Tracking Economic and Financial Policies during COVID-19:

An Announcement-Level Database

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ABSTRACT: We introduce a new comprehensive announcement-level database tracking the extraordinary fiscal, monetary, prudential, and other policies that countries adopted in response to Covid-19. The database provides detailed information, including sizes where available, for 28 granular policies adopted by 74 countries during 2020. About 5,500 policy measures were announced during this period. Importantly, the database is organized and presented in a format easy for researchers to use in empirical analyses. Announcements were highly correlated across the broad fiscal, monetary, and prudential categories and at more granular levels. Advanced economies (AEs) introduced larger fiscal measures than emerging and developing economies (EMDEs) and relied primarily on large unconventional monetary policies. Bank capital requirements were relaxed widely in both AEs and EMs, while relaxation of provisioning requirements was more common among EMs. Supervisory expectations and reporting requirements were widely relaxed.

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WORKING PAPERS

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I. Introduction

The Covid-19 pandemic began as a health shock in early 2020, but rapidly triggered a deep economic crisis. In April 2020, the IMF revised its global GDP growth forecast down by an unprecedented 6.3 percentage points (IMF 2020). Governments across the world rapidly introduced fiscal, monetary, prudential, and other measures to address the economic consequences of the pandemic. Many advanced economies (AEs) and emerging and developing countries (EMDEs) soon announced large transfers to households, including the Emergency Family Income Program in Argentina, the JobKeeper Payment Scheme in Australia, the Emergency Aid Scheme in Brazil, and the Economic Impact Payments in the U.S. Central banks in AEs, notably the European Central Bank and the U.S. Federal Reserve Board announced large-scale asset purchase programs. In EMDEs, central banks relied more on lending programs, such as subsidized lending programs for small and micro enterprises in China and the Funding for Growth Scheme in Hungary. Finally, 25 AEs and 22 EMDEs in our dataset either released their macroprudential capital buffers or postponed planned buffer increases. While there have been several initiatives to collect information on economic and financial policies implemented in response to the Covid-19 pandemic around the world, existing sources vary in breadth, granularity, and frequency of coverage, and are often presented in formats that cannot be easily used by researchers.

This paper presents a new comprehensive announcement-level panel dataset which tracks fiscal, monetary, prudential, and other policy responses to Covid-19 at a high frequency and a granular level. The database provides detailed information for 28 different policies adopted by 30 AEs and 44 EMs during 2020 (See Appendix Table A.1). Taking together, the 74 economies account for about 92 percent of world output and 81 percent of world population.

We begin our data collection effort with the <u>IMF's Policy Tracker</u>, which draws on regular IMF staff surveillance activities and provides an account of the main policies that countries adopted in response to Covid-19. This is combined with information from a series of alternative sources including other existing trackers, government websites, news reports, and reports from government agencies or the private sector.² Overall, bringing together information from and cross-checking across many sources helps us provide a more comprehensive and accurate description of policy announcements in response to Covid-19 for the 74 countries in our dataset. One limitation, however, is that the database covers the measures announced in 2020 exclusively.

We collect information on 28 policies, covering granular fiscal measures (grants, tax reliefs, tax deferrals, equity participations, loans, and guarantees), conventional (interest rate and reserve requirement changes as well as financing operations) and unconventional (asset purchases) monetary policies, capital and non-capital prudential regulations targeting the banking sector, and other policies such as moratoria, prudential policies affecting non-banks, and market-based measures.³ For all policies, we collect announcement dates, details of the measures, and sources. Wherever available we collected information on the size of announced policies, too. The database, therefore, also includes information on the size of the measures adopted for 13 policies. Importantly, the database is organized and presented in a format easy for researchers to use in empirical analyses.

¹ Existing cross-country sources include: the <u>Covid-19 Policy Database</u> by the Asian Development Bank, the <u>monetary policy tracker</u> by the Bank for International Settlements (Cantú et al. 2021), the <u>Covid Policy Tracker</u> by the IMF, the <u>Country Policy Tracker</u> by the OECD, the <u>Financial Sector Policy Database</u> by Feyen et al. (2020) at the World Bank, the <u>Covid-19 Policy Measures Database</u> by the European Systemic Risk Board, and the <u>Covid-19 Financial Response Tracker</u> by the Yale Program on Financial Stability.

² See Section II and Table 1.

³ See Section II and Table 2.

The rest of the paper is organized as follows. Section II describes the construction of the database. Section III provides a general overview of the measures countries adopted, while sections IV, V, and VI provide details on the use of fiscal, monetary, and prudential measures, respectively. Section VII concludes.

II. Database Construction

A. Sources

The main source we use to construct our database is the IMF Policy Tracker, which summarizes the key fiscal, monetary, and prudential measures countries adopted in response to the crisis. The IMF Policy Tracker, however, does not systematically provide dates for all policy announcements or information on the size of the measures adopted. Hence, when it comes to fiscal policies, we complement the information in the IMF Policy Tracker with information from the Fiscal Monitor Database of Country Fiscal Measures in Response to the Covid-19 Pandemic produced by the IMF Fiscal Affairs Department. This database provides cumulative sizes of fiscal measures in broad categories.

We combine the information in the IMF databases, which is not exhaustive and often lacks announcement dates, with data from the <u>European Systemic Risk Board (ESRB) Covid-19 Policy Measures</u> database and <u>Yale Program on Financial Stability (YPFS) Covid-19 Financial Response Tracker</u>. We streamline the granular classification in the ESRB and combine it with specific information on non-European countries from the YPFS. In order to expand coverage and improve accuracy, we use a number of additional publicly available sources.

We collect information on 5,462 individual policies. For countries covered in the ESRB database, we add or substantially revise 562 policies in addition to the 2,254 measures we obtain from either the ESRB or YPFS database. For countries only covered in the YPFS tracker but not the ESRB database, we add or substantially revise 1,195 measures in addition to the 1,451 measures we obtain from the YPFS tracker.

For fiscal policies, first, we check government websites, budgetary amendments, news reports, and search engines extensively to look for policy announcements. We carefully address the problem of double counting by comparing announcements containing similar measures and pay special attention to large policy announcements to understand their exact components. Second, wherever possible, we refine our size measures using reports by finance ministries and government agencies. For EU member states, we also use the European Commission's decisions on state aid schemes, which typically specify operational details and estimated sizes. Note that we use announced sizes and ex-ante estimates, not actual expenditure since this information is much harder to find across countries. Third, we incorporate information from the Bruegel tracker by Anderson et al. (2020), which provides comprehensive and granular size estimates for 12 advanced economies. Finally, we occasionally rely on sources from regional organizations, including (i) the Covid-19 Policy Database by the Asian Development Bank, which covers many emerging markets; (ii) an OECD (2021) report, which provides a timeline of fiscal policy responses in 60 jurisdictions; and (iii) the European Bank for Reconstruction and Development Transition Report 2020-21, which features a brief summary of policy responses to Covid-19 for 37 countries.

For monetary and prudential polices, we consult the following sources: (i) central bank announcements, annual reports, and balance sheet data, which typically document important policy interventions as well as announced or actual sizes; (ii) a timely book edited by <u>English</u>, <u>Forbes and Ubide (2021)</u>, which includes detailed narratives of policy responses to Covid-19 by policymakers from 16 central banks; and (iii) a cross-country database of

monetary responses by the Bank for International Settlements (<u>Cantú et al. 2021</u>), which collects announcements in 39 countries, though often lacks information on sizes. We also look at other cross-country sources, such as the database by Federico, Vegh and Vuletin (2014) <u>updated in 2022</u>, which records various reserve requirements in 65 countries up to Q1 2021, and the database by <u>Feyen et al. (2020)</u>, which tracks financial sector policies across 154 jurisdictions.

Beyond fiscal, monetary, and prudential policies, under "other policies" our database tracks moratoria, prudential policies targeted to non-bank financial institutions (NBFI measures), and market-based measures. Table 1 lists all the sources we used to put together our tracker.

Policies Title Source Type Covered IMF Policy Tracker Policy Responses to Covid-19 Cumulative Fiscal, monetary, and prudential **IMF Fiscal Affairs** Database of Country Fiscal Measures in Response Cumulative Fiscal to the Covid-19 Pandemic Department Fiscal, monetary, European Systemic Risk Measures Taken in Response to Coronavirus By announcement (Covid-19) Pandemic and prudential Board Yale Program on Covid-19 Financial Response Tracker By announcement Fiscal, monetary, Financial Stability and prudential The Fiscal Response to the Economic Fallout from Anderson et al. (2020) By announcement Fiscal the Coronavirus Asian Development Bank ADB Covid-19 Policy Database Cumulative Fiscal, monetary, and prudential Cantú et al. (2021) A Global Database on Central Banks' Monetary By announcement Monetary and Responses to Covid-19 prudential English, Forbes and Monetary Policy and Central Banking in the Covid By announcement Monetary and Ubide (Ed.). (2021) prudential Federico, Vegh and Reserve Requirement Policy over the Business Quarterly time Reserve **Vuletin (2014)** Cycle (data updated through Q1 2021) requirements series Taking Stock of the Financial Sector Policy Feyen et al. (2020) By announcement Monetary and Response to COVID-19 around the World prudential OECD (2021) An In-Depth Analysis of One Year of SME and Fiscal By announcement Entrepreneurship Policy Responses to Covid-19, Annex A National official sources Policy announcements, budget amendments, official reports, central bank balance sheets, etc. Online sources News reports, private-sector reports, IMF Article IV reports, reports by regional organizations, etc.

Table 1. List of Main Sources

B. Criteria For Recording Policy Measures

To determine which policy measures to include in our database and how to record them we follow the criteria below:

- a) Relevance. We only record extraordinary policy actions announced during 2020 and directly or indirectly related to Covid-19.
- b) Timing. As the tracker is at the announcement level, a measure must be announced to be recorded. When a measure has multiple related announcements, we use the earliest official announcement that offers details on the nature of the measure. For this reason, a tentative proposal with significant

uncertainties is not recorded as an announcement. By contrast, if a measure is officially announced but only with general information on its nature and size, with operational details announced later in a subsequent announcement, we use the first announcement to determine timing and use the second one as supplementary information. For instance, if a measure was announced on March 20 but its size was announced one week later, we use the first date as the announcement date and impute its size using the size announced later.

The criteria we apply to decide whether to record announcements has important implications for the treatment of pre-existing measures, automatic stabilizers, and unannounced measures. First, pre-existing measures are not counted unless there are later announcements updating or expanding these measures in response to Covid-19. In the latter cases, we record the relevant changes rather than the pre-existing policies. For instance, if a government changes the terms of a pre-existing lending program without changing its total size, we record the change with a missing size since there is no actual size change announced. Second, automatic stabilizers, which generally come into effect without an announcement, are not counted unless the government makes a specific announcement. For instance, if the spending on unemployment benefits increases only because there are more applicants, we do not record the increase in spending as a grant. By contrast, if the government announces a discretionary action, such as an extraordinary increase in the level of unemployment benefits or coverage in response to Covid-19, then the action is recorded as a grant because it is associated with a clear announcement of a change in policy. Third, unannounced actions are not recorded in the tracker. For instance, foreign exchange interventions not connected with any announcement or news report are not included.

- c) Implementing authority. We include measures implemented at the central government level. Therefore, measures implemented by local governments or foreign entities are generally not included. See Appendix A for additional details regarding how we map announcements by different authorities to policy types.
- d) No actions, extensions, and rollbacks. An announcement of no action does not constitute a policy measure for our purposes (e.g., the central bank decides to keep interest rates unchanged). Extensions and discretionary rollbacks are coded as new measures, and we construct dummies in the dataset to flag them, as "+1" and "-1", respectively. In coding sizes of policy extensions, to avoid double counting, we only incorporate incremental sizes. Automatic expirations are not counted because they are not discretionary measures.

C. Classification, Coding, and Size of Policy Measures

Our classification of policies consists of four broad categories, namely fiscal, monetary, prudential, and other measures. Table 2 lists all individual policy types under each category. See Appendix Table A.2 for exact definitions.

European-level measures require particular attention. We allocate European-level measures, either at the European Union (EU) level or the Euro Area (EA) level, to individual member states since our database is a country-level database. For instance, if the ECB announces a policy measure, we duplicate it in our database for all EA member states. If the measure has size information, we allocate the size to all member states involved. As a result, European-level measures are repeated for all 16 EA member states and 24 EU member states in

our tracker. The Next Generation EU is recorded as a fiscal announcement, but without sizes as almost no information was available in 2020 about how the money would be spent. See Appendix B for additional details.

For each policy type, a dummy indicates whether a measure falls under this type and its direction. The dummy takes the value of +1, 0, or -1. "0" means the announcement does not correspond to the policy type. "+1" means the announcement loosens policy (as in the vast majority of announcements we track), and "-1" corresponds to a tightening measure. While it is generally straightforward to distinguish loosening and tightening measures, there are a few important exceptions.

- a) We assign "+1" to the imposition of dividend restrictions. We consider those restrictions as loosening measures because they are intended to positively impact credit through forcing banks to preserve capital.
- b) Foreign exchange interventions (FXIs) do not follow this sign rule. Instead, we assign "+1" to measures intended to strengthen or stabilize exchange rates, and "-1" to measures explicitly intended to weaken exchange rates.
- c) Discretionary rollbacks of existing measures are given the opposite signs of the signs of the original measures. For example, a rollback of a loosening measure is considered a tightening measure.
- d) For NBFI and market-based measures under the "Other" category, we do not distinguish loosening and tightening measures. Thus, they only take the value of +1 or 0.

When recording the size of policy measures where available, we pay special attention to the following issues:

- a) Announced sizes. All sizes are announced sizes or early estimates. When announced sizes are not available, we use official or unofficial estimates published after the announcements, and we try to minimize reliance on information not available at the time of announcement.
- b) Missing values. We record the size of a measure as missing either because no information is available, or because the size cannot be quantified. For instance, if a country delays a previously scheduled increase in the capital conservation buffer while the current buffer requirement remains unchanged, we set the size as missing because it lacks a clear measure.
- c) Budgetary impact vs program sizes. For above-the-line fiscal measures (grants, tax reliefs, and tax deferrals), we record budgetary impact. For below-the-line (equity participations and public loans) and contingent (public guarantees) fiscal measures, we record program sizes, i.e., amounts of capital injections for equity measures and loan amounts for public loans and guarantees. In a few cases where a loan (guarantee) program also involves a capital injection, for instance, a government capitalizes a guarantee fund to launch a new Covid guarantee program, we keep track of both the loan (guarantee) program and the equity injection under their respective policy types so that we do not miss any policy. Nonetheless, this treatment also means that one should be careful when adding sizes across different policy types.
- d) Actual sizes. When announced sizes are not available, we collect actual sizes for two policies: asset purchase programs and credit facilities (which is a subset of lending operations). The actual size of a

measure is calculated as the maximum increase⁴ between its announced starting date and the earlier of (i) its next extension, or (ii) the end of Q1 2021. For example, if an asset purchase program was announced in March 2020, extended once in September 2020, and extended again in February 2021, we set the actual size of the March 2020 announcement as the maximum increase from March to September 2020, and the actual size of the September 2020 announcement as the maximum increase from September 2020 to February 2021. Conversely, we do not record the February 2021 announcement since it falls out of our sample period.

e) Horizon. We focus on the near-term size of a given measure. For fiscal measures, we define near term as expenditure in 2020 and 2021. Therefore, if a long-term policy is announced, we estimate the portion allocated to 2020 and 2021 as its size. For asset purchases and credit facilities, near term includes up to Q1 2021, which in practice only affects our calculation of actual sizes.

Beyond sizes, we record additional details for several policies, such as the durations of moratoria and selected terms of guarantees (see Appendix Tables A.2 and A.3).

Finally, in the database, each line generally corresponds to one policy. However, for some fiscal announcements which include multiple fiscal policies, we know the combined size of these policies but are unable to allocate the total size to each policy. In such cases, we record these policies in the same line and report the combined size, while the sizes of individual policies are recorded as missing.

Fiscal Monetary **Prudential** Other Name Size Name Size Name Size Name Size Grants Υ Lending operations Υ* Capital-related Ν Non-bank financial Ν institutions requirements Tax reliefs Υ Asset purchases Υ* Supervisory Ν Market-based Ν expectations measures Tax deferrals Υ Policy rates Υ Dividend restrictions Ν Moratoria Ν Public loans Υ Special provisioning Other rates Ν Ν rules Y Public Reporting Reserve Ν Ν guarantees requirements (local requirements currency) Υ Ν Υ Equity Reserve Macroprudential participations requirements buffers (foreign currency) Υ Ν Central bank swap Other non-capital lines related measures Υ Foreign exchange Liquidity Ν Interventions requirements Lending standards Ν Borrower-based Ν measures Buffer usability Ν

Table 2. List of Policy Types

Notes: Y (N) indicates that size information is (not) available for the corresponding policy. Y* denotes that both announced and actual sizes are recorded. For lending operations, only the credit facility subset has announced and actual sizes.

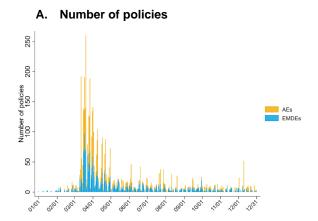
⁴ For a given sequence of sizes $\{y_1, y_2, ..., y_T\}$, the maximum increase from its initial value y_1 is defined as $\max\{y_1, y_2, ..., y_T\} - y_1$

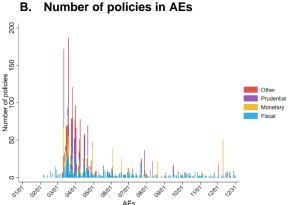
III. Overview of the Tracker

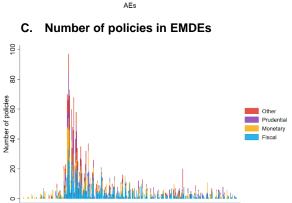
Our database contains 5,462 policies announced by governments throughout 2020 (Figure 1). For both AEs and EMDEs, policies were highly concentrated in March and April 2020. Over this period, the median number of policies announced was 76 for AEs and 28 for EMDEs, while the median dropped to 29 and 17 from May onwards, respectively. March 12 (18) was the single day with the most fiscal, monetary, and prudential policies announced among AEs (EMDEs). On March 12, the ECB announced a comprehensive package including, among other elements, additional longer-term refinancing operations and purchases, as well as a separate regulatory package providing temporary capital and operational relief. On the same day, Bank of Canada expanded its bond buyback program⁵ and term repo operations, and in Australia, the government announced a \$17.6 billion economic stimulus package. On March 18, EMDEs including Indonesia, Panama, Romania, and Turkey announced their first fiscal stimulus packages. Central banks in Brazil, Ghana, and Oman cut policy rates on the same day, and Colombia, Rwanda, and Ukraine launched sizable lending operations to stabilize longterm credit flows. Seven EMDEs relaxed prudential regulations.

A key stylized fact that emerges from our data is that countries tended to introduce different types of policies simultaneously, leading to positive and statistically significant correlations across policy types (Table 3). Standalone policy announcements are rarely observed in the data. Therefore, it would likely be challenging to isolate the impact of specific policies put in place to respond to Covid-19; and understanding the nature of countries' policy responses would require coming to grips with how different types of policies were combined.

Figure 1: Overview of Policies







⁵ The <u>bond buyback program</u>, first implemented in 1998, aims to maintain liquidity and smooth the issuance of treasury bills. The <u>expansion</u> on March 12 was intended to add market liquidity and support price discovery.

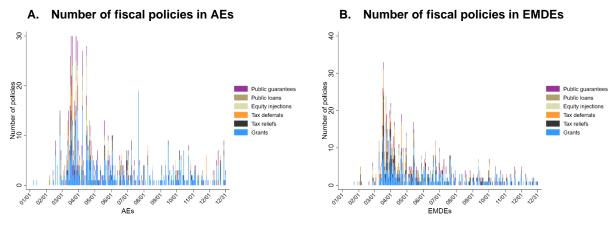
AE					EM				
	Fiscal	Monetary	Prudential	Other		Fiscal	Monetary	Prudential	Other
Fiscal	1.00				Fiscal	1.00			
Monetary	0.15*	1.00			Monetary	0.11*	1.00		
Prudential	0.11*	0.24*	1.00		Prudential	0.06	0.23*	1.00	
Other	0.28*	0.30*	0.57*	1.00	Other	0.17*	0.17*	0.42*	1.00

Notes: Correlations are at the weekly level (* p<0.05). Rollbacks are not included. We sum up the number of announcements to get the count of each policy type in each period for each country. Then we calculate correlations of counts at the country-period level.

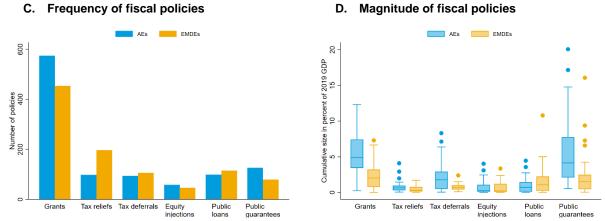
IV. The Use of Fiscal Policy During COVID-19

Figure 2 shows daily fiscal announcements by policy type for AEs and EMDEs, respectively. Among both AEs and EMDEs, grants were the most common fiscal policy measure adopted throughout 2020. Public loans and guarantees to support households and firms were the next most frequently used instruments by governments in AEs, while EMDEs seemed to rely mostly on tax reliefs after grants (Figure 2, Panel C). Unsurprisingly, the size of fiscal measures was larger among AEs relative to EMDEs (Figure 2, Panel D).⁶ At the country level, the median size of all fiscal measures combined in AEs was 15.2 percent of GDP, while for EMDEs it was only 4.1 percent. Nonetheless, variance is large within both groups. The standard deviation for AEs is 7.5 percentage points, and for EMs is 5.6 percentage points.

Figure 2: Fiscal Policies During COVID-19



⁶ This same fact was mentioned in the October 2020 Fiscal Monitor.



Notes: In panel D, each box ranges from the 25th percentile to the 75th percentile with the median in between. The whiskers outside of the box show the adjacent values, and the dots, if any, are potential outliers.

V. The Use of Monetary Policy during COVID-19

Figure 3 shows the use of different monetary measures by AEs and EMDEs, respectively. As expected, because in many advanced economies policy rates were already at or close to the effective lower bound, these economies relied more on asset purchases, while EMDEs introduced changes in interest rates and reserve requirements. Credit and liquidity injections were widely used by both groups of countries (Figure 3, Panel C).

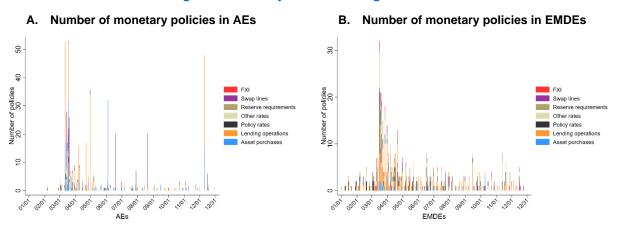
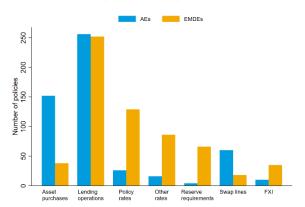


Figure 3: Monetary Policies During COVID-19

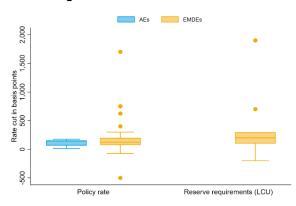
C. Frequency of monetary policies



D. Magnitude of asset purchases



E. Magnitude of rate reductions



Notes: Reserve requirements in the figure include both local currency requirements and foreign currency requirements. FXI refers to foreign exchange interventions. In Panel E, the median size of reserve requirements in advanced economies is not calculated due to the small sample size. For asset purchases, we use actual amounts when announced amounts are not available. A positive number means a rate cut.

Wherever used, asset purchases were strikingly larger among AEs than in EMDEs (Figure 3, Panel D). The median size of cumulative asset purchases among AEs was 17.7 percent of GDP with a standard deviation of 6.5 percentage points, while that for EMDEs were 1.3 percent with a standard deviation of 2.7 percentage points, respectively. While policy rate cuts were undertaken more often by EMDEs than AEs, surprisingly the cumulative sizes of rate cuts were similar among AEs and EMDEs (Figure 3, Panel E). The median (mean) policy rate cut by AEs was 1.5 (1.1) percentage points in 2020,⁷ and that for EMDEs was 1.25 (1.9) percentage points. The positive correlation across monetary measures for both AEs and EMDEs indicates that these policies were applied in tandem during the pandemic (Table 5).

⁷ These AEs are: Australia, Canada, Czech Republic, Hong Kong, Israel, South Korea, Norway, the United Kingdom, and the United States.

Table 5: Correlations Between Monetary Policy Announcements

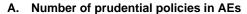
AE			_	_			
	Asset	Lending	Policy	Other	Reserve	Swap	
	purchases	operations	rates	rates	requirements	lines	FXI
Asset purchases	1.00						
Lending operations	0.37*	1.00					
Policy rates	0.08*	0.16*	1.00				
Other rates	0.12*	0.20*	0.39*	1.00			
Reserve requirements	0.07	0.12*	0.29*	0.20*	1.00		
Swap lines	0.45*	0.20*	0.05	0.12*	0.13*	1.00	
FXI	-0.05	0.07	0.04	-0.02	0.15*	0.07	1.00
ЕМ							
	Asset	Lending	Policy	Other	Reserve	Swap	
	purchases	operations	rates	rates	requirements	lines	FXI
Asset purchases	1.00						
Lending operations	0.16*	1.00					
Policy rates	0.01	0.05	1.00				
Other rates	0.05	0.17*	0.46*	1.00			
Reserve requirements	0.04	0.12*	0.10*	0.15*	1.00		
Swap lines	-0.03	-0.04	0.00	0.00	0.04	1.00	
FXI	0.05	0.19*	0.07*	-0.01	0.04	0.01	1.00

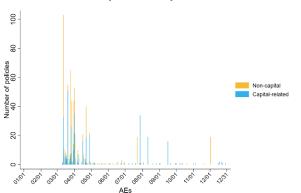
Notes: Correlations are at the weekly level (* p<0.05). Rollbacks are not included.

VI. The Use of Prudential Policy during COVID-19

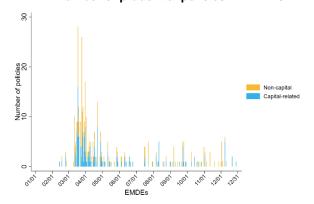
Figure 4 shows the use of capital and non-capital prudential measures in AEs and EMDEs, respectively. On average, AEs used prudential measures more widely than EMDEs. In 2020, AEs announced 400 capital-related prudential measures and 348 non-capital prudential measures, and EMDEs announced 181 and 202 such measures, respectively. Among capital-related prudential measures, although changes in buffers and dividend restrictions were introduced, the relaxation of other capital related measures was more prevalent, especially among AEs. Changes in provisioning requirements were frequently adopted among EMDEs. In terms of non-capital measures, countries, in particular AEs, frequently relaxed supervisory expectations and reporting requirements. As with monetary and fiscal policies, different types of prudential policies were introduced simultaneously, leading to positive and significant correlations across policies (Tables 6, 7, and 8).

Figure 4: Prudential Policies during Covid-19

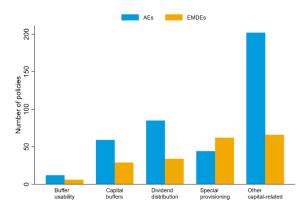




B. Number of prudential policies in EMDEs



C. Frequency of capital-related prudential policies



D. Frequency of non-capital prudential policies

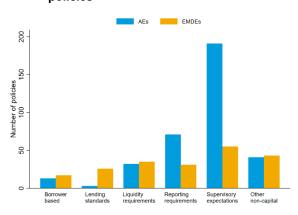


Table 6: Correlations Between Prudential Policy Announcements

AE			EM		
	Capital-related	Non-capital		Capital-related	Non-capital
Capital-related	1.00		Capital-related	1.00	
Non-capital	0.49*	1.00	Non-capital	0.47*	1.00

Notes: Correlations are at the weekly level (* p<0.05). Rollbacks are not included.

Table 7: Correlations Between Capital-Related Policy Announcements

ΑE

	Buffer usability	Capital buffers	Dividend distribution	Special provisioning	Other capital- related
Buffer usability	1.00			<u> </u>	
Capital buffers	0.14*	1.00			
Dividend distribution	0.04	0.24*	1.00		
Special provisioning	0.25*	0.12*	-0.01	1.00	
Other capital-related	0.12*	0.16*	0.16*	0.29*	1.00

EΜ

		Capital	Dividend	Special	Other capital-
	Buffer usability	buffers	distribution	provisioning	related
Buffer usability	1.00				
Capital buffers	0.29*	1.00			
Dividend distribution	0.05	0.13*	1.00		
Special provisioning	0.15*	0.39*	0.14*	1.00	
Other capital-related	0.22*	0.22*	0.11*	0.27*	1.00

Notes: Correlations are at the weekly level (* p<0.05). Rollbacks are not included.

Table 8: Correlations Between Non-Capital Policy Announcements

ΑE

	Borrower- based	Lending standards	Liquidity requirements	Reporting requirements	Supervisory expectations	Other non- capital
Borrower-based	1.00					
Lending standards	0.13*	1.00				
Liquidity requirements	-0.02	0.18*	1.00			
Reporting requirements	0.04	0.04	-0.04	1.00		
Supervisory expectations	0.00	0.07	0.26*	0.43*	1.00	
Other non-capital	-0.03	-0.02	0.52*	0.05	0.33*	1.00

ΕM

	Borrower- based	Lending standards	Liquidity requirements	Reporting requirements	Supervisory expectations	Other non- capital
Borrower-based	1.00					_
Lending standards	0.01	1.00				
Liquidity requirements	0.08*	0.15*	1.00			
Reporting requirements	0.05	0.05	0.15*	1.00		
Supervisory expectations	-0.03	0.00	0.08*	0.41*	1.00	
Other non-capital	0.08*	0.27*	0.09*	0.03	0.00	1.00

Notes: Correlations are at the weekly level (* p<0.05). Rollbacks are not included.

VII. Conclusions

We present a new announcement-level policy tracker for 74 countries. We believe this tracker is more comprehensive and accurate, and, hence, represents an improvement over existing trackers for the countries in our dataset during 2020. Our dataset shows that most policy announcements took place early on in the pandemic. Moreover, announcements were highly correlated across policy types, suggesting that isolating the impact of specific policies may be challenging. The size of fiscal measures was significantly larger in AEs than in EMDEs, while dispersion within AEs and EMDEs is equally large. In response to the pandemic, central banks in EMDEs primarily cut interest rates and reserve requirements, while those in AEs relied on asset purchase programs to provide monetary stimulus. Wherever used, asset purchases were strikingly larger among AEs than in EMDEs. Both AEs and EMDEs announced capital and non-capital related prudential measures. Among the capital measures, while buffers were relaxed in some AEs, the relaxation of other capital measures was more widely implemented among both AEs and EMDEs. The relaxation of provisioning requirements was more common among EMDEs. In terms of non-capital measures, both AEs and EMs relaxed supervisory expectations and reporting requirements.

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Appendix A: Implementing Authorities

For above-the-line measures (grants, tax reliefs, tax deferrals), we generally only consider announcements by central governments. While we do not directly cover local governments, we indirectly account for activities conducted by local governments because we include extraordinary transfers from central governments to local governments. In a few cases where regional governments play a substantial role—Belgium, Bosnia and Herzegovina, and Switzerland—we combine both central governments and regional governments.

Equity participations, public loans, and public guarantees can be provided either by governments directly or by state-owned entities such as public banks. By contrast, support from central banks or international organizations is not included. The only exception is the European Guarantee Fund managed by the European Investment Bank because the guarantee fund is an explicit response to Covid-19 directly financed by national governments.

Moratoria can be implemented either by the government or by the private sector.

Monetary measures should be implemented by central banks. For this reason, if the government purchases equity securities (or debt securities) on secondary markets, we classify the policy as an equity measure (or a public loan) rather than an asset purchase program (or a lending operation). Similarly, credit from central banks, either in the form of direct lending or indirect on-lending, is classified as a lending operation instead of a public loan.

Prudential measures are implemented by competent authorities. Note that in the case of Basel III-related measures, because the Basel Committee is not a regulator, we only consider announcements in which national authorities take actual actions.

Appendix B: Special Classification Issues

A. Separation of Similar Policies

First, within central bank lending operations, we further distinguish credit facilities and market liquidity measures. However, some market liquidity measures may be similar to asset purchases or credit facilities. For example, the central bank may purchase securities to maintain liquidity in secondary markets, which would be similar to asset purchases at first glance. As we emphasize in the definition in Appendix Table A.2, our classification draws on the intended effect, i.e., whether the stated aim of the policy mainly pertains to improving short-term market liquidity. In the case of lending operations, we also supplement our reading of policy intention with the duration of the measure. In practice, lending operations maturing in one month, such as 7-day repos, are generally classified as market liquidity measures.

Second, central bank lending can be intertwined with public loans, especially in the case of on-lending through public banks, rediscounting of public loans, and government lending managed by the central bank. Here we differentiate between policies implemented by different authorities. We classify on-lending⁸ as a credit facility regardless of whether it is channeled through public banks. This is because ultimately the program is initiated and conducted by the central bank. If the central bank decides to rediscount loans granted under a public loan program, we record the rediscounting measure as a stand-alone credit facility in addition to the public loan measure because the two measures are implemented by different entities. Finally, if the government establishes a fund to grant public loans and the fund is housed in the central bank, these loans are classified as public loans instead of a credit facility.

Third, many credit-related measures also include equity injections from the government. These equity injections are recorded separately under the "equity" variable. E.g., if the government provides 10 million dollars to capitalize a guarantee fund and the fund can guarantee loans up to 100 million dollars, we record a guarantee of 100 million dollars and an equity measure of 10 million dollars. Similarly, if the central bank sets up a special purpose vehicle (SPV) to conduct asset purchases and the SPV is capitalized by the government, we record an asset purchase measure and an equity measure. This approach ensures that we include full details of these measures.

Finally, we treat the non-refundable portion of public loans as grants if applicable for most recipients. However, public guarantees with non-refundable clauses are not treated as grants because guarantees should be used only in the case of non-payment. While non-refundable clauses change the expected costs of guarantees, we do not track costs in our tracker due to the lack of information. For example, the Paycheck Protection Program in the U.S. is a guarantee program with non-refundable clauses, and we do not classify the non-refundable part as a separate grant.

⁸ On-lending explicitly asks financial intermediaries to lend out a certain portion (typically 100 percent) of credit they receive from the central bank.

B. European-Level Measures

We allocate European-level measures, either at the European Union level or the Euro Area level, to individual countries with special caution.

- a) For the announced amount of asset purchases by the European Central Bank, we allocate the amount to each EA member state using the Eurosystem capital key as of February 1 2020.
- b) As the ECB reports actual uses of lending operations by country, no additional adjustment is needed here.
- c) Prudential measures announced by authorities at the EA level (or the EU level) are duplicated for all EA (or EU) member states.
- d) The European Guarantee Fund is included in two steps. First, the equity contribution by each national government is recorded as an equity measure for each country. Second, if the guarantee fund announces a guarantee to entities in one country, we record a public guarantee for that country.
- e) The Next Generation EU program is recorded as a fiscal announcement for each EU member state. However, virtually no information was available in 2020 about how the money would be spent. Given this ambiguity, we do not include any size information for this measure.

Appendix Table A.1 List of Countries

		AEs				EMDEs	
					ı		
1	Australia	16	Japan	31	Argentina	53	Mexico
2	Austria	17	Korea, South	32	Armenia	54	Montenegro
3	Belgium	18	Latvia	33	Bangladesh	55	Morocco
4	Canada	19	Lithuania	34	Bosnia and Herzegovina	56	Nepal
5	Czech Republic	20	Netherlands	35	Brazil	57	Nigeria
6	Denmark	21	Norway	36	Bulgaria	58	Oman
7	Estonia	22	Portugal	37	Chile	59	Pakistan
8	Finland	23	Singapore	38	China	60	Panama
9	France	24	Slovak Republic	39	Colombia	61	Philippines
10	Germany	25	Slovenia	40	Costa Rica	62	Poland
11	Greece	26	Spain	41	Croatia	63	Qatar
12	Hong Kong SAR	27	Sweden	42	Egypt	64	Romania
13	Ireland	28	Switzerland	43	El Salvador	65	Russia
14	Israel	29	United Kingdom	44	Ghana	66	Rwanda
15	Italy	30	United States	45	Hungary	67	Saudi Arabia
				46	India	68	South Africa
				47	Indonesia	69	Sri Lanka
				48	Kazakhstan	70	Thailand
				49	Kuwait	71	Turkey
				50	Kyrgyzstan	72	Ukraine
				51	Malaysia	73	United Arab Emirates ⁹
				52	Mauritius	74	Vietnam

⁹ Data reflect information obtained from public sources and thus may not reflect all official stimulus measures taken by the authorities in response to COVID-19.

Appendix Table A.2 Policy Definitions

Policy	Definition	Size
Fiscal		
1. Grants	Spending by the central government with near-term budgetary impact. Typical examples include transfers to firms or households, health spending, transfers to local governments, subsidies to social safety nets, and other spending (such as infrastructure spending) that directly or indirectly responds to Covid-19. If a measure has a long-term nature, we record the estimated impact during 2020 and 2021. While we do not include non-discretionary spending, we do include discretionary policy actions related to automatic stabilizers such as coverage expansions and extra funding.	Y
2. Tax reliefs	Reductions in any type of taxes where the amounts covered do not need to be repaid in the future. Contributions to social security and fees paid to the government are also considered taxes in our tracker.	Y
3. Tax deferrals	Direct or indirect deferrals of any type of taxes. Typical examples of indirect deferrals include (i) accelerated depreciation, which essentially moves future tax credits to the current period, and (ii) suspension of penalties on late tax payments.	Y
4. Equity participations	Direct equity participations in private or state-owned firms, or equity investments in investment funds that provide capital to firms. Typical examples include (i) setting up a fund that purchases shares in the secondary market, (ii) direct capital contributions to private or state-owned firms, (iii) co-investment with private investors, in which we only include the public portion.	Y
5. Public Ioans	Loans granted by the public sector, either directly from the government or from state-owned financial institutions. However, two types of loans are not included: (i) loans from foreign governments or international organizations; (ii) explicit on-lending from the central bank channeled through banks (this would be a lending operation).	Y
6. Public guarantees	Guarantees granted by the public sector. Guarantees must target financial activities. We further distinguish two types of guarantees: (i) credit guarantees, which cover loans to the real sector; (ii) other guarantees, which mainly cover the funding side of financial intermediaries.	Y
Monetary		
7. Asset purchases	Purchases of securities, such as bonds, stocks, and commercial paper in the secondary market by the central bank. The intention should not be only to improve short-term market liquidity.	Y*
8. Policy rates	Changes in the policy interest rate. An announcement of no change or a speech on the expected rate path is not considered an actual policy. If a central bank uses multiple interest rates, we select the one that is most related to lending as the policy rate and include changes to other interest rates under the "other rates". Once we select the policy rate, we do not change it for consistency.	Y
9. Other rates	Changes in important interest rates that are not the policy rate. To be considered important, interest rates need to have broad effects, i.e., they should not be the interest rate of a narrow lending facility.	N
10. Reserve requirements (local currency)	Changes related to the reserve requirement of local currency loans. Examples include (i) changes to the ratio; (ii) changes to the penalty for breaking the reserve requirement; (iii) changes to the calculation of the ratio. Only the first one, changes to the ratio, has a size measure, while all others have a missing size value. If a country has multiple reserve ratios, we choose the one with the broadest effects as the main ratio based on the context. Once we select the main ratio, we do not change it for consistency. Only the main ratio has sizes, while others only have a missing size value.	Y

=		.,
11. Reserve	Changes related to the reserve requirement of foreign currency loans.	Υ
requirements (foreign	Same as local currency reserve requirements.	
currency)	Ocates have been the experience in shading and the sitting and associate	\/*
12. Lending operations	Central bank lending operations, including credit facilities and market	Y*
12.1. Credit	liquidity measures (see below)	Y*
	Credit facilities target the creation of medium- and long-term credit in	Υ"
facilities	response to Covid. Typical examples include (i) special lending programs in the form of direct lending, repos, rediscounting, on-lending, etc.; and (ii)	
	changes in terms for existing lending facilities with the intention of increasing access to credit. Recipients may include entities that are not	
	financial institutions. The intention should not be only to improve short-	
	term market liquidity.	
12.2. Market	Short-term lending or interventions in asset markets, with the explicit and	N
liquidity measures	sole intention of improving short-term market liquidity. We determine the	11
iiquiaity iiicacai cc	intention of a measure based on its stated aim as well as any relevant	
	context.	
13. Foreign exchange	Interventions with the intention to influence foreign exchange markets.	N
interventions	Tools include outright purchases or sales, non-deliverable forwards,	
	regulatory actions, etc.	
	We assign "+1" to measures intended to strengthen or stabilize exchange	
	rates, and "-1" to measures explicitly intended to weaken exchange rates.	
14. Central bank swap	Swap lines between central banks. We only record it for the counterparty	Υ
lines	with a relatively greater need for foreign exchanges. If relative need	
	cannot be determined, we record the measure for both sides.	
Prudential	There are if a house are included the accordance like house in the second	
15. Macroprudential	Three specific buffers are included: the countercyclical capital buffer	Υ
buffers	(CCyB), the capital conservation buffer (CCoB), and the systemic risk buffer (SyRB).	
	Sizes are actual buffer changes. Therefore, as is often the case, if a	
	measure is to postpone scheduled future buffer changes, we recognize	
	the measure but code its size as missing.	
	If different banks are subject to different buffer changes, we choose one	
	that affects most banks for CCyB and CCoB and take a simple average	
	for SyRB.	
16. Buffer usability	Allowing or encouraging banks to use their excessive capital-related	N
·	buffers (if any), including but not limited to CCyB, CCoB, and SyRB. This	
	is typically used to address the stigma effect. But there is no change to the	
	minimum levels of these ratios or any postponement of planned increase.	
17. Capital	Capital-related rules that do not belong to the three capital buffers and	N
requirements	buffer usability. Examples include rules related to the CET1 ratio or the	
	leverage ratio, total loss-absorbing capacity, risk weighting, and other	
	special accounting treatments.	
18. Dividend	Banks are asked to either partially or fully cut dividends for capital	N
restrictions	preservation.	
19. Special	Changes to provisioning-related rules, such as provisioning ratios or loan	N
provisioning rules	classification, in response to Covid-19	N.I.
20. Borrower-based	Prudential regulations based on characteristics of borrowers, such as	N
measures	debt-to-income ratios, loan-to-value ratios, or other similar ratios.	NI NI
21. Supervisory	Regulators' expectations on supervisory issues such as stress testing,	N
expectations 22. Lending standards	compliance with certain rules, certain accounting practices, etc. Changes to rules or recommended practices related to bank lending	N
ZZ. Lenuing Standards	standards. Lending standards can relate to firm quality (e.g., credit quality	11
	assessments), loan concentration requirements, and terms of credit (e.g.,	
	interest rate caps).	
23. Reporting	Changes to reporting requirements with the intention of easing banks'	N
		. •
requirements	regulatory burden. Note that some regulators may request additional	
requirements	regulatory burden. Note that some regulators may request additional information from banks to better monitor Covid, but we do not code this as	

24. Liquidity requirements	Rules related to the liquidity level that banks need to maintain, such as changes to liquidity ratios and permission of temporarily breaking liquidity	N
requirements	ratios.	
25. Other prudential measures	Non-capital prudential measures on banks that are not included in other policy types.	N
Other		
26. Moratoria	Moratoria, granted either by the government or by the private sector, include (i) debt moratoria; (ii) suspension of non-debt payments, including rents, insurance premia, utility fees, etc.; (iii) suspension of bankruptcy.	N
27. Non-bank financial institutions	All prudential measures applied to non-bank financial institutions. We do not distinguish tightening and loosening measures. Actions unrelated with prudential regulations are not included.	N
28. Market-based measures	Regulations on financial market participants or recommended actions in response to Covid, such as rules on short selling, security issuance, reporting, etc.	N

Notes: Y (N) indicates that size information is (not) available for the corresponding policy. Y* denotes that both announced and actual sizes are recorded. For lending operations, only the credit facility subset has announced and actual sizes.

Appendix Table A.3 List of Variables in the Database

Variable	Name	Note
Policy information		
ID	Policy ID	Unique ID for each line
country	Country name	
Ifs	IFS code	
income_group	Income group	AE or EMDE
region	Region	
NGDP_2019	Nominal GDP	Nominal 2019 GDP in millions of local currency units
year	Year	Year of announcement
quarter	Quarter	Quarter of announcement
month	Month	Month of announcement
date	Date	Date of announcement
description	Description	Descriptions and explanations
link	Link	Links to sources. Some links may be broken over time, therefore we also keep the corresponding ESRB/YPFS/BIS IDs, if available, for reference, though measures may not be exactly the same as the original ones because in some cases we may modify descriptions, classification, or sizes.
var_summary	Policy summary	Summarizing the policy type(s) by line
Broad_Fiscal	Dummy for fiscal policies	Sign of the sum of all policy dummies in this
broau_r iscar	Dunning for fiscal policies	category
broad_fiscal_size	Fiscal total size	Sum of all policy sizes in millions of local currency units
broad_fiscal_gdp	Fiscal total size (% of GDP)	Sum of all policy sizes as percent of 2019 GDP
1. grant	Grants	
grant_size	Grant size	In millions of local currency units. Same below.
grant_gdp	Grant size (% of GDP)	As percent of 2019 GDP. Same below.
2. tax_relief	Tax reliefs	
tax_relief_size	Tax relief size	
tax_relief_gdp	Tax relief size (% of GDP)	
3. tax_deferral	Tax deferrals	
tax_deferral_size	Tax deferral size	
tax_deferral_gdp	Tax deferral size (% of GDP)	
4. equity	Equity participations	
equity_size	Equity size	
equity_gdp	Equity size (% of GDP)	
5. public_loan	Public loans	
public_loan_size	Loan size	
public_loan_gdp	Loan size (% of GDP)	
6. guarantee	Public guarantee	
guarantee_credit	Guarantee type dummy	= 1 if a guarantee applies to the lending side of financia institutions; = 0 if applies to the funding side
guarantee_size	Guarantee size	

guarantee_gdp	Guarantee size (% of GDP)	
guarantee_coverage_min	Minimum coverage	Minimum coverage ratio
guarantee_coverage_max	Maximum coverage	Maximum coverage ratio
guarantee_target	Guarantee target	= 1 if a guarantee applies only to SMEs; = 2 if applies only to large firms; = 0: others
Monetary_Policy	Dummy for monetary policies	Sign of the sum of all policy dummies in this category
7. APP	Asset purchases	
APP_size	Asset purchase size	Mix of categorical and numerical values. = -111 if announced as unlimited. = -555 if the measure is a change in the terms of a previously announced measure with no change in size.
APP_gdp	Asset purchase size (% of GDP)	Numerical values. = 0 if the size = -111 or -555.
APP_used_size	Asset purchase used size	Mix of categorical and numerical values. = -999 if the used amount is zero or de minimis.
APP_used_gdp	Asset purchase used size (% of GDP)	Numerical values. = 0 if the used size = -999.
8. pol_rate	Policy rates	
pol_rate_size	Cuts in policy rates	The magnitude of rate cuts in basis points. Cuts are positive and hikes are negative.
9. other_rate	Other rates	
10. RR_LCU	Reserve requirements (local currency)	
RR_LCU_size	Cuts in LCU reserve requirements	In basis points. Cuts are positive and hikes are negative. = NA if it cannot be quantified or it is not the main LCU reserve requirement ratio.
11. RR_FX	Reserve requirements (foreign currency)	
RR_FX_size	Cuts in FX reserve requirements	In basis points. Cuts are positive and hikes are negative. = NA if it cannot be quantified or it is not the main FX reserve requirement ratio.
12. lending	Lending operations	1000170 Toquiroment ratio.
12.1 CF	Credit facilities	
CF_size	Credit facility size	Mix of categorical and numerical values. = -111 if announced as unlimited. = -555 if the measure is a change in the terms of a previously announced measure with no change in size. Note that other negative values, if any, are all numerical values.
CF_gdp	Credit facility size (% of GDP)	Numerical values. = 0 if the size = -111 or -555.
CF_used_size	Credit facility used size	Mix of categorical and numerical values. = -999 if the used amount is zero or de minimis.
CF_used_gdp	Credit facility used size (% of GDP)	Numerical values. = 0 if the used size = -999.
12.2 market_liquidity	Market liquidity measures	
13. swap_line	Central bank swap lines	
swap_line_size	Swap line sizes	
swap_line_gdp	Swap line sizes (% of GDP)	
14. FXI	Foreign exchange interventions	

Prudential	Dummy for bank prudential policies	Sign of the sum of all policy dummies in this category
15. pru_buffer	Macroprudential buffers	
pru_CCyB	CCyB size	Size of CCyB cut in basis points. Cuts are positive and hikes are negative. Same below.
pru_CCoB	CCoB size	Size of CCoB cut
pru_SyRB	SyRB size	Size of SyRB cut
16. pru_borrower	Borrower-based measures	
17. pru_buffer_usability	Buffer usability	
18. pru_dividend_distribution	Dividend restrictions	
19. pru_lending_standards	Lending standards	
20. pru_reporting_requirements	Reporting requirements	
21. pru_special_provisioning	Special provisioning rules	
22.	Supervisory expectations	
pru_supervisory_expectations 23. pru_other_capital	Capital requirements	
24. pru_other_noncapital	Other prudential policies	
25.	Liquidity requirements	
pru_liquidity_requirements	Elquidity roquiromonio	
Other	Dummy for other policies	Sign of the sum of all policy dummies in this category
26. moratorium	Moratoria	
moratorium_coverage	Dummy for moratorium coverage	Moratorium coverage = 1: debt moratoria = 0: others
moratorium_duration_min	Maximum duration	Minimum months
moratorium_duration_max	Minimum duration	Maximum months
moratorium_bank	Dummy for loan moratoria	= 1 if a moratorium applies to bank loans; = 0 if not
27. market_based_measure	Market-based measures	
28. NBFI	Non-bank financial institutions	
Supplementary Information		
extension	Dummy for extensions	= 1 if a measure is an extension of an existing measure in the database
extension_note	Extension details	The ID of the original measure, if applicable
rollback	Dummy for rollbacks	= 1 if a measure is a rollback of an existing measure in the database
rollback_note	Rollback details	The ID of the original measure, if applicable
european	European level	EA or EU level
BIS_ID	BIS ID	ID in Cantú et al.(2021), if applicable
ESRB_ID	ESRB ID	ID in the ESRB tracker, if applicable
YPFS_ID	YPFS ID	ID in the YPFS tracker, if applicable

Notes: When converting currency units and calculating sizes as percent of GDP, we use nominal GDP and end-of-period exchange rates in 2019 from the October 2021 World Economic Outlook Database.

