for Advanced Economies' (AEs) central banks to implement balance sheet policies, and for Emerging Market Economies' (EMEs) to self-insure through international reserves' accumulation. These, when amounting to competitive devaluations, only reinforce the subdued global growth equilibrium. The implementation of UMPs in the main AEs in a global context of possibly very small neutral

¹ Summary prepared by Santiago García-Verdú (CEMLA). Citations and references have been kept to a minimum. All ideas should be attributed to the papers/presentations of the conferences and the references cited therein. Authors presenting joint research are indicated in bold font.

interest rates, brought about a notable rise in the level and volatility of capital flows. A key issue is whether normalization of monetary policies in AEs, can be done without substantial spells of financial instability. This depends mainly on two factors. First, how the Federal Board operates the process; and, second, whether adverse inflationary shocks to the US economy take place. The first point relates to Boyarchenko, Haddad and Plosser's (2016) paper, which emphasizes the difference between changes in U.S. monetary policy and in economic information, and how the latter might affect expectations. From the point of view of EMEs, disorderly capital outflows could have large adverse effects on economic activity.

This is where many EMEs stand today. Under these conditions, one prominent challenge is the possible use of capital controls. There are, at least, two fundamental problems with them. First, their effectiveness has been questioned. A second aspect is that of capital deflection. More generally, the presence of a global financial cycle has brought into question the capacity that a small open economy has to implement its monetary policy. Rey (2015) has argued that presently, under free capital mobility, an independent monetary policy is not feasible unless there is capital account management, akin to the conclusions in Albrizio, Choi, Furceri, and Yoon's (2019) paper.

Brandao-Marques, **Gelos**, Narita and Nier (2019) explores the quantitative effects and potential costs of macroprudential policies. Starting from the intertemporal tradeoff between financial conditions and vulnerabilities, he quantifies the net benefits of macroprudential, monetary, FX and capital management policies. To do so, he uses quantile local projections, fit the conditional quantiles to a known distribution and obtain high order moments, and obtain estimates for loss function. He finds that macroprudential policies appear to lessen the trade-off between present looser financial conditions and greater future downside risks to growth. He documents a reduction of around 20% in loss functions for an average tightening of macroprudential measures, in particular, large losses for LTV and liquidity requirements. He finishes pointing out the next steps in their research, including

Altavilla, **Burlon**, Giannetti and Holton (2019) explain that in the aftermath of the GFC, the zero lower bound became a policy challenge for some central banks. The general perception had been that monetary policy cannot do much once such a bound is reached. Challenging such a perception, the authors argue that some banks can charge negative rates on a segment of their deposits. They claim that such banks do not experience a decrease in deposits even if they charge negative rates. In fact, they argue that deposits increase during the negative interest rate policy period is consistent with high demand for liquidity and safe assets.

Gräb and **Żochowski** (2017) analyze the international bank lending channel of unconventional monetary policy. They consider two perspectives. An outward one, for which they assess whether an expansion of the ECB's balance sheet causes a rise in

cross-border lending of euro area Monetary Financial Institutions (MFIs). An inward perspective, for which they investigate whether foreign central bank balance sheet expansion increases domestic bank loan supply of euro area MFIs. They find that conventional monetary policy in the form of changes in the ECB's main refinancing operations rate do not have any significant impact on cross-border growth in loans over the sample period. In contrast, Euro area banks significantly increase cross-border lending in response to ECB UMP measures. Similarly, Euro area banks extend their lending to the private non-financial sector in response to a central bank balance sheet expansion of the US Federal Reserve.

Albrizio, Choi, Furceri, and Yoon (2019) contend that there is no consensus on the sign of the effect of domestic monetary policy on cross-border banking flows. Theoretically, monetary policy actions effects on cross-border bank lending depend on the channel being considered. The authors argue that such a lack of consensus is partly due the difficulties in identifying monetary policy shocks. Thus, the authors use local projection method and exogenous measures of monetary policy shocks to estimate the cross-border banking lending effects.² In addition, they study whether certain types of a recipient country' characteristics affect the international bank lending channel. Finally, the authors present some evidence that capital controls and a floating exchange rate regime are effective in moderating monetary policy spillovers.³

Contreras, **Gondo**, Ore, and Pérez-Forero (2018) explain how the Central Bank of Peru (BCRP) implemented a set of policies to reduce the exposure of the economy to dollarization risks and strengthen the transmission mechanism of monetary policy. As of 2013, the BCRP set extra reserve requirements for credit in foreign currency to incentivize financial intermediation in soles. In addition, the BCRP provided extra facilities to private banks to obtain funding in domestic currency.⁴ The paper assesses the impact of such policy measures on the currency composition of credit supplied by the banking sector to private firms. The authors argue that policy measures have contributed to reduce the degree of dollarization of credit from the banking system to the private sector.

Menna and **Tobal** (2018) explore the link between monetary policy and financial stability for the case of an EME. They develop a New Keynesian framework of a small open economy model in which credit plays a key role. In the closed economy version of their model, a rise in the interest rate diminishes the output gap and the demand for domestic credit, as one would expect. Yet, in the open economy version of the model, the increase in the interest rate also attracts capital flows and, through this channel, raises liquidity and

² The expansion of international asset and liability positions calls for a better understanding of the spillovers through gross flows.

³ Their results contrast with the evidence presented in previous studies using similar data but relying on other measures of monetary policy shocks.

⁴ Currencies repos, in which the private bank receives domestic currency and provides dollars as a collateral.

the domestic credit supply. In this case, the optimal response to a demand shock that inflates credit growth is to adjust the interest rate by less than in a closed-economy setup.

Cardozo, Gamboa, Perez-Reynax, **Villamizar-Villegas** (2016) analyze the effects of financial constraints on the exchange rate through the portfolio balance channel. To that end, the authors construct a tractable general equilibrium model in which financial constraints inhibit capital flows. Empirically, they use a sharp policy discontinuity, considering Colombian regulatory banking limits to test for the portfolio balance channel, using high frequency data for the 2004-2015 period. Their model has multiple equilibria. If constraints are not binding, then the uncovered interest rate parity (UIP) condition holds. When constraints bind, departures from the UIP depend on the households' relative amount of foreign bonds. This equilibrium creates a wedge on the return that affects the exchange rate. Their main mechanism focuses on how departures from UIP affects the income of the household. If the UIP condition does not hold, then the income of the household changes. Empirically, the effects of banking limits on the exchange rate are significant only in episodes in which the Central Bank of the Republic (Colombia) intervened in the foreign exchange market. Their results suggest that capital restrictions (i.e., banking limits) enable foreign exchange intervention to be effective.

Bucacos (2017) analyze the vulnerability of the Uruguayan economy to changes in foreign monetary policy in the last twenty years. To that end, the author estimates a Factor-Augmented Vector Autoregressive model with quarterly data from 1996: Q2 to 2014: Q4, using a two-step estimation method, in which the factors are estimated by principal components prior to the estimation of the VAR. The results of the estimation of the standard VAR model suggest that a contractionary foreign monetary policy has no clear effects on Uruguayan real output, nor housing prices or fiscal accounts.

Boyarchenko, Haddad and Plosser's (2016) paper is motivated by the existence of two non-conventional monetary policy channels that might influence asset prices. Communication of the monetary authority can convey information about its policy function. In particular, disclosed information that somehow diminishes the uncertainty of future economic conditions and makes the policy stance clear. Another explanation argues that Fed communications can take many forms and affect expectations and uncertainty but is not related to monetary policy. The authors find two principal components that describe the 93% of total policy variance, with the first component explaining 59% and the second one 34%. The first component is important for longer maturities. The second component mainly explains the shortest maturities, particularly the Fed Funds surprise. They show that FOMC announcements impact the prices of risky assets via two distinct channels: a standard monetary policy shock and a novel market confidence one. The first one is the standard shock that all the people understand how the Fed can change, however it is less clear how it impacts market confidence. Their findings indicate that the central bankers should consider their impact on long rates and risk premia as separate from conventional monetary tools. Their results suggest that monetary policy can have an impact, even at the zero-lower bound, by acting through the risk premia.

Ramos-Francia, **García-Verdú**, Sánchez-Martínez (2019) explore how the GFCy might affect the interest rate channel for a set of emerging market economies (EMEs). Thus, we analyze how variations in the term structure due to inflation shocks measured up against variations in the term structure due to joint shocks, on inflation and the VIX. Thus, we assess whether the VIX index could be hampering the response of the term structure of interest rates to inflation shocks. More broadly, we consider whether the GFCy could be adversely affecting the interest rate channel of monetary policy in EMEs. First, the monetary rules' coefficients associated with inflation and the VIX positively relate to the affine model coefficients associated with those same variables. Monetary authorities react to market participants and vice versa. Second, the responses of long-term interest rates to shocks on the VIX index are, in general, statistically significant. Such responses are mostly due to variations in the term premiums. The responses to shocks on inflation are, for the most part, due to the expected average short-term interest rates. Third, the responses of the long-term interest rate to joint shocks on inflation and the VIX are, in general, statistically significant as well, in which the VIX seems to augment the general response. This is indicative of an adverse role of the GFCy on the interest rate channel in EMEs. Having said that, the results depend on the economy in question.

Pérez-Forero (2017) aim is to disentangle the dynamics effects due to the unexpected movements in the FFR and the systematic reaction of the Fed after demand and supply shocks. The question is then how is the transmission mechanism of these policies from the US and what are the spillover macroeconomic effects on Latam Economies. The paper focuses on countries that have IT as a monetary policy regime: Chile, Colombia, Mexico, and Peru. The author uses an SVAR model assuming block exogeneity, and sign restrictions to identify the shocks. He identifies the structural monetary policy shocks by imposing sign restrictions. A US interest rate shock produces a medium run nominal depreciation and a positive reaction of the domestic interest rate in Latin American countries, for instance. Moreover, the author speculates that depending on the causes that motivate a raise in US interest rates, the structural effects will differ. As a caveat, results are mixed across different economies and must be taken with caution.

Policy Discussion Table

Armas (2019) explains key points on Peru's macroeconomic policy framework, examining how it typically faces external shocks. It has the following key elements: inflation targeting, a free-floating exchange rate regime, a solid fiscal position, and sound bank regulation and supervision. However, he argues that the traditional framework might not be sufficient to deal with severe financial risks. Two prominent cases in which that is the case are as follows. First, substantial currency mismatches created by unhedged local or external loans in foreign currency; second, exposures to foreign currency liquidity risks, particularly so in dollarized financial systems. Thus, he underscores the need of complementing with non-conventional instruments. The bank's monetary framework is an extended inflation

targeting regime that is geared to mitigate financial risks associated with dollarization. Two factors are of keen interest. The fact that the Peruvian economy is highly dollarized and the relevance of credit cycles. Thus, he explains, the need of additional tools to mitigate risks. He underscores three tools. First, the central bank uses sterilized FX intervention to build international reserves for precautionary purposes and to mitigate the exchange rate volatility. Second, the authorities might increase the reserve requirements on foreign exchange liabilities with the objective of limiting risks. Third, there might be reserve requirements in domestic and foreign currency, to smooth credit cycles. He explains that in Peru the cyclical use of reserve requirements has contributed to reducing financial risks that associated with credit cycles.

Goldberg (2019) underscores three points on capital flows: first, the evolution of international capital flows; second, the size and variable global factor (by global factor she means the common movement of capital flows across countries); third, she covers some open questions on these topics. On the evolution of international capital flows, she underlines that cross-border lending is the most volatile, particularly so, for bank borrowers. The amplitudes of their swings have been larger for EMEs bank borrowers, especially those that are financed through international bank flows. On non-bank borrowers, bank-based credit slows and, in some cases, even contracts in the global financial crisis aftermath. This is especially the case for AEs. She argues that the relevance of the global factor is intermittent. Moreover, the global factor has received a lot of attention, but its size, generality, and implications for economic activity have been debated. She cites Avdjiev, Gambacorta, Goldberg and Schiaffi (2018) to support the intermittent strength in international flows.⁵ The referred paper analyzes cross border credit from banks and international debt securities in the 2000:Q1-2015:Q4 period, from 64 countries. She argues that the post-crisis spike in sensitivity to US monetary policy was temporarily and mostly driven by the co-movement in AEs monetary policies. She underscores that better capitalized lending banking systems are, in general, less responsive to fluctuations in global risk conditions. She contends that the exchange rate movements reflect the global factor but are not sufficient indicators of pressures on currencies. She refers to an Exchange Market Pressure (EMP) measure from Goldberg and Krogstrup (2018).⁶ The EMP measure is expressed in currency depreciation units. The weighted sum of observed exchange rate moves, plus the currency changes that are not released as foreign exchange intervention and monetary policy changes respond to pressure. The paper uses cross-country panel, 44 countries, 2001:m1-2018:m10. They find that before the GFC, AEs Exchange Market Pressure did not move with EME EMP. On the other hand, after the GFC, AEs were less appropriate as a class. Those described as safe-haven currencies appreciated with risk. While other AEs economies were more like EMs, they faced weaker EMP. She then underscores the following points. First, capital

⁵ Avdjiev, Gambacorta, Goldberg and Schiaffi (2017). The Shifting Drivers of Global Liquidity. NBER 23565 (July version) <https://www.bis.org/publ/work644.htm> .

⁶ Goldberg and Krogstrup (2018). International Capital Flow Pressures. NBER Working Paper 24286.

flows are not only volatile but are also complex in that their composition evolves, the strength of their drivers can change, as well as the global factors. Data allow for the identification of channels and agents' behaviors. More specifically, capital flow data and bank-specific data from the International Banking Research Network (IBRN) enable the identification of specific channels and the different behaviors between borrowers and creditors. She calls for a better understanding on the dynamics of the different financing, and the relative effectiveness of the different policies in the intervention toolkit.

Alfaro (2019) raises two key points. First, the risk of future synchronization of the monetary policy normalization of major economies and its effects on financial intermediation and credit. Second, responses to the volatility caused by major central banks' monetary policy normalization and policy options in advanced and emerging market economies. On the first one, he argues that excess of liquidity along with low levels of risk aversion reduced external and local interest rates. To support his points, he presents two sets of time series, risk aversion measures, and long-term sovereign bond rates. The low-cost environment (LCE) allows some local firms could refinancing their debt. He highlights the gross bond issuing by nonbanking firms. On the other hand, he underlines the use of resources from corporate bond issuing. After 2014, the proportion to resources allocated to liability refinancing have markedly increased. Moreover, such an environment makes housing-market very attractive. In the case of Chile, after 2010, the average bank mortgage debt had a real annual change of around 7%, while the number of mortgage loans and mortgage transaction per debtor has increase, in terms of debtor with two and those with three or more.

A threat to financial stability is a sudden adjustment of external financing conditions. Faster monetary policy adjustments in the AEs, along with changes in investors' appetite, could have a negative impact on several asset prices. In addition, sharp hiked in external interest rates continue to represent an important risk. In that scenario, free-floating FX works as buffer for the impact on long-term interest rates. Chile performs well relative to other EMEs in that its exchange rate and 10-year sovereign rates volatilities have tended to be in the low range, particularly so in the case of the sovereign rates. On the responses to the volatility caused by major central banks' monetary policy normalization and policy options in advanced and emerging economies, he sees the following options. Do nothing, but communicate potential vulnerabilities, for instances, through the use of heat maps derived from valuation, follow debt-to-income and debt service ratios. Of course, the use of Reports to explain such vulnerabilities is warranted. He shows some evidence of how such announcements have affected market behavior.

Stracca (2019) asks the question: should EMEs be concerned about policy normalization in AEs? To answer this, he assumes a demand driven increase in AEs. To what extent this could be good? There is interest rate correlation, mainly due to fear of floating. There is the tightening of financial conditions, plausibly through a global financial cycle. He underlines that there is little consensus on either channel, and that there are many open questions. A stronger dollar has accumulated pressure on EMEs. Hitherto, EMEs

reactions have been contained. There are important discussions about the importance of fear of floating, the FX pass-through, and net foreign currency debt, which includes a notable level of corporate debt issue in USD. There is a debate on the dilemma vs. trilemma. The evidence using reduced form is inconclusive.

On the financial channel, he argues that there is typically emphasis on capital flows in and out of EMEs. In addition, there has been the policy debate surrounding the policy response to capital flows. He asks whether capital outflows are really contractionary? He argues that at a theoretical level a sudden should be expansionary. He questions whether bond inflows are contractionary, as the FX appreciate, and non-bond inflows are expansionary. Moreover, he contends that capital inflows while good in the short-term, are detrimental in the medium term. Stracca (2019) argues that the evidence on AEs interest rates driving capital flows is mixed, at best. He argues that US monetary policy, EMBI spreads, and EMEs exchange rate pressures do not seem to be the culprits, and that the Fed fund rate loosely correlates with capital flow to EMEs. He concluded that a higher demand in AEs is positive for EMEs. Fundamentals have generally improved since the Asian Crisis. There are several favorable factors, such as more credible monetary and macroprudential policies. There is also an improvement in reserves adequacy. On other hand, there are vulnerabilities that are a matter of concern. The rotation from external to domestic vulnerabilities such as the case of credit in China. As for the US, they have a high level of gross financial liabilities, particularly so, corporate debt. In addition, he highlights three vulnerabilities. The fact that a significant portion of trade is invoiced in USD. The differentiated EMEs policy responses. In addition, that EMEs are much larger now than in the Asian crisis.

To conclude, Ramos-Francia (2019b) concentrates on the (potential) volatility caused by mayor central banks' monetary policy normalization and other related topics. There has been a high volatility in capital flows in both directions, in and out of EMEs, for many years now. There are several factors and mechanisms that can contribute to explain this phenomenon. Some he mentioned, and many were examined in the presentations from yesterday and today. In particular, the search for yield has been one prominent factor. It has had as a key element the prevailing low levels of interest rates in many Advanced Economies (AEs).

Their low levels are largely explained by the low levels in real interest rates. Several related hypotheses have been put forward for this, such as the presence of secular stagnation, demographics, low productivity growth, achieving educational plateaus in AEs, among others. He underscores that we are seeing authorities participating in a global monetary game in which capital flows are quite sensitive to interest rates differentials. How should policy makers in EMEs respond in this environment? This is a global game, which economies have to endure, in particular, those that are small and open and that do not have strong currencies. It is a very complicated environment in which each economy not only needs to face its challenges and maintain its fundamentals in order, but also be

vigilant for adverse external market conditions that can translate into adverse externalities for the local economy in question.

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