Interagency Coordination Bodies and the Speed of Prudential Policy Responses to the COVID-19 Pandemic*

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This paper investigates whether the presence of interagency coordination bodies for financial stability (IABs) has been associated with faster prudential policy responses to the COVID-19 pandemic. Using econometric analysis, we provide evidence that countries with IABs have enacted relief measures involving microprudential tools more quickly than countries without, a result indicating that IABs may have been useful as catalysts for the deployment of microprudential instruments for macroprudential purposes. We also find evidence that faster responses occurred in countries where IABs have stronger powers and where the central bank is more deeply involved in the process.

JEL Codes: D02, D78, E58.

1.   Introduction

This paper examines whether interagency bodies for financial stability (IABs), tasked with improving interagency coordination, have contributed to faster prudential policy responses to the COVID-19

pandemic. Prudential policies enacted at that time temporarily eased regulatory requirements with a view to avoiding bank deleveraging, alleviating financial constraints and the uncertainty caused by the pandemic. They complemented central banks' policy rate reductions, emergency lending programs, asset purchases, and monetary financing operations.

In the aftermath of the Global Financial Crisis (GFC), many countries have set up IABs.[1] Indeed, IABs represent the institutional arrangement for macroprudential governance most frequently observed across countries, followed by settings in which the central bank is the macroprudential policymaker (Bank for International Settlements 2017, 2018).[2] IABs coordinate the work of authorities entrusted with institution-level prudential supervision and regulation, as well as those in charge of financial stability analysis, system-level prudential monitoring, policy decisions, and rulemaking. Member institutions typically include central banks, prudential regulators, securities regulators, deposit insurers, and finance ministries (Ingves 2011). IABs can be beneficial in situations in which macroprudential policies overlap with other policy areas. The implementation of such policies sometimes requires tools that are under the auspices of multiple regulators and policymakers. Tensions may arise when policy prescriptions diverge, such as for regulatory capital requirements in the event of systemic adverse shocks (for instance, a tightening may preserve the health of individual financial institutions but result in a credit crunch at the system level).

A crucial gauge of the power of an IAB in this context is whether it is a decisionmaker or a vehicle for joint analysis and peer pressure (Ingves 2011). Some countries have equipped their IABs with decision-making powers, such as rule-writing or enforcement powers,

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[1]In what follows, IABs refer to institutional coordination arrangements for macroprudential governance that may otherwise be known as financial system risk committees, prudential policy committees, and interagency/multi-agency committees (or councils).

[2]The second most common setting is the conduct of macroprudential policies by the central bank. Examples of countries that have IABs include France, Germany, and the United States, while in Belgium and the United Kingdom the central bank is in charge of macroprudential policy. Emerging market economies without IABs include Argentina and Peru, while Brazil, Chile, and Colombia have one (Villar 2017). For more details, see Box A.1 in the appendix.

or the authority to set the countercyclical capital buffer. In other jurisdictions IABs have been given fewer powers, adopting a peer review and recommendation approach. In many jurisdictions, however, the ability of IABs to effectively set policy is limited: the powers of many are restricted to cross-agency sharing of data and analysis.

To soften the economic and financial impact of the COVID-19 pandemic and the associated government restrictions (lockdowns, curfews, and so on), central banks and other policymakers around the world resorted to prudential relief measures, complementing ultra-low policy rates, unconventional monetary policy operations, and funding for lending schemes.[3] The purpose of prudential relief (easing capital and liquidity requirements, encouraging banks to make use of buffers that were in excess of regulatory minima) was to avoid bank deleveraging and major disruptions to bank funding and to market functioning arising from fire sales and credit crunches (Borio 2020). The regulatory relief measures that relied on microprudential tools and capital market interventions clearly followed a macroprudential approach along the lines drawn up in the post-GFC reforms (Restoy 2021). And as we argue, IABs are governance structures that can be beneficial from a systemic financial stability perspective when tensions between different authorities arise.

The recent prudential policy responses to the COVID-19 pandemic are an ideal laboratory to assess the contribution of IABs to the efficiency of prudential policymaking. Indeed, the experience can be seen as an illustration of the *premium for being prompt*: clear and coordinated policy action was taken faster than during the GFC (BIS 2020). Early recognition of the size and nature of shocks combined with transparently communicated and coordinated interventions were critical to precluding adverse feedback loops, cross-sectoral contagion, and full-blown financial crises. Given that the prudential relief measures were often coordinated through IABs and by and large taken faster than during the GFC, in this paper we examine whether formal coordination through IABs was associated with quicker prudential policy responses to the COVID-19 pandemic. The literature is split on the benefits of formal policy coordination in the financial stability domain. Some authors (for instance, De Haan,

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[3]See Aikman (2020), Altavilla et al. (2020), and Lewrick et al. (2020) for an overview of prudential policies in response to COVID-19.

Houben, and van der Molen 2012; Osiński, Seal, and Hoogduin 2013) argue that coordination bodies can help overcome inaction bias by fostering peer pressure between members or by mandating data disclosure. Through information sharing and joint risk analysis, they might also help to maximize synergies and reduce tensions between the various stakeholders, particularly in crisis situations when stakeholders' policy priorities may diverge.[4] Others (e.g., Knot 2014, Lombardi and Moschella 2017) have argued that IABs may on the contrary exacerbate inaction bias, as they often involve several authorities and thus may mask the inaction and accountability of a single actor.[5] Inaction bias can also result from institutional mechanisms that hinder the effective use of prudential policies, or from a lack of clear hierarchy of policy objectives.

To our knowledge, the question of the policy-accelerating effect of IABs has not been investigated in the context of *stimulative* prudential policies such as those in response to COVID-19. A related analysis of Lim et al. (2013) focuses on *restraining* prudential measures in the post-GFC period. They find that strong central bank involvement, either as a single macroprudential authority or as chair of a financial stability council, reduces response time of macroprudential tools aimed at counteracting excessive credit booms and the buildup of future systemic risks.

The present paper closes this gap by analyzing the response time (days elapsed since the first restriction/first COVID-19 case) of 100 prudential relief measures taken between January and October 2020 in 29 major advanced and 27 large emerging market economies. About one-third of measures released macroprudential requirements (which we define to include the systemic, countercyclical, and capital conservation buffers), while two-thirds softened microprudential rules (such as liquidity and capital ratios, dividend restrictions, and trading rules such as short-selling bans). Prudential relief action relying on both types of instruments served macroprudential purposes:

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[4]Specifically, tensions can arise when microprudential action focuses on the safety and soundness of individual financial institutions and macroprudential policy on the stability of the system as a whole; see discussion in the next section.

[5]Some observers argue that large and overly inclusive committees with many members are less effective than smaller ones, because members may be less engaged and agency problems may arise as much as they do in corporate board contexts (Yermack 1996; Weigert et al. 2015).

stabilizing the broader system and avoiding excessive deleveraging pressures that would have exacerbated the crisis.

We first provide evidence of IABs' role as catalysts to resolve coordination issues between multiple agencies and overcome inaction bias during the pandemic. Using linear regression analysis, we show that the presence of IABs has been associated with quicker microprudential responses in the order of 20 days after controlling for a number of country-specific and regional factors.[6] Microprudential responses also occurred faster (by 13 to 33 days) in countries where the central bank is the prudential regulator or where it chairs the IAB. We subsequently substantiate our linear regression analysis with survival regressions, which indicate that after 100 days of risk exposure, the probability of releasing a *microprudential* requirement is 44 percent for countries with IABs, compared with 27 percent for countries without IABs. This is consistent with the hypothesis that IABs can contribute to effectively resolving coordination problems and to overcoming inaction bias. Conversely, we do not find robust evidence that IABs have facilitated faster measures involving *macroprudential* instruments.

We also find that prudential responses occurred more promptly in countries where IABs have stronger powers. Where central banks are more deeply involved in the process (either as prudential regulators or as chairs of the policy coordination body), we find evidence for faster responses that involve microprudential tools and slower response speeds when it comes to enacting macroprudential tools. This could be an indication that central bank chairs help in the coordination of policy responses and that they bring additional synergies in this context, pointing to the importance of central bank representation in policy coordination bodies.

Taken together, the results indicate that IABs may have been useful as catalysts for the deployment of microprudential instruments for macroprudential purposes. Our findings hold when subjected to a large number of robustness checks, including controlling for the independence of the central bank, and taking into account

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[6]These factors include governments' ability to provide economic relief, the occurrence of such relief, population densities, which have a bearing on disease transmission, and the preparedness of health-care systems.

monetary accommodation in response to the pandemic that may have preceded prudential relief.

The remainder of the paper is organized as follows. The next section reviews the related literature before discussing the data and econometric methodology. Our main econometric findings and robustness tests follow. The final section concludes.

2.   Related Literature

There are no studies, to our knowledge, on the effect of agency coordination on the speed of prudential responses in times of crises. We are aware of only one related study using data after the GFC (Lim et al. 2013). According to these authors, a strong central bank involvement, either as a single macroprudential authority or as chair of a financial stability council, reduces the response time needed to adjust macroprudential tools in order to restrain excessive credit growth (see also Cerutti, Claessens, and Laeven 2017).

The literature has identified a number of benefits that can arise from formal coordination through an IAB, the first of which—and most important for our investigation—being that they may help *overcome the inaction bias* of policymakers. This bias may slow down or preclude policy decisions in the financial stability domain; De Haan, Houben, and van der Molen (2012) adduce several reasons why it can arise. One cause is the concern that the incurred costs of short-term preventive measures are outsized when related to long-term tail risks that are often not quantifiable or visible, let alone certain to materialize. The high uncertainty associated with financial stability risks may also bias policymakers' preferences in favor of type I over type II errors (that is, they prefer to incorrectly assume a positive—rather than a negative—outcome). It may also be difficult to achieve multiple policy objectives with a limited set of policy instruments, so authorities may prefer not to act rather than run the risk that their measures bring about unintended consequences.[7]

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[7]Examples include supporting economic growth in a way that inflates asset price bubbles, efforts to ensure the continued availability of critical services that effectively result in taxpayer financing for underpriced or subsidized insurance of private profits, or trying to serve institution- versus system-level stability with the

Inaction bias can be alleviated when the coordinating entity obligates a set of member agencies to act collectively, when each member might be reluctant to act on its own (Osiński, Seal, and Hoogduin 2013). Means to achieve this include forcing member authorities to make policy recommendations, comply or explain orders to justify their actions, and to disclose data or decision processes. Some authors such as Knot (2014) and Lombardi and Moschella (2017) note, however, that interagency coordination may also *exacerbate inaction bias*, because the accountability of individual institutions gets diluted inside the coordination body.

A second—and related—beneficial role of IABs is their potential ability to *resolve tensions between the micro- and macroprudential approaches.* Such tensions can in and of themselves be a source of inaction bias. As noted by Osiński, Seal, and Hoogduin (2013), tensions can arise when similar prudential policy tools (such as capital or liquidity requirements) are deployed for micro- and macroprudential purposes, the former approach seeking to ensure the stability of individual institutions, the latter concerning itself with avoiding systemwide instability and excessive deleveraging.[8] Such conflicts can be especially important during downturns, when microprudential action will focus on the safety of individual banks by calling for higher capital or liquidity requirements, while macroprudential policy will seek to avoid a collective contraction in lending at a time when the economy needs it the most. Such a collective deleveraging can undermine the system's resilience and create negative feedback loops that exacerbate the downturn. Conversely, as the downturn intensifies, the macroprudential and eventually the microprudential policymaker may be incentivized to show regulatory forbearance with the aim of preserving the functioning of the economy and health of the banking sector by ensuring the continuing flow of credit, albeit at the risk of causing medium-term damage to the health of individual banks. Because micro- and macroprudential policies may lie

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same set of instruments. See Committee on the Global Financial System (2012) for further discussion of financial stability policy objectives and trade-offs.

[8]It is difficult to draw a clear line between these two types of policies; their differences are mostly based on the particular perspective used (Crockett 2000, Borio 2003, and Cerutti et al. 2017).

in the hands of different authorities of a given country, or of different departments of the central bank when it is the supervisory agency, formal coordination through an IAB[9] may be beneficial to resolve such tensions, especially when time is of the essence in the management of crises.

A third attractive feature of IABs is that they can foster confluence between tasks and expertise that do not necessarily reside inside one single authority. Various relevant roles and expertise (macroeconomic forecasting, macroprudential analysis, microprudential regulation and supervision) may be assigned to an array of separate institutions (such as central banks, prudential regulators, finance ministries), or across isolated departments of the same institution. A number of researchers (e.g., Bodenstein, Guerrieri, and La Briola 2019 or Edge and Liang 2022) have argued that for this reason, formal interagency cooperation and coordination may be beneficial and improve policy outcomes in the financial stability domain. Besides, the sheer complexity of the issues at hand may make ad hoc coordination difficult and justify delegation to a dedicated coordination body for practical reasons, since legislatures may take too much time when urgent action is needed.

Fourth, delegating[10] the coordination of financial stability policymaking to an IAB may also help *overcome incentive distortions created by short-term political cycles.*[11] This is because IABs' members are independent experts who cannot be easily dismissed or

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[9]Other, less formal forms of coordination include the presence of members from the microprudential supervisor during meetings of the macroprudential agency and vice versa, and establishing hierarchies of policy objectives (each authority having to "have regard" for the objectives of the other, without prejudice to its own primary objective).

[10]Seminal papers on delegation to independent experts include Maskin and Tirole (2004), Alesina and Tabellini (2007), and Groll, O'Halloran, and McAllister (2019). Delegation can provide credible commitment from the delegating authority, needed especially in polarized and unstable political environments with high replacement rates of veto players and few checks and balances (cf. Keefer and Stasavage 1998). Delegation can also facilitate political coalitions by obviating the need to agree over policy programs (as argued by Crowe 2006). For a discussion of the circular relationship between de jure and de facto political power, political reform, and economic outcomes, see Acemoglu, Johnson, and Robinson (2008).

[11]For instance, a politician might be tempted to engineer a credit boom ahead of an election by releasing prudential requirements.

replaced by the government of the day (Edge and Liang 2022). The corollary of this hypothesis, however, outlined by Lombardi and Moschella (2017) and Edge and Liang (2022), is that politicians may set up IABs purely for *virtue-signaling* purposes, showcasing token action to prevent future crises, while leaving existing decision-making processes largely intact. This logic may be behind the presence of key politicians—like finance ministers—in IABs, often as chairs.

Our paper is also related to the literature on the governance structure of monetary policy committees (MPCs) and the efficiency of their policymaking. MPC characteristics studied in the literature include the identity of the decisionmaker (individual versus group, designated leaders[12]), voting rules, communication style, and membership type.[13] For instance, Berger and Nitsch (2011) empirically investigate the performance of MPCs of various sizes and conclude that the optimal number of members is between five and nine: while groups are reckoned to make better policy decisions than individuals thanks to the variety of perspectives, too large a committee may be inefficient because of the time and effort involved in reconciling views.

3.   A Look at the Data: Predominance of Soft IAB Powers and of Prudential Relief Using Microprudential Tools

National coordination bodies on prudential and financial stability issues started emerging in the early 2000s, but their numbers grew significantly in the aftermath of the GFC. The left panel of Figure 1 shows this trend for our sample of 29 advanced and 27 emerging

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[12]Blinder and Morgan (2008) conduct simulations of a monetary policy game and conclude that there is no significant difference between the performance of groups with and without a designated leader: leaders may help break deadlock if the views of members differ, but may foster groupthink (see Janis 1982 for a definition and Blanchflower 2019 for an application to central banking), depending on their leadership style (consensus-seeking versus authority-imposing).

[13]The different dimensions include insiders versus outsiders (Hansen, McMahon, and Velasco Rivera 2014; Eijffinger, Mahieu, and Raes 2018; Price and Wadsworth 2019); gender (Bodea and Kerner 2022); political, professional, and educational backgrounds (Bennani, Farvaque, and Stanek 2018; García de Paso 2000; Ainsley 2021).

Figure 1. Interagency Bodies and Their Powers

[1]Based on a sample of 56 countries. *Soft:* power to request data or information; general policy formulation; oversight, macroeconomic supervision, analysis; discussion, coordination. *Medium:* comply or explain; recommend the use of macroprudential tools; issue warnings. *Hard:* appeals body; power to designate; policy decision on macroprudential matters.
Source: Websites of central banks and other national authorities, authors' calculations.

market economies, all of which were BIS members in 2020 (except for Ukraine). Using data from publicly available sources (websites), we reconstructed and expanded the data set on IABs and governance arrangements for financial stability that was analyzed and discussed in BIS (2018). We supplemented those data with information from Edge and Liang (2022).[14] Of the sampled countries, 13 do not have an IAB; in most of these cases the central bank is in charge of prudential policymaking.[15]

In order to characterize IABs' degree of influence on policy, we followed the BIS (2018) classification into soft, medium, and hard powers, based on data collected from central bank and other national websites. Specifically, we designate as soft IAB powers the cross-agency sharing of data and analysis, oversight and macroprudential supervision, and general policy formulation. Medium powers comprise issuing "comply or explain" orders to members, recommendations, and warnings about threats to financial stability. Hard powers include the authority to designate financial institutions as systemically important, operating macroprudential policy tools such as the countercyclical capital buffer, or acting as appeals body. As one can observe on the right panel of Figure 1, the majority of IABs only have soft powers (20 cases), the prerogatives of 17 IABs are more substantial, and only 6 are entrusted with hard powers, as in the case of France or Malaysia.[16]

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[14]For details, see BIS (2017, 2018) and Villar (2017). Table A.1 in the appendix provides summary information on IABs across regions, while Table A.14 provides country-specific information on IABs. For an overview of financial stability arrangements and IABs in a large cross-section of countries, see IMF-FSB-BIS (2016), and for individual country case studies, see National Treasury of South Africa (2011), International Monetary Fund (2014), Liao, Sun, and Zhang (2016), BIS (2017), and Elson (2017).

[15]Examples are Belgium and the United Kingdom. In Belgium the central bank has its own macroprudential policy mandate, while in the U.K. the macroprudential body (Financial Policy Committee) is established at the Bank of England. Microprudential regulation and supervision is conducted by the Bank of England through the Prudential Regulation Authority, while the Financial Conduct Authority is in charge of financial consumer protection, system integrity, and competition matters.

[16]At the soft end, the Australian Council of Financial Regulators is, for instance, tasked with identifying issues and trends, exchanging information between member bodies, harmonizing regulatory policies, and coordinating at

We collected information on IABs' chairmanship and membership. This includes central banks (represented in all IABs except three), prudential regulators and supervisors, finance ministries and deposit insurers. The number and nature of IABs and their composition differ across countries. For example, there is one IAB in Italy composed of four distinct types of member institutions, while France has two IABs, with a total of 12 distinct member institutions.[17] When more than one interagency coordination body exists in a given country, we aggregated the information of different bodies. The median IAB has four members. Thirteen IABs are chaired by central banks, while in 20 instances the Ministry of Finance presides. In the remaining cases, the chair rotates, several authorities co-chair, or there is no chair.

We gathered data on the prudential relief measures in response to the COVID-19 crisis between January and October 2020, using the IMF's policy tracker. Prudential relief followed pandemic-related government restrictions on economic activity. Many governments started putting up restrictions (e.g., curfews, lockdowns) even before the first COVID-19 cases were reported in their countries (Figure 2, lower-left panel). Starting in March, a large number of jurisdictions enacted prudential responses. Some countries responded more than once.

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the domestic and international levels. An example of agency with medium powers is the Mexican Financial Stability Council, whose remit includes analyzing and evaluating the stability of the financial system, and elaborating proposals and recommendations regarding financial stability. At the hard end, the French Haut Conseil de Stabilité Financière sets the countercyclical capital buffer; its Romanian counterpart sets macroprudential requirements. The Malaysian Financial Stability Executive Committee has the authority to take any measure to strengthen financial stability.

[17]In Italy, the Committee for the Safeguard of Financial Stability is composed of the government, Bank of Italy, Consob, and IVASS. In France, there are two IABs: (i) the High Council for Financial Stability, composed of the government, the Bank of France, the Prudential and Resolution Authority, the Financial Markets Authority, the National Accounting Authority, and qualified outsiders with expertise; and (ii) the Observatory for the Security of Payment Means, composed of the government, the Bank of France, the Banking Commission, the National Information Science and Liberties Commission, payment means issuers, the National Consumer Council, representatives of merchants, and qualified outside experts.

Figure 2. Prudential Responses to the COVID-19 Pandemic, January to October 2020[1]

[1]Based on a sample of 56 countries. "ECB PEPP" indicates the ECB's announcement of its €750 billion pandemic emergency purchase program on March 18, 2020. Macroprudential relief (MAP) comprises releases of the capital conservation, countercyclical, and systemic buffers. Relief using microprudential tools (MIP) includes softening of liquidity ratios and other capital requirements (ratios and components), the restriction of trading rules, freezes on dividends and share buybacks, and modifications in asset classification and provisioning. Follow-on actions are prudential responses taken after first responses have occurred.

Source: IMF policy tracker, available from https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19; authors' calculations.

The purpose of the prudential and supervisory relief measures was to avoid bank deleveraging, which might lead to major disruptions to bank funding and market functioning (BIS 2020).

Microprudential tools such as capital and liquidity requirements essentially concern themselves with the safety of *individual financial institutions* by ensuring their solvency and liquidity. (One should note, though, that they can be deployed for macroprudential purposes, e.g., staving off a systemwide credit squeeze during a crisis by temporarily adopting a more lenient stance on individual banks' regulatory ratios). Contrarily, *macroprudential* tools, such as the countercyclical capital buffer, were originally developed to enhance the resilience of the *financial system* as a whole, by limiting the negative effects of behaviors (e.g., extending more credit during good times) that may be rational when considered at the level of individual financial institutions but potentially harmful when followed by a large number of them.

Classifying the regulatory relief measures during the COVID-19 pandemic with that distinction in mind, we treated countercyclical, systemic, and capital conservation buffer releases as macroprudential relief measures. They were deployed in 35 instances (see Table A.2 in the appendix). And we classified as microprudential relief measures temporary waivers and forbearance on liquidity and capital ratios, freezes on dividends and share buybacks, trading rules like short-selling bans, applying a more lenient supervisory stance, and loosening accounting and provisioning standards. They were utilized in 65 instances, and indeed with a macroprudential purpose: authorities endeavored to strike a balance between supporting bank lending in the short term and ensuring that they had sufficient capital and liquidity in the medium term to support the economy during its rebound. Freezes on dividends or forbearance on prudential ratios clearly targeted at attenuating systemwide uncertainty.

Figure 2 shows the predominance of micro- over macroprudential tools being deployed between January and October 2020. While macroprudential tools were used mainly by European authorities[18]

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[18]For countries of the Eurosystem, we only considered measures taken at the national level over and above national implementations of the European Central Bank's (ECB's) prudential policy response. The ECB banking supervision issued a number of recommendations at the level of the Eurosystem, including

and were concentrated around March/April (see Figure 2, upper-left panel), microprudential levers were used more frequently and geographically more widely. This happened across Europe, the Americas, and Asia as the pandemic and its economic consequences worked their way through the globe (Figure 2, upper-right panel).

4. Preliminary Analysis: IABs Matter for the Average Speed of Prudential Responses

Did IABs matter for the speed of prudential relief? We calculated the speed of policy responses relative to first COVID-19 cases and first government restrictions, in 56 countries (listed in Table A.14 of the appendix) between January and October 2020. To do this we used the IMF policy tracker, the Johns Hopkins University database on COVID-19 cases, Mathieu et al. (2020), and the government response tracker of Hale et al. (2021). For the *first* prudential measure taken in each country, we computed two proxies for policy reaction speed: the number of days elapsed until the day when the first prudential measure was taken, since (i) the day when the first COVID-19 cases were reported or (ii) the day when the first government restrictions were put in place (lockdowns, curfews, etc.).[19] We based most of our analysis on the time elapsed since the first restrictions in order to minimize the effect of measurement errors, such as delays in the official reporting that would stem from using the first reported COVID-19 cases as the starting point. Moreover, we conducted our analysis for both the speed of the first prudential measures and, when there are multiple responses, the speed of all responses conditional on previous ones. In the latter case, for each

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restrictions on dividend payouts. Some national authorities have complemented the ECB recommendations with national measures, e.g., reductions in capital buffers. In such cases, the rule is that national macroprudential authorities submit a notification to the ECB with the aim of obtaining a non-objection decision. If such measures are taken in the "activating" country, they are applied to domestic banks and subsidiaries of foreign banks located in that country. Member states can opt for voluntary reciprocation, in which case such measures also apply to branches and direct exposures to that country of other European Union banks.

[19]We defined as first government restrictions the date when Hale et al. (2021)'s stringency index is larger than zero for the first time.

follow-on measure, we calculated the number of days elapsed since the previous policy response.

Because it is precisely when microprudential tools are deployed for macroprudential purposes that coordination between policymakers may be most useful (see discussion in the literature review), we distinguished between relief measures using micro- and macroprudential instruments. Table 1 shows preliminary evidence based on averages of the policy reaction speed including both first and follow-on prudential measures. Countries softened *microprudential* requirements with an average lag of 55 days when taking the first COVID-19 case as the starting point, and 62 days when considering first restrictions. For *macroprudential* tools, the average response time was 45 days when using first cases and 56 days when considering first restrictions.

The existence of IABs is on average associated with speedier prudential policy reaction. This finding provides prima facie evidence of IABs' ability to speed up prudential response times by resolving coordination issues between multiple agencies and overcoming inaction bias. Specifically, prudential relief involving microprudential tools occurred by up to 32 days earlier in countries with IABs than in jurisdictions without, while macroprudential requirements were released 6–13 days faster (see row labeled "IAB Exists").

Countries where IABs have hard powers released macroprudential requirements up to 22 days sooner compared with jurisdictions where there is no IAB or where it has soft powers (cf. the "IAB Strength" section). The influence of IAB powers is less clear for the speed of responses using microprudential instruments.

The lower the number of members of a coordinating agency, the faster the speed with which macroprudential tools were operated (shown in the "IAB: Number of Member Institutions" section). We interpret this to mean that while coordinating prudential decision-making may make it more efficient, coordination becomes difficult once the size of participating agencies is above a critical mass, consistent with Berger and Nitsch (2011). In such configurations, inaction bias may reemerge. There is a similar albeit smaller effect of IAB membership size on the speed of policy action relying on microprudential levers.

Table 1. Prudential Policy Measures: Time to Respond

Governance Arrangements		Speed[1] of Relief Measures Using Macroprudential Tools			Speed[1] of Relief Measures Using Microprudential Tools		
		Count	Since First Restriction	Since First Case	Count	Since First Restriction	Since First Case
All Measures		35	56	45	65	62	55
IAB Exists	No	9	66	51	12	88	80
	Yes	27	53	45	55	56	49
IAB Strength[2]	Hard	3	47	25	7	54	50
	Medium	12	58	48	18	63	54
	Soft	12	50	47	30	52	46
IAB: Number of Member Institutions[3]	High	21	57	51	46	54	49
	Low	6	38	25	9	65	51
IAB Chair[4]	Central Bank	9	51	41	26	57	51
	Ministry of Finance	14	56	52	21	54	50
	Rotate/No	2	50	32	3	44	32

Note: Unweighted means of prudential policy response speeds are shown (in days). [1]For first measures: number of days since first cases of COVID-19 were reported (respectively, since first restrictions taken) in each country. For subsequent measures: since previous measure. Count indicates the number of prudential responses. [2]Soft: power to request data or information; general policy formulation; oversight, macroeconomic supervision, analysis; discussion, coordination. Medium: comply or explain; recommend macroprudential measures; issue warnings. Hard: appeals body; power to designate; policy decision on macroprudential matters. [3]"High" stands for above the median value; "Low" for below. [4]Rotate/No indicates that there is no formal chair, or the chair rotates between institutions. **Source:** IMF policy tracker, available from https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19; websites of central banks and other national authorities; Edge and Liang (2022); authors' calculations.

The evidence so far is based on simple correlations. In what follows, we use regression analysis to take into account other factors that might affect prudential policy response speeds.

5. Regression Analysis

In this section we use linear regression analysis to investigate whether the existence and characteristics of IABs make a difference for the speed of prudential reactions across countries, when we also control for country-specific and regional factors. We estimate a cross-sectional model using ordinary least squares (OLS):

$$speed_i = \alpha + \beta IAB_i + \gamma X_i + \varepsilon_i, \tag{1}$$

where $i = 1, \ldots, n$ are countries; $speed_i$ is prudential policy reaction speed (in days); α is a constant; IAB_i and X_i are, respectively, vectors of IAB characteristics and control variables; and ε_i is an error term.

Our key variables of interest are contained in vector IAB_i, which represents various characteristics on the policy coordination bodies. In the baseline regression, we include an indicator variable which tracks the existence of IABs. It is equal to one if an IAB exists in a given country, and zero otherwise. In separate regressions, we include other indicator variables to characterize other properties of coordination agencies: their powers (soft, medium, or hard), the identity of the chair, and the number of member institutions. We also controlled for whether the central bank is the prudential supervisor, one hypothesis being that a single locus of analysis and expertise in the micro- and macroprudential domains is able to expedite crisis responses. We did not include a test on IABs with/without central bank presence because there are very few cases in which the central bank is not present. Table 2 summarizes the hypotheses regarding the effects of IABs' existence and their characteristics on policy reaction speed.

Our parsimonious set of control variables comprises the government response index[20] at the time of the prudential response,

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[20]As discussed in Hale et al. (2021), the index combines three subindices: the *stringency* index (which records the strictness of "lockdown-style" policies that

Table 2. Hypothesis Setup

Governance Arrangements		Speed of Prudential Measures, Other Things Equal	
		Faster	Slower
IAB Exists		IAB helps resolve coordination issues and overcome inaction bias . . .	Inaction bias persists and is exacerbated by IAB
IAB Powers	Soft	. . . through coordination/talk	
	Hard/Medium	. . . also through action	
Number of IAB Member Institutions	Low	. . . to some extent, among a few member institutions	
	High	. . . highly efficiently, among numerous member institutions	
Central Bank Is IAB Chair		Single chair helps; additional benefits from single locus for macroprudential and macroeconomic analysis	Single chair unable to resolve coordination issues or to overcome inaction bias
Central Bank Is Prudential Supervisor		Single locus of prudential supervision and macroeconomic analysis creates additional efficiencies	Trade-offs are too difficult between microprudential and macrofinancial objectives
No Chair or Rotate		Single chair not needed to resolve coordination issues or to overcome inaction bias; there may be benefits from gaining a different authority's perspective in the chair at regular intervals	Single chair might help resolve coordination issues

countries' population density, hospital beds available, and gross
domestic product (GDP) per capita (see Table A.3 in the appen-
dix for detailed definitions). These controls track the speediness of
disease transmission (population density) and governments' financial
and logistical ability to respond on the health and economic fronts
(Moreno et al. 2024), all of which can have a bearing on the urgency
with which prudential relief needs to be provided. The last three vari-
ables are measured prior to the sample period at end-2019 and they
are intended to control for other factors that might have affected
authorities' policy response speed such as economic development or
a country's vulnerability prior to the pandemic.[21]

We introduced regional indicator variables that capture any time-
invariant factors affecting prudential policy responses in a partic-
ular region, including Eurosystem membership and the economic
and financial integration it entails. As previously mentioned, pru-
dential policy responses tended to be coordinated across countries,
particularly in the euro zone where the ECB banking supervision
issued recommendations on top of national authorities' actions.[22]
Belonging to the Eurosystem could thus have an accelerating effect
on prudential response speeds. Table A.4 in the appendix provides
summary statistics for the regression variables.

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primarily restrict citizens' behavior and economic activity); the *containment and
health* index (which tracks "lockdown" restrictions and closures, testing policy
and contact tracing, short-term investment in health care, as well investments in
vaccines), and the *economic support* index (which records fiscal measures such as
income support and debt relief).

[21]We chose to use the government response variable at the time of prudential
response to control for the intensity of other measures in combating the outbreak
of the COVID-19 pandemic. In robustness tests, we augmented the regressions
using measures for financial health (measured by the Z-score), government effec-
tiveness, and an indicator for the severity of the GFC (percent change in domestic
credit over the period 2006–09). The main results are robust to the inclusion of
these variables and are available upon request.

[22]Under the Single Supervisory Mechanism regulation, the ECB is responsible
for assessing macroprudential measures adopted by national authorities, and it
has top-up powers to apply more stringent measures. For proposed measures,
national macroprudential authorities submit a notification to the ECB according
to the Capital Requirements Regulation and Directive. The ECB then assesses
the notification, issuing (or not) a non-objection decision endorsing the meas-
ures taken (e.g., reductions in countercyclical capital requirements). During the
pandemic, the ECB tended to support national macroprudential policy responses.

In keeping with the preliminary analysis, we estimated regressions separately for prudential relief measures relying on micro- and macroprudential instruments, using bootstrapped standard errors clustered by region.[23] This serves to correct for the possibility that shocks are correlated within regions, as the pandemic spreads from a country to its neighbors, or as neighboring countries learn from each other's policy experiences or coordinate their responses.

Because the dynamics of policy coordination may differ between first and follow-on responses, we estimated the model on two samples. One set contains first policy responses only and right-censored observations for those countries that did not respond (corresponding to the days elapsed since the first restrictions and the end of the sample period—October 21, 2020). The other includes all responses (including follow-on measures) and right-censored observations for countries without responses. Importantly, in line with the literature on multiple-event survival, this approach accounts for follow-on measures conditional on previous responses, rather than averaging the time elapsed since risk exposure. The approach we follow thus takes into account the interdependence among events when using survival time analysis (Anderson and Gill 1982).

The results, reported in Table 3 for first responses and in Table 4 for all responses, indicate that IABs significantly facilitated faster decision-making mainly when relying on microprudential, not macroprudential, instruments. *Microprudential* levers were actioned approximately 20 days earlier in countries where an IAB exists than in countries that do not have one (column 6 of Tables 3 and 4). This effect is stronger in cases where the IAB has soft powers (column 7), and additional synergies arise from the central bank being the prudential regulator (column 8) or chairing the IAB (column 10). The results suggest that a single locus of microprudential analysis, coordination, and implementation brings about efficiency gains for coordination. IABs appear to be efficient in resolving coordination

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[23]Bootstrapping is particularly helpful in small sample settings when the theoretical distribution of a given test statistic is unknown. It involves using a large number of random samples of the regression observations with replacement and clustered at the regional level. For each sample, the regressions are then reestimated and the standard errors are determined by the standard deviation of the estimated coefficients. We used 100,000 replications, of which only a fraction were completed (approximately 10 percent).

Table 3. Determinants of First Response Speeds

Y = Days Elapsed since First Restriction	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IAB Exists, Yes	14.61** (7.142)					−19.97* (11.78)				
IAB Strength, Hard/Medium		14.66*** (5.017)					−11.64 (8.010)			
IAB Strength, Soft		14.54* (7.745)					−32.46* (19.30)			
CB is PR, Yes			35.04*** (6.515)					−32.51*** (2.004)		
IAB, # Inst., High				17.10* (9.351)					−34.46** (14.42)	
IAB, # Inst., Low				3.675 (14.83)					43.01*** (13.19)	
IAB Chair, CB					43.93*** (6.138)					−13.37*** (5.035)
IAB Chair, MoF					6.011 (9.929)					13.06 (8.097)
IAB Chair, Rotate/No					10.93 (21.35)					53.21** (25.36)
Population Density	15.93*** (3.007)	15.92*** (2.607)	7.918*** (2.316)	16.28*** (3.645)	14.00*** (3.307)	−3.559*** (1.221)	−4.799** (2.021)	4.813*** (1.011)	−5.760*** (1.827)	1.652 (1.061)

(continued)

Table 3. (Continued)

Y = Days Elapsed since First Restriction	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
GDP per Capita	−0.873***	−0.872***	−0.439*	−0.878***	−0.641**	0.401***	0.466***	−0.019	0.458***	0.241**
	(0.293)	(0.261)	(0.265)	(0.333)	(0.306)	(0.064)	(0.068)	(0.093)	(0.105)	(0.104)
Hospital Beds	−0.913**	−0.917**	−0.758***	−0.961**	−0.686	4.608***	3.749***	4.616***	5.212***	3.324***
	(0.398)	(0.457)	(0.269)	(0.411)	(0.453)	(0.711)	(1.007)	(0.490)	(0.570)	(0.520)
Government Response	0.628	0.627**	0.494	0.600	0.627*	−0.221	−0.338	−0.083	0.133	−0.148
	(0.390)	(0.316)	(0.334)	(0.414)	(0.333)	(0.228)	(0.298)	(0.184)	(0.185)	(0.260)
Americas	−26.24***	−26.32***	−18.80***	−25.83***	8.042	2.661	−13.22	0.013	8.672	−19.21***
	(4.354)	(5.514)	(5.497)	(4.477)	(8.887)	(8.886)	(18.08)	(6.094)	(8.127)	(5.530)
Asia	35.01***	34.98***	46.76***	35.30***	67.50***	−32.06***	−40.59***	−38.99***	−24.31***	−59.18***
	(3.935)	(4.451)	(4.352)	(4.273)	(9.071)	(6.398)	(11.26)	(6.105)	(5.640)	(3.831)
Euro Zone	−52.70***	−52.76***	−65.75***	−48.73***	−23.33***	10.97	−2.582	28.73***	−3.216	4.365
	(3.676)	(4.715)	(2.556)	(8.154)	(2.995)	(8.657)	(16.96)	(3.663)	(9.669)	(7.192)
Other Europe	−76.80***	−76.86***	−80.25***	−74.56***	−54.80***	38.89***	25.72	46.46***	35.21***	30.29***
	(2.071)	(2.988)	(2.636)	(1.702)	(4.129)	(8.183)	(16.24)	(5.224)	(8.187)	(6.500)
Africa–Middle East	7.751	7.676	−2.081	17.11	24.86	−56.33***	−72.11***	−42.43***	−100.2***	−62.31***
	(34.73)	(36.16)	(37.04)	(58.54)	(41.49)	(8.140)	(13.98)	(5.641)	(26.20)	(10.75)
Observations	56	56	56	56	56	56	56	56	56	56
R2	0.251	0.251	0.265	0.252	0.270	0.137	0.143	0.148	0.188	0.153

Note: The estimations are based on OLS. A constant is included but not reported. Standard errors shown in parentheses are bootstrapped and clustered by region. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level. Table A.3 provides detailed variable definitions.

Table 4. Determinants of All Response Speeds

Y = Days Elapsed since First Restriction or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IAB Exists, Yes	-3.066** (1.309)					-23.22*** (5.506)				
IAB Strength, Hard/Medium		-3.894** (1.703)					-17.49*** (2.308)			
IAB Strength, Soft		-1.779 (1.174)					-30.05*** (9.867)			
CB is PR, Yes			12.990*** (3.524)					-14.55*** (2.931)		
IAB, # Inst., High				-1.156 (3.383)					-27.92*** (6.594)	
IAB, # Inst., Low				-8.508 (5.370)					15.39 (10.89)	
IAB Chair, CB					11.92*** (3.146)					-23.26*** (2.156)
IAB Chair, MoF					0.194 (3.634)					1.163 (2.995)
IAB Chair, Rotate/No					-0.004 (7.899)					-5.868 (10.17)
Observations	91	91	91	91	91	122	122	122	122	122
R2	0.074	0.074	0.077	0.075	0.076	0.049	0.052	0.046	0.063	0.051

Note: The full set of results including all control variables is shown in Table A.5 in the appendix. The estimations are based on OLS. Standard errors shown in parentheses are bootstrapped and clustered by region. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level. Table A.3 provides detailed variable definitions.

among a large number of member agencies, helping to overcome inaction bias (column 9).

The evidence is mixed concerning the use of *macroprudential* instruments. First responses occur 15 days slower in countries with an IAB, other things being equal (column 1, Table 3). But responses are slightly quicker when follow-on measures are included in the estimations (column 1, Table 4).[24] Similar mixed results are observed for IAB powers: more power is associated with slower first responses, but slightly faster responses when follow-on measures are added. We also find some evidence that macroprudential requirements are released more slowly when the central bank is (i) the prudential regulator (column 3, Tables 3 and 4) or (ii) the chair of the coordination body (column 5, Tables 3 and 4).

Next, we discuss the results on the controls for country characteristics. In countries where population density is higher, first responses releasing microprudential requirements are enacted quicker. We interpret this as the greater hazard of fast propagation of the virus in densely populated areas imparting a sense of urgency. We observe quicker first responses involving macroprudential instruments in countries with higher GDP per capita and greater hospital capacity. The intensity of governments' pandemic response (including restrictions, lockdowns, and economic support) is weakly correlated with prudential response speeds. There is some weak evidence that first releases of macroprudential requirements occur slower in countries with stronger government responses, while microprudential rules are eased quicker.

The regional dummies are highly significant in most regressions, suggesting that it is important to control for time-invariant regional factors. One has to keep in mind that our sample period is just

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[24]We performed several tests in which we gradually added explanatory variables to regressions to see whether the results are stable given the low degrees of freedom, especially in the case of Table 3. The results obtained when using first responses and follow-on responses (Table 4) were largely robust and less sensitive to the omission of the explanatory variables. This is presumably due to the higher degrees of freedom and the information contained in the follow-on responses. Another finding was that our main result, i.e., that IABs have helped in the coordination and implementation of microprudential measures, is robust and much less sensitive compared with the results on macroprudential response speeds. The results of these experiments are not reported in the paper but are available on request.

10 months and thus these factors can account not only for institutional differences or coordinated policy responses but also for other regional differences (such as the relative importance of banks and markets for finance provision, financial depth, or the severity of the health shock).

To understand whether our results are affected by omitted variable bias, we used the approach of Oster (2019) and calculated how important the unobservables would have to be relative to the observables to render the effect of IABs insignificant. For this, we assumed a value for the maximum R^2, i.e., how much of the variation in IAB existence could be explained if we had full controls, of 1.3 times the actual R^2 in our regressions following Oster (2016). For instance, concerning the main result of our paper (microprudential response speeds and the existence of IABs), we found an implied delta of 7.4, meaning that unobservables would need to be at least seven times as important as the observables to produce a coefficient of zero, confirming the reliability of our results.

6. Survival Analysis: The Probability of Prudential Response as Time Goes By

In this second stage of the analysis, we validate the previous econometric estimations in a time-to-event or survival analysis. The main advantage of this approach lies in its ability to model the probability of response as a function of time elapsed, something not afforded by a classical probability estimation like logit. Indeed, the probability of engaging in prudential policies is likely to depend on how long a country has been exposed to the pandemic and the ensuing financial stability risks.

In this setting, the *risk exposure* of a country starts when its authorities take the first COVID-related restrictions. As before, countries can enter the sample continuously throughout the length of the study. We define the *survival time* of a country as the number of days it has spent without a prudential policy response since its first risk exposure. The longer the survival time, the slower the prudential policy reaction. This setup allows for countries with multiple prudential responses or no response at all

(right-censored observations).[25] Formally, survival time is calculated as follows:

- for countries with at least one policy response, the number of days between the first COVID-related restriction and the date of the first prudential response;
- for countries with more than one prudential measure, we add the number of days between each subsequent and the previous prudential measure;
- for countries without a prudential response, the number of days between the first COVID-related restriction and the cut-off date (October 21).

A country's hazard (its probability of enacting a prudential response) is modeled using a parametric survival model. The explanatory variables are allowed to influence a country's hazard function $h(t_{ij})$ as follows:

$$h(t_{ij}) = h_0(t_{ij}) \, exp(\alpha + \beta IAB_i + \gamma x_{ij}), \qquad (2)$$

where $i = 1, \ldots, n$ are countries, $j = 1, \ldots, n_i$ are events (prudential responses) by country, and t_{ij} is the survival time. The *hazard function*, $h(t_{ij})$, represents the instantaneous probability of prudential response given survival (no response) up to time t_{ij}. It depends on a baseline hazard, $h_0(t_{ij})$, and our regression variables used in the previous section.

The baseline hazard $h_0(t_{ij})$ is the value of the hazard when the constant and all other regression variables are equal to zero. It depends on survival time, and its specific form is determined using the Akaike and Bayesian information criteria. Depending on the distribution (exponential, Weibull, Gompertz, log-normal, log-logistic,

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[25] In this right-censored setup, each country can have zero, one, or more events, depending on the number of prudential measures it took. As the order of events is important, we follow the conditional risk set model of Prentice, Williams, and Peterson (1981). Their method assumes that a country is not "at risk" of a second event until the first event has occurred. Survival time is thereby not measured continuously from the time it enters the study (first risk exposure); instead, the clock is set to zero after each event. In the present setting, each country enters the sample at least once. When a country has one observation, this means that this jurisdiction has not responded during the period under study, and as such it enters the regression as a right-censored observation.

or generalized gamma), the probability of responding remains constant, increases or decreases as time elapses (Cleves et al. 2008).

The relationship between a country's hazard, the IAB governance indicators, and the control variables is estimated parametrically, using an exponential function. The probability of responding is thus multiplicatively proportional to the baseline hazard. It is estimated not in absolute, but relative, terms as a fixed proportion of the hazard of other countries (Lane, Looney, and Wansley 1986; Whalen 1991).

The key parameter of interest is β, which in its exponential form $exp\,(\beta)$ is known as the *hazard ratio*. It is defined as the ratio between the hazard functions of two countries, other things being equal. For instance, if we consider two countries, one with an IAB ($IAB_i = 1$) and another without an IAB ($IAB_k = 0$), then a hazard ratio larger (smaller) than 1 means that a country with an IAB has a higher (lower) probability of responding at any point in time.

The results, reported in Table 5, largely confirm our previous findings using ordinary least squares. IABs appear to facilitate faster decision-making for crisis measures involving microprudential softening.[26] Such measures have a 43 percent likelihood of occurring faster in countries where an IAB exists (significant hazard ratio of 1.43; see column 6) compared with countries that do not have IABs. Likewise, where the IAB has hard powers to set prudential requirements, microprudential easing is quicker to follow (by 25 percent, column 7).

In the microprudential domain, IABs appear to be efficient in resolving coordination among a large number of member agencies, helping to overcome inaction bias: faster microprudential action is 52 percent likelier in such configurations (column 9). Faster microprudential reaction is also more likely (by 38 percent) when the central bank chairs the IAB, and when it is the prudential regulator (column 8). A single locus of microprudential analysis, coordination, and implementation appears to bring efficiency gains for coordination.

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[26]We estimated the models using the exponential, Weibull, Gompertz, log-normal, log-logistic, and generalized gamma distributions and report the model selection criteria in Table A.6 of the appendix. The results favor the Gompertz distribution to the extent that the estimations obtained the highest log-likelihood and the lowest Akaike and Bayesian information criteria values.

Table 5. Determinants of Prudential Response Probabilities

$h(t_{ij})$ = Hazard of No Response since First Restriction or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IAB Exists, Yes	0.936 (0.126)					1.428** (0.224)				
IAB Strength, Hard/Medium		0.966 (0.151)					1.251** (0.141)			
IAB Strength, Soft		0.887 (0.088)					1.666 (0.653)			
CB is PR, Yes			0.816 (0.106)					1.427*** (0.178)		
IAB, # Inst., High				0.933 (0.243)					1.519* (0.342)	
IAB, # Inst., Low				0.945 (0.247)					0.975 (0.399)	
IAB Chair, CB					0.714* (0.132)					1.379*** (0.124)
IAB Chair, MoF					0.936 (0.289)					1.077 (0.055)
IAB Chair, Rotate/No					0.996 (0.545)					0.860 (0.359)
Observations	91	91	91	91	91	122	122	122	122	122
Countries	56	56	56	56	56	56	56	56	56	56

Note: The full set of results including all control variables is shown in A.7 in the appendix. Hazard ratios (exponentiated coefficients) are reported. The estimations are based on hazard regressions using the Gompertz distribution. A constant is included but not reported. Standard errors are clustered by region and shown in parentheses. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level.

By contrast, the existence of IABs does not have a significant bearing on the speed of responses involving macroprudential tools (column 1). Nor does the number of member institutions (column 4). There is weak evidence that the central bank acting as the chair of the IAB augments the probability of slower responses (column 5).

The survival functions resulting from our estimations are shown in Figure 3. The existence of IABs is associated with slightly higher probabilities of not easing macroprudential requirements as time elapses (left panel). On the microprudential front, countries with IABs have consistently lower probabilities of no easing (right panel). For instance, after 100 days of risk exposure, the probability of microprudential requirements not being changed is 56 percent for countries with IABs compared with 73 percent for the other countries. Moreover, we observe that countries without IABs become even less likely—relative to those with IABs—to change microprudential requirements as time goes by.

7.   Robustness Checks

A corollary to the impact of IAB presence and characteristics on the *speed* of prudential policy reactions is their influence on the *probability* of measures being taken. Does the existence or specific characteristics of IABs make prudential responses likelier? To answer this question, we reestimated model (1) as a logit regression, replacing policy reaction speed as the dependent variable with an indicator variable of responding or not. The variable is equal to one when a country enacted a prudential response during our sample period and zero if it did not. The results, shown in Table A.8 of the appendix, indicate that the existence of IABs is not a significant determinant of policy reaction happening in the first place. Similar to our earlier findings, the central bank as IAB chair is associated with significantly higher probabilities of responding by changing a microprudential requirement, but lower probabilities of altering macroprudential rules. There is also some evidence that IABs with few members have lower probabilities of responding with microprudential levers compared to other configurations.

In addition, we subjected the results of the survival analysis to three more sets of robustness tests.

Figure 3. Survival Functions: The Probability of No Action

Macroprudential Tools

Microprudential Tools

[1]Based on a sample of 56 countries. The survival functions, evaluated at the means of the regression variables, are calculated using specifications (1) and (6) shown in Table 5. The lower the curve, the higher is the probability of a relieving macro– or microprudential requirements.

First, we estimated the determinants of prudential response speeds using the same model specification, methodology, and regressors as in the survival analysis described above, but taking the *first reported COVID case* as the starting date for risk exposure, rather than the first restriction. The intuition for performing this robustness check is that different governments may have enacted restrictions with different lags starting from the outbreak of first cases. As such, using the first reported cases as the starting date provides a cross-check on the lags with which prudential relief occurred, albeit that different medical documentation practices may also make the time stamping of outbreaks inconsistent across countries. Response speed is thus calculated relative to the date of the first COVID case. The estimates, reported in Table A.9 of the appendix, are similar to our main results, though the influence of the strength of IABs on policy reaction speed is now less clear.

Second, as a cross-check on our IAB data set, we also reran the estimations using the financial stability council (FSC) governance indicators of Edge and Liang (2022)[27] as determinants of prudential policy speeds. We used the authors' information on the existence of FSCs, their powers (purely advisory or harder), and their numbers of voting members. The comparison in average response time and regression analysis with these data, reported in Tables A.10 and A.11 of the appendix, indicates that FSCs are associated with significantly speedier microprudential relief compared with countries with de facto FSCs, and with those that do not have one. This is shown in columns 4 and 10 of Table A.11 for response time relative to first restrictions and first COVID-19 cases, respectively. We do not

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[27]One difference between Edge and Liang (2022)'s governance indicators and ours is that they use a cluster analysis for a large number of FSC characteristics (formal versus informal FSC, members' voting powers, number of chairs, existence of tools) to determine FSCs' powers. By contrast, we use a soft/medium/hard power classification scheme described in the data section following the BIS (2018). For comparability with Edge and Liang, we only use their "FSC is advisory only" dummy variable—instead of their power score—to reestimate our model. Another difference between the approach of Edge and Liang and ours is that, while they consider one council per country, we aggregate information from several interagency bodies in jurisdictions where there are several such bodies (e.g., Iceland: Financial Stability Council + Systemic Risk Committee; Japan: Council for Cooperation on Financial Stability + Financial Crisis Response Council).

observe such an accelerating effect for responses involving macroprudential instruments. Another finding is that microprudential tools have been deployed more quickly in countries where the FSC only has advisory powers (columns 5 and 11). Finally, we observe that FSCs are able to resolve coordination problems between a large number of parties, when the speed of action involving microprudential instruments is considered starting at the first COVID-19 case (column 12).

Third, we controlled for the role of central banks in the outcomes—in particular, their independence and their adoption of expansionary monetary policies in response to the pandemic. These factors may have affected the speed of adoption of prudential relief measures. To perform this robustness check, we first reestimated our regressions with an additional dummy variable to designate central banks whose central bank independence (CBI) scores[28] lay above the 50th percentile of the sample. As can be seen in Table A.12, our main result regarding the microprudential response-accelerating effect of IABs is robust to controlling for CBI. Consistent with our baseline, we also find that the existence of IABs is not significantly associated with faster macroprudential responses even when controlling for CBI, albeit that macroprudential relief occurs more slowly in countries where the central bank has a higher CBI score. This could be an indication of a preference for monetary and microprudential relief as a first line of defense before adjusting macroprudential tools. Next, we reestimated our regressions with a dummy variable to control for cases where the prudential measures had been preceded by monetary relief measures in response to the pandemic (interest rate cuts or large-scale asset purchases by the country's central bank).[29]

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[28]We used the CBI measure of Romelli (2022) as measured in 2017 (latest available date). Two countries (Israel and Serbia) not covered in Romelli (2022) fall out of the sample for this robustness check.

[29]We took the monetary policy stance indicators from Cantú et al. (2021) on central banks' monetary responses to COVID-19. We created a dummy variable equal to one when prior to the first prudential policy response the central bank either cut its policy rate or announced an asset purchase program (42 cases), and zero otherwise (9 cases). We did not cover foreign exchange interventions, emergency lending operations with commercial banks, or easing measures of reserve requirements because these measures have a prudential dimension and thus are covered by our prudential relief measures. Five countries (Bulgaria, Croatia, Iceland, Serbia, and Ukraine) not covered in Cantú et al. (2021) fall out of the sample for this robustness check.

Our results reported in Table A.13 indicate that the prudential relief occurs quicker in the presence of IABs even when we control for prior monetary relief. The new evidence suggests that both macro- and microprudential responses take more time when there previously was a monetary policy accommodation, possibly because this diminishes the urgency of providing prudential relief.

8.   Conclusion

This is the first empirical study, to our knowledge, investigating the effects of institutional arrangements for financial stability—specifically, of the existence and characteristics of interagency coordination bodies—on the speed of prudential policy responses to the COVID-19 crisis. One important contribution of the paper is analyzing and documenting the workings of the prudential relief response to what has been the major global economic shock of the early 2020s. Our study adds important insights on the recent conduct and coordination of prudential policies across a diverse set of institutional arrangements. As such, our results can inform prudential policy.

We provide evidence that the existence of IABs has been associated with *microprudential* tools being used faster to provide regulatory relief in response to the COVID-19 crisis. This provides support for the hypothesis that IABs contribute to resolving coordination problems and overcoming inaction bias, even in the presence of a large number of member agencies. Importantly, it also supports the hypothesis that IABs can act as catalysts when policymakers deploy microprudential tools for macroprudential purposes. They may be particularly helpful when temporary forbearance involving microprudential requirements needs to find a balance between preserving the health of individual financial institutions (the objective of the microprudential authority) and ensuring that at the level of the system, no collective deleveraging or credit crunch ensues (the macroprudential concern). In this regard, IABs may help overcome silo issues in the sense that they may force microprudential supervisors to consider the use of microprudential tools from a macroprudential perspective, something which may not always happen without coordination, when the microprudential approach is taken on its own.

An important qualification is that IABs only shorten the reaction time of prudential policies when they are endowed with sufficient powers to decide and implement policies. When they only have soft powers, they may slow down policy responses by adding a layer of compulsory discussion, information, and data exchange. The central bank serving as the IAB chair and being the prudential regulator has brought additional synergies in this context, pointing to the importance of central bank representation in policy coordination bodies.

Conversely, we do not find robust evidence that IABs have facilitated faster measures involving *macroprudential* tools. This finding could point to inefficiencies in the decision-making process within some IABs (again, by adding a compulsory layer of discussion), but it could also be that prudential policymakers prefer microprudential relief measures as a first line of defence before adjusting macroprudential tools.

The focus of this paper has been to analyze the impact of institutional arrangements in the financial stability area on the speed with which prudential relief measures were taken in response to the COVID-19 crisis. We did not examine the effects of response speed on macroeconomic outcomes, indicators of bank health, or stock markets. We leave this question for future research.

Appendix

Box A.1. IABs in Practice

In the United States, the IAB is the Financial Stability Oversight Council. It comprises 15 member institutions[a] and has recommendation, rather than decision-making, powers.

In the European Union, macroprudential supervision has been entrusted to the European Systemic Risk Board (ESRB) since 2011. It currently has 81 members (EU institutions and national macroprudential authorities). It seeks to identify systemic risks and to propose measures to eliminate them, using warnings and recommendations subject to a "comply or explain" mechanism.

In the Eurosystem, the ECB has macroprudential powers with respect to banks under the Single Supervisory Mechanism. National authorities are responsible for national financial stability in line with the principle of subsidiarity in the EU context (Acharya and Calomiris 2014; Weigert et al. 2015). Several (though not all) euro-zone jurisdictions have a formal IAB; examples include France, Germany, Italy, the Netherlands and Spain.[b] Euro-zone IABs' powers vary across countries, ranging from issuing warnings and recommendations (Germany) to setting the countercyclical capital buffer (France). Their membership[c] also differs.

Among emerging market economies, Argentina and Peru do not have an IAB, while Brazil, Chile, and Colombia do (see Table 3 in Villar 2017).[d] In Chile, the Financial Stability Council has four member institutions.[e] It does not hold any formal decision-making powers, but may issue nonbinding recommendations to supervisors (banking, securities and insurance, pensions). In Asia, examples of countries with IABs include China, Hong Kong, and India, while Singapore and Thailand do not have one (Villar 2017).[f] In India the Minister of Finance chairs the IAB, and it has 10 distinct member institutions.[g]

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[a]Pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act, the Council consists of 10 voting members and 5 nonvoting members. The voting members are the Secretary of the Treasury, who serves as the Chairperson of the Council; the Chairman of the Board of Governors of the Federal Reserve System; the Comptroller of the Currency; the Director of the Bureau of Consumer Financial Protection; the Chairman of the Securities and Exchange Commission; the Chairperson of the Federal Deposit Insurance Corporation; the Chairperson of the Commodity Futures Trading Commission; the Director of the Federal Housing Finance Agency; the Chairman of the National Credit Union Administration; and an independent member with insurance expertise. The nonvoting members, who serve in an advisory capacity, are the Director of the Office of Financial Research; the Director of the Federal Insurance Office; a state insurance commissioner designated by the state insurance commissioners; a state banking supervisor; and a state securities commissioner.

[b]France: High Council for Financial Stability (and Observatory for the Security of Payment Means); Germany: Financial Stability Committee

(and Securities Council); Italy: Committee for the Safeguard of Financial Stability; Netherlands: Financial Stability Committee; Spain: Financial Stability Committee (CESFI).

[c]Italy: Minister of Economy and Finance, Governor of the Bank of Italy, President of Consob, President of IVASS. Other authorities can be invited to the meetings, depending on the topics discussed. France: Finance Minister (representing the High Council for Financial Stability); Governor of the Bank of France; Chair of the Autorité de Contrôle Prudentiel et de Régulation; Chair of the Autorité des Marchés Financiers; Chair of the Autorité des Normes Comptables; three qualified experts from the field of monetary policy, finance, and economics; President of the Senate; Minister of Finance and Public Accounts; representatives of the Observatory for the Security of Payment Means and of the Conseil National de la Consommation; and representatives from the retail sector.

[d]Brazil: National Monetary Council (CMN, and Committee for the Regulation and Supervision of Financial, Securities, Insurance and Complementary Pensions (COREMEC) and National Financial System Appeal Council (CRSFN)); Chile: Financial Stability Council (CSF); Colombia: Financial System Coordination Committee (CCSSF).

[e]Superintendent of Banks and Financial Institutions, Superintendent of Securities and Insurance (replaced by Chairman of CMF as of 2018), Superintendent of Pensions. The central bank is a permanent advisor to the Council, and the governor is an invited member.

[f]China: Joint conference on financial regulation and coordination; Hong Kong: Financial Stability Committee (and Council of Financial Regulators); India: Financial Stability and Development Council (FSDC).

[g]Heads of financial-sector regulators viz., Reserve Bank of India (RBI); Securities and Exchange Board of India (SEBI); Pension Fund Regulatory and Development Authority (PFRDA) & Insurance Regulatory and Development Authority of India (IRDAI); Finance Secretary, Secretary, Department of Economic Affairs; Secretary, Department of Financial Services; Secretary, Ministry of Corporate Affairs; Chairman, Insolvency & Bankruptcy Board of India and the Chief Economic Adviser. FSDC is assisted by a subcommittee of the FSDC (FSDC-SC) which is chaired by Governor of Reserve Bank of India.

Table A.1. Interagency Coordination Bodies by Region

	No. of Countries	IAB Exists		IAB Strength		CB is Prudential Regulator		Affiliation of IAB Chair			No. of IAB Member Institutions	Population Density	GDP per Capita	Hospital Beds	Gov. Response
		Yes	No	Hard/Medium	Soft	Yes	No	CB	MoF	Rotate/No		Per km²	In $1,000	Per 1,000	Index (0,100)
Africa and Middle East	3	3	0	2	1	3	0	2	0	0	6	47	33	3	65
Americas	8	6	2	4	2	3	5	1	4	1	8	25	18	2	69
Asia	10	8	2	3	5	5	5	2	4	2	6	248	21	2	60
Oceania	2	2	0	0	2	1	1	2	0	0	5	11	40	3	57
Euro Zone	18	12	6	7	5	14	4	3	7	0	4	110	35	5	59
Other Europe	15	12	3	7	5	9	6	6	5	1	4	80	27	6	48
Sum/Average*	56	43	13	23	20	35	21	16	20	4	5*	87*	29*	3*	60*

Note: "Soft" IAB strength includes power to request data or information, general policy formulation, oversight, macroeconomic supervision, analysis, discussion, and coordination. "Hard/Medium" IAB strength means comply or explain, recommend the use of macroprudential tools, issue warnings, appeals body, power to designate, and policy decision on macroprudential matters. "CB" stands for central bank and "MoF" for Ministry of Finance. "Rotate/No" indicates that there is no formal chair, or the chair rotates between institutions. Median values are reported for population density, GDP per capita, hospital beds, and government response.

Source: National laws, central bank and national authority websites; BIS (2018); Edge and Liang (2022); Mathieu et al. (2020); Hale et al. (2021); authors' calculations.

Table A.2. Prudential Policies by Type of Tools Involved

35 Relief Measures Involving Macroprudential Tools	65 Relief Measures Involving Microprudential Tools
Countercyclical Capital Buffer Release Capital Conservation Buffer Systemic Buffers	Liquidity Ratios (Ratio and Components) Other Capital Requirements (Ratios and Components) Trading Rules (Short-Selling Bans) Freezes on Dividends and Share Buybacks Asset Classification and Provisioning

Note: The table summarizes the prudential policy responses taken during the period January to October 2020. A prudential response of a given country may encompass more than one of these categories.

Table A.3. Variable Definitions

Variable	Definition	Categories/Units	Sources
MAP Speed, First Restriction	Time between response using macroprudential (MAP) tools and first restriction	Days	IMF Policy Response Tracker, Mathieu et al. (2020), and Hale et al. (2021)
MAP Speed, First Case	Time between response using MAP tools and first case	Days	
MIP Speed, First Restriction	Time between response using microprudential (MIP) tools and first restriction	Days	
MIP Speed, First Case	Time between response using MIP tools and first case	Days	
IAB Exists	Does an interagency body (IAB) exist	Yes, No	BIS (2018), authors' own analysis, and Edge and Liang (2022)
IAB Strength	Powers of IAB	Hard/Medium, Soft, n.a.	
CB is PR	Is the central bank (CB) the prudential regulator (PR)	Yes, No	
No. IAB Institutions	Is the number of institutions in the IAB above the median	High, Low, n.a.	
IAB Chair	Affiliation of committee chair	Central Bank (CB), Ministry of Finance (MoF), Rotate/No, n.a.	
Population Density	Inhabitants per km^2	In 1,000 per 1 km^2, end-2019	Mathieu et al. (2020)
GDP per capita	GDP per inhabitant	In 1,000 USD, end-2019	Mathieu et al. (2020)
Hospital Beds	Number of hospital beds	Per 1,000 inhabitants, end-2019	Mathieu et al. (2020)
Government Response	Strength of government response (aggregate over 19 measures, including lockdowns, restrictions, and economic support)	Scale from 0 to 100, at time of prudential response	Hale et al. (2021)

Note: Mathieu et al. (2020) refers to the Johns Hopkins University database "Our World in Data" from which we have taken COVID cases, number of hospital beds, population density, and GDP per capita. Government responses come from Hale et al. (2021). Prudential policy responses and response speeds (relative to first restriction, first case) have been derived from the IMF policy tracker (https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19) and the previous sources.

Table A.4. Summary Statistics for
the Regression Variables

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
MAP Speed, First Restriction	56	132.36	108.86	4	296
MAP Speed, First Case	56	142.32	108.98	4	294
MIP Speed, First Restriction	56	134.25	101.76	2	289
MIP Speed, First Case	56	121.80	100.36	5	281
Control Variables					
IAB Exists	56	0.77	0.43	0	1
IAB Strength	56	0.95	0.88	0	2
CB is PR	56	0.63	0.49	0	1
No. of IAB Institutions	56	0.61	0.85	0	2
IAB Chair	56	1.36	1.18	0	3
Population Density	56	0.27	1.05	0.00	7.92
GDP per Capita	56	33.28	18.12	6.43	94.28
Hospitals Beds	56	4.31	2.60	0.53	13.05
Government Response	56	58.03	15.46	25.64	96.15

Note: The summary statistics are based on the estimation sample of Table 3. Prudential response speeds only take into account first responses and for those countries that did not respond the days elapsed since the first case/restriction and the end of our sample period (right-censored observations).

Table A.5. Determinants of All Response Speeds

Y = Days Elapsed since First Restriction and Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IAB Exists, Yes	-3.066** (1.309)					-23.22*** (5.506)				
IAB Strength, Hard/Medium		-3.894** (1.703)					-17.49*** (2.308)			
IAB Strength, Soft		-1.779 (1.174)					-30.05*** (9.867)			
CB is PR, Yes			12.990*** (3.524)					-14.55*** (2.931)		
IAB, # Inst., High				-1.156 (3.383)					-27.92*** (6.594)	
IAB, # Inst., Low				-8.508 (5.370)					15.39 (10.89)	
IAB Chair, CB					11.92*** (3.146)					-23.26*** (2.156)
IAB Chair, MoF					0.194 (3.634)					1.163 (2.995)
IAB Chair, Rotate/No					-0.004 (7.899)					-5.868 (10.17)
Population Density	7.120*** (1.012)	7.281*** (0.904)	4.954*** (1.195)	7.424*** (1.488)	7.304*** (1.369)	3.750*** (0.551)	3.193*** (0.877)	9.290*** (1.035)	3.577*** (0.966)	6.976*** (0.459)

(continued)

Table A.5. (Continued)

Y = Days Elapsed since First Restriction and Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
GDP per Capita	−0.146	−0.156	0.024	−0.153	−0.107	−0.001	0.027	−0.229**	−0.053	−0.149*
	(0.108)	(0.102)	(0.123)	(0.141)	(0.133)	(0.059)	(0.049)	(0.105)	(0.092)	(0.078)
Hospital Beds	0.493	0.586	0.467	0.421	0.604***	2.750***	2.200***	2.932***	2.874***	2.842***
	(0.356)	(0.408)	(0.319)	(0.364)	(0.234)	(0.246)	(0.674)	(0.422)	(0.247)	(0.156)
Government Response	0.521	0.527	0.493	0.506	0.530	−0.570*	−0.590*	−0.516	−0.493	−0.619*
	(0.338)	(0.332)	(0.326)	(0.348)	(0.351)	(0.335)	(0.351)	(0.352)	(0.325)	(0.365)
Americas	−16.31***	−15.10***	−12.88***	−16.26***	−4.158	−30.04***	−39.32***	−28.54***	−31.40***	−46.26***
	(2.676)	(3.489)	(3.049)	(3.018)	(6.074)	(5.401)	(11.23)	(5.235)	(5.641)	(4.993)
Asia	27.43***	27.94***	30.43***	27.44***	38.11***	−14.50***	−18.51***	−17.13***	−15.26***	−33.91***
	(2.333)	(2.658)	(2.473)	(2.770)	(5.839)	(4.264)	(6.645)	(5.141)	(4.706)	(4.167)
Euro Zone	−36.13***	−34.99***	−40.35***	−33.56***	−24.73***	−23.05***	−28.52***	−13.65***	−30.31***	−39.31***
	(0.434)	(1.006)	(1.632)	(2.886)	(3.361)	(4.691)	(7.971)	(3.512)	(4.598)	(5.144)
Other Europe	−36.57***	−35.55***	−37.60***	−35.13***	−28.32***	−4.731	−10.10	1.444	−8.164	−14.37*
	(3.370)	(3.779)	(3.428)	(2.863)	(5.443)	(7.993)	(11.04)	(7.604)	(7.917)	(8.084)
Africa–Middle East	1.001	2.513	−4.074	3.874	4.052	−24.10***	−33.41***	−19.86***	−57.00***	−31.74***
	(25.82)	(24.85)	(25.59)	(36.17)	(28.35)	(0.709)	(4.607)	(1.634)	(13.41)	(0.533)
Observations	91	91	91	91	91	122	122	122	122	122
R2	0.074	0.074	0.077	0.075	0.076	0.049	0.052	0.046	0.063	0.051

Note: The table reports the full set of the results shown in Table 4. The estimations are based on OLS. A constant is included but not reported. Standard errors shown in parentheses are bootstrapped and clustered by region. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level. Table A.3 provides detailed variable definitions.

Table A.6. Model Selection Criteria for the Survival Analysis

Distribution	Macroprudential Tools				Microprudential Tools			
	Obs.	Log-Likelihood	AIC	BIC	Obs.	Log-Likelihood	AIC	BIC
Exponential	91	−109.99	231.99	247.05	122	−169.74	351.49	368.31
Weibull	91	−108.08	230.15	247.73	122	−167.92	349.84	369.47
Gompertz	91	−100.77	215.55	233.12	122	−165.13	344.27	363.90
Log-Normal	91	−104.40	222.79	240.37	122	−167.61	349.23	368.85
Log-Logistic	91	−106.32	226.64	244.21	122	−167.61	349.23	368.86
Generalized Gamma	91	n.a.	n.a.	n.a.	122	−167.35	350.69	373.12

Note: The table shows the values of the log-likelihood, Akaike (AIC), and Bayesian (BIC) information criteria for the baseline models (1) and (6) shown in Table 5 for different distributions of the hazard function. "n.a." indicates that the estimation did not converge.

Table A.7. Determinants of Prudential Response Probabilities

$h(t_{ij})$ = Hazard of No Response since First Restriction or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IAB Exists	0.936					1.428**				
	(0.126)					(0.224)				
IAB Strength, Hard/Medium		0.966					1.251**			
		(0.151)					(0.141)			
IAB Strength, Soft		0.887					1.666			
		(0.088)					(0.653)			
CB is PR			0.816					1.427***		
			(0.106)					(0.178)		
IAB, # Inst., High				0.933					1.519*	
				(0.243)					(0.342)	
IAB, # Inst., Low				0.945					0.975	
				(0.247)					(0.399)	
IAB Chair, CB					0.714*					1.379***
					(0.132)					(0.124)
IAB Chair, MoF					0.936					1.077
					(0.289)					(0.055)
IAB Chair, Rotate/No					0.996					0.860
					(0.545)					(0.359)
Population Density	0.809**	0.802***	0.862***	0.809**	0.836*	1.217***	1.234**	1.101***	1.206***	1.172***
	(0.069)	(0.067)	(0.067)	(0.076)	(0.087)	(0.072)	(0.104)	(0.038)	(0.076)	(0.055)

(*continued*)

Table A.7. (Continued)

h(t_{ij}) = Hazard of No Response since First Restriction or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
GDP per Capita	1.002	1.003	1.000	1.002	1.001	0.991**	0.990**	0.995	0.993**	0.992**
	(0.005)	(0.005)	(0.006)	(0.006)	(0.008)	(0.004)	(0.005)	(0.003)	(0.003)	(0.004)
Hospital Beds	1.011	1.007	1.015	1.011	1.007	0.931***	0.945	0.934***	0.930***	0.930**
	(0.028)	(0.026)	(0.025)	(0.025)	(0.017)	(0.026)	(0.052)	(0.018)	(0.025)	(0.029)
Government Response	0.991	0.991	0.992	0.991	0.991	1.021	1.022	1.019	1.021	1.021
	(0.026)	(0.026)	(0.027)	(0.027)	(0.024)	(0.017)	(0.019)	(0.017)	(0.017)	(0.020)
Americas	1.134***	1.083	1.076	1.133**	0.857	0.442***	0.531*	0.452***	0.461***	0.526***
	(0.053)	(0.065)	(0.069)	(0.060)	(0.207)	(0.056)	(0.176)	(0.048)	(0.058)	(0.046)
Asia	0.532***	0.522***	0.491***	0.532***	0.403**	0.861*	0.939	0.919	0.906	1.079
	(0.064)	(0.068)	(0.085)	(0.060)	(0.150)	(0.078)	(0.146)	(0.084)	(0.082)	(0.142)
Euro Zone	1.474***	1.408***	1.590***	1.468***	1.152	0.736*	0.850	0.598***	0.815	0.856
	(0.043)	(0.0445)	(0.169)	(0.255)	(0.188)	(0.127)	(0.329)	(0.087)	(0.189)	(0.204)
Other Europe	1.451*	1.392	1.482	1.448***	1.201	0.816	0.942	0.721	0.870	0.914
	(0.286)	(0.301)	(0.398)	(0.181)	(0.374)	(0.203)	(0.421)	(0.144)	(0.235)	(0.279)
Africa–Middle East	1.515	1.441	1.609	1.506	1.338	1.210	1.506	1.094	1.624	1.307
	(1.260)	(1.169)	(1.310)	(1.418)	(1.187)	(0.216)	(0.472)	(0.149)	(0.710)	(0.279)
Observations	91	91	91	91	91	122	122	122	122	122
Countries	56	56	56	56	56	56	56	56	56	56

Note: The table reports the full set of the results shown in Table 5. Hazard ratios (exponentiated coefficients) are reported. The estimations are based on hazard regressions using the Gompertz distribution. A constant is included but not reported. Standard errors are clustered by region and shown in parentheses. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level.

Table A.8. Determinants of First Response Probability

Y = 1, if There is a First Response	Macroprudential Tools					Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IAB Exists, Yes	0.681 (0.581)					1.050 (0.759)				
IAB Strength, Hard/Medium		0.656 (0.560)					0.971 (0.331)			
IAB Strength, Soft		0.727 (0.652)					1.202 (1.718)			
CB is PR, Yes			0.362** (0.175)					1.874*** (0.387)		
IAB, # Inst., High				0.667 (0.748)					1.681 (1.667)	
IAB, # Inst., Low				0.748 (0.504)					0.145*** (0.091)	
IAB Chair, CB					0.290 (0.250)					0.770 (0.173)
IAB Chair, MoF					1.002 (1.447)					0.806 (0.517)
IAB Chair, Rotate/No					0.823 (2.243)					0.201 (0.465)

Table A.8. (Continued)

Y = 1, if There is a First Response	Macroprudential Tools					Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Population Density	0.614	0.617	0.759	0.611	0.688	1.305	1.321	1.127	1.506*	1.220
	(0.198)	(0.200)	(0.171)	(0.235)	(0.267)	(0.248)	(0.274)	(0.204)	(0.317)	(0.241)
GDP per Capita	1.031	1.031	1.022	1.031	1.022	0.985	0.984	0.991	0.977*	0.984
	(0.037)	(0.037)	(0.034)	(0.039)	(0.039)	(0.011)	(0.013)	(0.008)	(0.012)	(0.013)
Hospital Beds	1.054**	1.057***	1.051***	1.054**	1.042	0.902	0.910	0.888	0.877	0.928
	(0.025)	(0.020)	(0.016)	(0.024)	(0.041)	(0.157)	(0.169)	(0.147)	(0.142)	(0.136)
Government Response	0.989	0.989	0.992	0.989	0.989	1.018	1.019	1.015	1.009	1.016
	(0.028)	(0.027)	(0.032)	(0.030)	(0.025)	(0.018)	(0.025)	(0.015)	(0.016)	(0.017)
Americas	1.506	1.611	1.276	1.502	0.486	1.146	1.183	1.340	0.870	1.346
	(0.678)	(0.819)	(0.762)	(0.642)	(0.533)	(0.685)	(0.718)	(0.695)	(0.479)	(0.785)
Asia	0.500	0.517	0.346*	0.499	0.166	7.557***	7.242***	10.62***	5.658***	12.31**
	(0.257)	(0.288)	(0.188)	(0.251)	(0.222)	(1.363)	(2.433)	(3.266)	(1.536)	(12.69)
Euro Zone	1.953***	2.063**	2.893***	1.884	0.791	1.356***	1.366**	1.164	2.160***	1.202*
	(0.485)	(0.743)	(0.626)	(1.272)	(0.155)	(0.151)	(0.186)	(0.124)	(0.507)	(0.127)
Other Europe	4.433***	4.673***	5.512***	4.362***	2.432*					
	(1.396)	(1.807)	(2.603)	(0.504)	(1.204)					
Africa–Middle East	0.864	0.915	1.238	0.791	0.478					
	(1.798)	(1.924)	(2.630)	(2.112)	(1.256)					
Observations	56	56	56	56	56	51	51	51	51	51

Note: The estimations are based on the logit estimator. Odds ratios are shown. A constant is included but not reported. Standard errors are clustered by region and shown in parentheses. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level.

Table A.9. Determinants of Prudential Response Probabilities

$h(t_{ij})$ = Hazard of No Response since First Case or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IAB Exists	0.902 (0.129)					1.443** (0.215)				
IAB Strength, Hard/Medium		1.261 (0.221)					1.272 (0.190)			
IAB Strength, Soft		1.286*** (0.096)					1.655 (0.551)			
CB is PR			0.869 (0.152)					1.401*** (0.075)		
IAB, # Inst., High				0.878 (0.242)					1.527** (0.306)	
IAB, # Inst., Low				0.985 (0.268)					0.975 (0.389)	
IAB Chair, CB					0.726 (0.142)					1.334*** (0.148)
IAB Chair, MoF					0.855 (0.239)					1.082 (0.065)
IAB Chair, Rotate/No					1.214 (0.868)					0.884 (0.359)
Population Density	0.767*** (0.074)	0.747*** (0.059)	0.810*** (0.040)	0.761** (0.095)	0.787** (0.082)	1.225*** (0.064)	1.240*** (0.091)	1.113*** (0.031)	1.213*** (0.067)	1.180*** (0.047)

(*continued*)

Table A.9. (Continued)

$h(t_{ij})$ = Hazard of No Response since First Case or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
GDP per Capita	1.003	1.005	1.001	1.004	1.003	0.990***	0.990**	0.994**	0.992***	0.991***
	(0.005)	(0.004)	(0.005)	(0.007)	(0.007)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)
Hospital Beds	1.017	1.007	1.019	1.018	1.010	0.933***	0.945	0.937***	0.932***	0.932**
	(0.028)	(0.024)	(0.026)	(0.023)	(0.016)	(0.024)	(0.048)	(0.016)	(0.025)	(0.026)
Government Response	0.997	0.996	0.998	0.998	0.997	1.020	1.021	1.019	1.021	1.021
	(0.026)	(0.027)	(0.028)	(0.028)	(0.024)	(0.017)	(0.018)	(0.017)	(0.016)	(0.019)
Americas	0.920	0.809*	0.898	0.915	0.740**	0.344***	0.335***	0.390***	0.264***	0.366***
	(0.176)	(0.100)	(0.177)	(0.194)	(0.102)	(0.086)	(0.066)	(0.080)	(0.122)	(0.098)
Asia	0.563***	0.531***	0.537***	0.563***	0.435*	0.646**	0.570***	0.745	0.501	0.727
	(0.089)	(0.103)	(0.088)	(0.094)	(0.191)	(0.141)	(0.117)	(0.144)	(0.240)	(0.197)
Euro Zone	1.497***	1.318**	1.623***	1.446**	1.254	0.832	0.681	0.928	0.612	0.776
	(0.066)	(0.159)	(0.246)	(0.239)	(0.176)	(0.141)	(0.164)	(0.128)	(0.250)	(0.156)
Other Europe	1.571*	1.399	1.635	1.541**	1.375	0.584*	0.542***	0.527**	0.473*	0.614
	(0.389)	(0.459)	(0.527)	(0.287)	(0.423)	(0.172)	(0.088)	(0.134)	(0.188)	(0.222)
Africa–Middle East	1.530	1.333	1.596	1.436	1.362	0.654	0.605**	0.639	0.513	0.666
	(1.283)	(1.031)	(1.305)	(1.429)	(1.251)	(0.232)	(0.136)	(0.194)	(0.238)	(0.277)
Observations	91	91	91	91	91	122	122	122	122	122
Countries	56	56	56	56	56	56	56	56	56	56

Note: Hazard ratios (exponentiated coefficients) are reported. The estimations are based on hazard regressions using the Gompertz distribution. A constant is included but not reported. Standard errors are clustered by region and shown in parentheses. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level.

Table A.10. Prudential Policy Measures: Average Speeds Using Edge and Liang's FSC Governance Indicators

Governance Arrangements		Speed[1] of Relief Measures Using Macroprudential Tools			Speed[1] of Relief Measures Using Microprudential Tools		
		Count	Since First Restriction	Since First Case	Count	Since First Restriction	Since First Case
All Measures		37	56	45	67	62	55
FSC Exists	De Facto	7	57	47	10	38	33
	No	11	64	48	15	89	77
	Yes	18	52	45	42	57	52
FSC is Advisory[2] Only	No	4	48	29	7	54	50
	Yes	21	55	50	43	56	50
FSC: Number of Voting Members	High[3]	17	58	53	38	57	51
	Low[3]	8	43	32	14	44	40

[1]For first measures: number of days since first cases of COVID-19 reported (respectively, since first restrictions taken) in country. For subsequent measures: since previous measure. [2]FSC has hard policy powers beyond and advisory/coordination role. [3]Above (below) the median value of 4.
Source: IMF policy tracker, available from https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19; websites of central banks and other national authorities; Edge and Liang (2022); authors' calculations.

Table A.11. Survival Analysis Using Edge and Liang's FSC Governance Proxies

	MAP Tools since First Restriction			MIP Tools since First Restriction			MAP Tools since First Case			MIP Tools since First Case		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
FSC, De Facto	1.261						1.320			1.448		
	(0.420)						(0.459)			(0.631)		
FSC, Yes	0.884						0.838			1.442***		
	(0.103)						(0.096)			(0.158)		
FSC Advisory, No		0.752			1.297			0.840			1.300	
		(0.153)			(0.466)			(0.332)			(0.478)	
FSC Advisory, Yes		0.863			1.164*			0.848			1.150**	
		(0.220)			(0.0927)			(0.213)			(0.0685)	
FSC, # Inst., High			0.955			1.462			0.891			1.480*
			(0.236)			(0.379)			(0.239)			(0.329)
FSC, # Inst., Low			0.911			1.352			0.918			1.357
			(0.057)			(0.383)			(0.056)			(0.397)
Population Density	0.831**	0.796**	0.809**	1.217***	1.190***	1.209***	0.785**	0.765**	0.766***	1.225***	1.197***	1.216***
	(0.071)	(0.071)	(0.069)	(0.073)	(0.061)	(0.056)	(0.078)	(0.088)	(0.078)	(0.066)	(0.0544)	(0.0492)

(*continued*)

Table A.11. (Continued)

	MAP Tools since First Restriction			MIP Tools since First Restriction			MAP Tools since First Case			MIP Tools since First Case		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
GDP per Capita	1.001	1.003	1.003	0.991**	0.991**	0.992***	1.002	1.004	1.003	0.990***	0.990***	0.991***
	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)	(0.003)	(0.006)	(0.006)	(0.005)	(0.003)	(0.003)	(0.002)
Hospital Beds	1.008	1.013	1.012	0.931***	0.929***	0.932***	1.014	1.019	1.016	0.933***	0.931***	0.934**
	(0.018)	(0.021)	(0.032)	(0.0227)	(0.023)	(0.031)	(0.015)	(0.024)	(0.032)	(0.0217)	(0.0220)	(0.029)
Government Response	0.993	0.991	0.991	1.021	1.021	1.021	1.001	0.997	0.997	1.020	1.020	1.020
	(0.027)	(0.026)	(0.026)	(0.019)	(0.018)	(0.017)	(0.026)	(0.027)	(0.027)	(0.019)	(0.017)	(0.017)
Americas	1.013	1.169***	1.142*	0.442***	0.408***	0.451***	0.780	0.916	0.916	0.344***	0.306***	0.328***
	(0.141)	(0.055)	(0.081)	(0.062)	(0.101)	(0.093)	(0.183)	(0.127)	(0.212)	(0.096)	(0.108)	(0.081)
Asia	0.440***	0.538***	0.541***	0.862	0.837	0.893	0.448***	0.559***	0.557***	0.646*	0.604*	0.628*
	(0.103)	(0.0648)	(0.0191)	(0.0993)	(0.120)	(0.187)	(0.118)	(0.103)	(0.039)	(0.155)	(0.177)	(0.153)
Euro Zone	1.393***	1.410***	1.508***	0.736**	0.709*	0.762	1.398***	1.443***	1.477***	0.833	0.808	0.775
	(0.0441)	(0.174)	(0.215)	(0.109)	(0.138)	(0.251)	(0.067)	(0.159)	(0.206)	(0.212)	(0.141)	(0.219)
Other Europe	1.362*	1.442*	1.475***	0.816	0.773	0.838	1.466*	1.542	1.557***	0.585	0.541*	0.565**
	(0.253)	(0.279)	(0.190)	(0.203)	(0.206)	(0.286)	(0.327)	(0.432)	(0.278)	(0.214)	(0.173)	(0.138)
Africa–Middle East	1.177	1.471	1.559	1.212	1.250	1.288	1.115	1.466	1.503	0.654	0.599	0.628
	(0.950)	(1.282)	(1.395)	(0.292)	(0.228)	(0.410)	(0.850)	(1.289)	(1.399)	(0.293)	(0.232)	(0.197)
Observations	91	91	91	122	122	122	91	91	91	122	122	122
Countries	56	56	56	56	56	56	56	56	56	56	56	56

Note: Hazard ratios (exponentiated coefficients) are reported. The estimations are based on hazard regressions using the Gompertz distribution. A constant is included but not reported. Standard errors are clustered by region and shown in parentheses. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level.

Table A.12. Determinants of Prudential Response Probabilities

$h(t_{ij})$ = Hazard of No Response since First Restriction or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IAB Exists	0.983 (0.143)					1.337** (0.194)				
IAB Strength, Hard/Medium		0.969 (0.179)					1.203*** (0.044)			
IAB Strength, Soft		1.012 (0.073)					1.527 (0.556)			
CB is PR			0.796 (0.111)					1.534*** (0.238)		
IAB, # Inst., High				0.963 (0.246)					1.468* (0.309)	
IAB, # Inst., Low				1.048 (0.204)					0.643 (0.231)	
IAB Chair, CB					0.850 (0.172)					1.206 (0.148)
IAB Chair, MoF					0.938 (0.312)					1.034 (0.070)
IAB Chair, Rotate/No					1.113 (0.595)					0.890 (0.482)
Population Density	0.871* (0.068)	0.875 (0.071)	0.924 (0.069)	0.870* (0.071)	0.874 (0.083)	1.170*** (0.066)	1.186** (0.103)	1.062*** (0.021)	1.163* (0.095)	1.134*** (0.047)

(continued)

Table A.12. (Continued)

h(t_{ij}) = Hazard of No Response since First Restriction or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
GDP per Capita	1.000	0.999	0.997	1.000	1.000	0.995***	0.994**	1.000	0.997	0.995***
	(0.006)	(0.005)	(0.007)	(0.007)	(0.009)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)
Hospital Beds	1.019	1.021	1.025	1.021	1.016*	0.927**	0.938	0.931***	0.921**	0.927**
	(0.021)	(0.018)	(0.018)	(0.017)	(0.010)	(0.035)	(0.057)	(0.026)	(0.031)	(0.035)
Government Response	0.993	0.993	0.994	0.993	0.993	1.023	1.023	1.021	1.020	1.023
	(0.026)	(0.026)	(0.027)	(0.028)	(0.025)	(0.024)	(0.026)	(0.024)	(0.023)	(0.028)
High Central Bank Indep.	0.570**	0.566**	0.557**	0.567**	0.575**	1.153	1.178	1.392	1.157	1.152
	(0.151)	(0.138)	(0.154)	(0.135)	(0.143)	(0.601)	(0.626)	(0.549)	(0.615)	(0.600)
Americas	1.145***	1.171**	1.079	1.142***	1.002	0.459***	0.533***	0.470***	0.478***	0.499***
	(0.037)	(0.084)	(0.073)	(0.050)	(0.262)	(0.0415)	(0.123)	(0.042)	(0.035)	(0.016)
Asia	0.528***	0.532***	0.486***	0.526***	0.457**	0.920	0.985	0.961	0.954	1.057
	(0.054)	(0.065)	(0.079)	(0.044)	(0.160)	(0.082)	(0.121)	(0.083)	(0.161)	(0.164)
Euro Zone	2.584***	2.666***	2.823***	2.526**	2.304***	0.656	0.721	0.438***	0.748	0.705
	(0.705)	(0.496)	(0.678)	(0.981)	(0.688)	(0.228)	(0.189)	(0.089)	(0.259)	(0.246)
Other Europe	1.834***	1.881***	1.869***	1.805***	1.684*	0.681*	0.767	0.553***	0.727	0.725
	(0.245)	(0.318)	(0.382)	(0.192)	(0.496)	(0.157)	(0.284)	(0.0841)	(0.173)	(0.211)
Africa–Middle East	1.839	1.880	1.985	1.779	1.719	1.015	1.168	0.877	1.349	1.101
	(1.086)	(1.137)	(1.105)	(1.185)	(1.084)	(0.204)	(0.484)	(0.160)	(0.513)	(0.339)
Observations	89	89	89	89	89	112	112	112	112	112
Countries	54	54	54	54	54	54	54	54	54	54

Note: The table reports the results corresponding to Table 5 when in addition an indicator for central banks with higher independence is included. Hazard ratios (exponentiated coefficients) are reported. The estimations are based on hazard regressions using the Gompertz distribution. A constant is included but not reported. Standard errors are clustered by region and shown in parentheses. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level.

Table A.13. Determinants of Prudential Response Probabilities

h(t_{ij}) = Hazard of No Response since First Restriction or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IAB Exists	0.774 (0.189)					1.256*** (0.109)				
IAB Strength, Hard/Medium		0.759 (0.199)					1.200 (0.183)			
IAB Strength, Soft		0.806 (0.171)					1.331 (0.476)			
CB is PR			1.264 (0.405)					2.050*** (0.477)		
IAB, # Inst., High				0.723 (0.300)					1.281* (0.177)	
IAB, # Inst., Low				0.957 (0.224)					1.072 (0.385)	
IAB Chair, CB					0.303** (0.149)					0.789 (0.307)
IAB Chair, MoF					1.022 (0.375)					1.292 (0.235)
IAB Chair, Rotate/No					1.135 (0.684)					1.325 (0.647)
Population Density	0.515*** (0.075)	0.518*** (0.073)	0.478** (0.139)	0.506*** (0.086)	0.562*** (0.025)	0.936 (0.119)	0.945 (0.166)	0.789** (0.089)	0.933 (0.118)	0.897 (0.072)

Table A.13. (Continued)

$h(t_{ij})$ = Hazard of No Response since First Restriction or Previous Response	Response Speed Using Macroprudential Tools					Response Speed Using Microprudential Tools				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
GDP per Capita	0.994	0.994	0.995	0.994	0.988	0.987*	0.987	0.993	0.988**	0.987**
	(0.007)	(0.006)	(0.007)	(0.007)	(0.009)	(0.007)	(0.009)	(0.005)	(0.006)	(0.007)
Hospital Beds	1.096***	1.099***	1.099***	1.106***	1.097***	0.926	0.929	0.931	0.926	0.911
	(0.024)	(0.023)	(0.031)	(0.028)	(0.021)	(0.095)	(0.110)	(0.077)	(0.093)	(0.068)
Government Response	1.010	1.010	1.011	1.012	1.021	1.034	1.034	1.031	1.034	1.033
	(0.017)	(0.017)	(0.017)	(0.020)	(0.018)	(0.025)	(0.025)	(0.024)	(0.025)	(0.025)
Previous MPol Response	0.079***	0.078***	0.076***	0.072***	0.035***	0.091***	0.094***	0.062***	0.092***	0.070***
	(0.023)	(0.023)	(0.026)	(0.026)	(0.020)	(0.032)	(0.044)	(0.030)	(0.036)	(0.030)
Americas	0.634***	0.651***	0.673**	0.614***	0.150***	0.351***	0.374**	0.396***	0.359***	0.213***
	(0.086)	(0.102)	(0.115)	(0.071)	(0.047)	(0.061)	(0.151)	(0.050)	(0.070)	(0.089)
Asia	0.434***	0.438***	0.459***	0.422***	0.131***	0.762*	0.780	0.847	0.781*	0.498
	(0.076)	(0.079)	(0.111)	(0.059)	(0.040)	(0.112)	(0.164)	(0.142)	(0.117)	(0.263)
Euro Zone	1.336***	1.381***	1.345**	1.221	0.488**	0.831	0.874	0.622**	0.868	0.567
	(0.072)	(0.052)	(0.163)	(0.316)	(0.144)	(0.157)	(0.368)	(0.134)	(0.226)	(0.203)
Other Europe	0.456***	0.471***	0.483***	0.418***	0.184***	0.295**	0.316	0.234***	0.300*	0.205***
	(1.057)	(0.072)	(0.081)	(0.043)	(0.048)	(0.173)	(0.284)	(0.123)	(0.188)	(0.072)
Africa–Middle East	1.183	1.226	1.033	1.012	0.660	1.229	1.332	1.007	1.390	1.168
	(0.942)	(0.975)	(0.888)	(1.007)	(0.666)	(0.232)	(0.474)	(0.136)	(0.538)	(0.295)
Observations	83	83	83	83	83	108	108	108	108	108
Countries	51	51	51	51	51	51	51	51	51	51

Note: The table reports the results corresponding to Table 5 when in addition an indicator for prior monetary policy accommodation is included. Hazard ratios (exponentiated coefficients) are reported. The estimations are based on hazard regressions using the Gompertz distribution. A constant is included but not reported. Standard errors are clustered by region and shown in parentheses. ***, **, and * indicate significance at the 1 percent, 5 percent, and 10 percent significance level.

Table A.14. List of Countries Included in the Study

Country	Region	IAB Exists
Israel	Africa & Middle East	Yes
Saudi Arabia	Africa & Middle East	Yes
South Africa	Africa & Middle East	Yes
Argentina	Americas	No
Brazil	Americas	Yes
Canada	Americas	Yes
Chile	Americas	Yes
Colombia	Americas	Yes
Mexico	Americas	Yes
Peru	Americas	No
United States	Americas	Yes
China	Asia	Yes
India	Asia	Yes
Indonesia	Asia	Yes
Japan	Asia	Yes
Malaysia	Asia	Yes
Philippines	Asia	Yes
Singapore	Asia	No
South Korea	Asia	Yes
Thailand	Asia	No
Turkey	Asia	Yes
Austria	Euro Zone	Yes
Belgium	Euro Zone	No
Cyprus	Euro Zone	Yes
Estonia	Euro Zone	Yes
Finland	Euro Zone	No
France	Euro Zone	Yes
Germany	Euro Zone	Yes
Greece	Euro Zone	No
Ireland	Euro Zone	No
Italy	Euro Zone	Yes
Latvia	Euro Zone	Yes
Lithuania	Euro Zone	No
Luxembourg	Euro Zone	Yes
Netherlands	Euro Zone	Yes
Portugal	Euro Zone	Yes
Slovakia	Euro Zone	No
Slovenia	Euro Zone	Yes
Spain	Euro Zone	Yes
Australia	Oceania	Yes
New Zealand	Oceania	Yes
Bulgaria	Other Europe	Yes
Croatia	Other Europe	Yes
Czech Republic	Other Europe	No
Denmark	Other Europe	Yes

Table A.14. (Continued)

Country	Region	IAB Exists
Hungary	Other Europe	No
Iceland	Other Europe	Yes
Norway	Other Europe	Yes
Poland	Other Europe	Yes
Romania	Other Europe	Yes
Russia	Other Europe	Yes
Serbia	Other Europe	Yes
Sweden	Other Europe	Yes
Switzerland	Other Europe	Yes
Ukraine	Other Europe	Yes
United Kingdom	Other Europe	No

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