Capital Flow Management in the ASEAN+3: A High-Frequency Database and Its Stylized Facts

Yang Zhou*

Shigeto Kitano†

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Abstract

We build a monthly, action-level database of capital flow management measures (CFMs) for the fourteen ASEAN+3 economies from the March 2024 compilation of CFMs and macroprudential measures by the ASEAN+3 Macroeconomic Research Office (AMRO). The compilation records 446 policy changes, 230 of them CFMs. Two steps make it usable at monthly frequency. We recover the effective month of the measures that AMRO dates only to a year, which raises the share of actions with a documented month from 75 to 88 percent; and we check the result against Binici, Das and Pugacheva (2024; hereafter BDP) month by month for the seven economies that both databases cover. The other seven are not in BDP's sample. We then build the indices that BDP define, and add two indices of our own: a cumulative index of CFMs on gross inflows and a cumulative index of CFMs on gross outflows. Together they show which side of the capital account an economy acts on. Thailand's positive net stance, for example, is not a tightening of measures on inflows but a sustained easing of the measures that govern its own residents investing abroad. The region matches BDP on which instruments are used most and on which parts of the balance of payments are targeted most often. It does not match on timing, nor on the instrument mix by income group. Most CFM actions (77 percent) change a measure that is already in place, which is why monthly data matter. The database is released with the paper as an Excel workbook.

1 Introduction

Capital flow management measures (CFMs)—policies designed to limit or influence cross-border capital flows, from residency-based capital controls to currency-based measures—are now a standard part of the policy toolkit in emerging and advanced economies alike,[1] yet their empirical study has long been limited by the low frequency of the available data. The conventional capital-control and openness indices—Quinn (1997), Chinn and Ito (2006), Fernández et al. (2016)—are annual and, by construction, record the *presence* of a restriction rather than the *change* in policy, so they tend to find years of apparent

*Graduate School of Economics, Nagoya City University, Nagoya 467-8501, Japan. Email: yzh@econ.nagoya-cu.ac.jp.

†Corresponding author. Research Institute for Economics and Business Administration (RIEB), Kobe University, 2-1 Rokkodai-cho, Nada-ku, Kobe 657-8501, Japan. Email: kitano@rieb.kobe-u.ac.jp.

[1] A large theoretical literature analyzes CFMs as a policy response to volatile capital flows and their implications for macro-financial stability, including the pecuniary-externality rationale for prudential capital controls (Jeanne and Korinek, 2010; Bianchi, 2011), their interaction with exchange-rate regimes and nominal rigidities (Farhi and Werning, 2014; Schmitt-Grohé and Uribe, 2016), and their comparison with macroprudential policy as an alternative stabilization tool (Ostry et al., 2010; Korinek and Sandri, 2016), as well as their welfare effects and interaction with monetary and macroprudential policy in a small-open-economy setting (Kitano, 2011; Kitano and Takaku, 2018, 2020; Zhou and Kitano, 2025).

inaction even when the capital account was being actively managed within the year. To better capture the frequency and intensity of policy changes, a number of studies instead count individual policy actions rather than aggregating CFM subcategories into a single index, including Ahmed and Zlate (2014) at quarterly frequency for a cross-country panel, and, at monthly frequency, Chen and Qian (2016) for China and Pandey et al. (2021) for India.

Binici, Das and Pugacheva (2024, hereafter BDP) take this count-based approach furthest, with a monthly, action-level database built from the IMF Taxonomy of CFMs—the IMF's catalogue of the capital flow management measures identified in its surveillance documents, published in 2023—covering 49 economies over 2008–2021. They show that a high-frequency, directional record of policy actions conveys information that annual indices cannot, and they document a set of stylized facts about which instruments are used, in which direction, and on which segments of the balance of payments.

This paper undertakes the analogous exercise for the fourteen ASEAN+3 economies,[2] using the compilation of CFMs and macroprudential measures (MPMs; prudential tools aimed at risks in the domestic financial system rather than at cross-border flows) by the ASEAN+3 Macroeconomic Research Office (AMRO), version 4, March 2024, as the source. The regional source adds to what the BDP database can show for the region in three ways. Seven of the fourteen economies—Japan, the Philippines, Vietnam, Brunei, Cambodia, Lao PDR and Myanmar—are not in BDP's sample, so the database constructed here extends the monthly, action-level record to half of the region. Coverage runs to March 2024, past BDP's end-2021, and reaches back before 2008 for the economies with longer records, which is what allows the classification of Section 7 to read each economy over its own observation window. And for the seven economies the two databases share, the regional compilation records measures that the IMF Taxonomy does not separately record, most visibly for Indonesia and Thailand. The reverse also holds for China, so the two records are complementary; the month-by-month reconciliation in Section 2 documents the differences in both directions. Our aims are threefold. First, we construct a monthly database with the same index definitions as BDP, so that the region's experience can be read in the same terms as the original study. Two steps make the source usable at monthly frequency. We recover the effective month of measures that AMRO dates only to a year, which raises the share of actions with a documented month from 75 to 88 percent. We then compare our database with BDP's month by month for the seven economies that both cover. Second, we compare the ASEAN+3 results with BDP throughout: where the region reproduces the original stylized facts, where it does not, and why the differences follow from which economies are in the sample. Third, we add one construction that BDP do not use. Their indices classify each action by the direction of the net flow it works toward, which does not tell the reader which side of the capital account the measure regulates. We build cumulative indices of CFMs on gross inflows and on gross outflows, which split the same stance into its two sides. The split matters for reading the region. Thailand has the region's most positive net stance, and in the BDP indices that stance could be either a tightening of the measures that govern foreign agents or an easing of those that govern Thai residents. The indices on gross flows show that it is almost entirely the second. The comparison with BDP organizes the paper.

The AMRO database is part of a wider set of AMRO documents on the management of capital flows in the region, published in March 2022. A Policy Position Paper sets out a regional position on the use of CFMs and MPMs, and recommends that authorities keep the flexibility to choose the tools, the timing, and the duration of such measures, including their pre-emptive use (AMRO, 2022a). A companion background paper summarizes a survey of member authorities on how they define, design, and remove CFMs and MPMs, and on where their views differ from those of international financial institutions (AMRO, 2022b). A working paper prepared for the same project applies growth-at-risk methods to seven regional economies and finds that surges in portfolio and bank inflows can weaken financial stability and raise the tail risks to growth (Oeking and Gabriella, 2022). The first version of the database used in this paper was compiled as a background document for that project. Those papers address the policy case for the measures and

[2]The fourteen economies are the ten ASEAN members—Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam—together with China, Japan and Korea, with Hong Kong, China treated as a separate economy.

their macroeconomic effects; the present paper addresses a different question—how to turn the database into monthly policy indices comparable with BDP's—so the two lines of work are complementary.

Four results stand out. First, the region matches BDP on the cross-section of policy: price-based measures are used mainly on inflows and mainly to tighten, administrative measures are more common and are most often outflow easing, and "Other Investment," which is dominated by bank flows, is the category targeted most often. The instrument mix by income group is the exception: the region's emerging markets rely on administrative instruments more heavily than BDP's, and approval requirements are far more prominent. Second, the region does not match BDP on timing. BDP's indices are driven by tightening early in their window and by easing at the end; the region eased during the global financial crisis, tightened later—on inflows over 2011–14 and on outflows over 2015–17—and eased again in 2020–21, when every recorded action was an easing. Third, splitting the actions by the side of the capital account they regulate—a step BDP do not take—shows what produces the region's cumulative stance, and what produces it changes over the window. Over 2010q1–2024q1 the region tightened CFMs on gross inflows thirty-five times and eased them thirty-five times, so the inflow-directed index ends the window at the level where it began. The stance therefore rests entirely on the other side of the account, where easings outnumber tightenings: the outflow-directed index ends at -14 and the stance at $+14$, the same number with its sign reversed (Figure 4). A positive stance here records a liberalization of the rules on residents investing abroad, not a tightening on foreign investors. The same split applies economy by economy: Thailand and China have stances of opposite sign, and the split shows that each reached it by acting mainly on the outflow side. Fourth, policy works mainly by changing measures that are already on the books: 77 percent of the region's 230 CFM actions do so. A count of measures in force therefore says little about how restrictive an economy is, and Malaysia is the clearest case—it holds the largest stock of CFMs in the region and has eased most of it.

Section 2 describes the source and the coding. Section 3 defines the indices. Section 4 presents the cumulative "stance" of policy—the cumulative net tightening index CI, which is the term used for it from Section 3 onwards—in aggregate and by economy. Section 5 splits CI into cumulative indices of CFMs on gross inflows and on gross outflows. Section 6 reports the incidence of instruments and functional categories. Section 7 turns to the recalibration of existing measures and confronts it with a stock-taking, walls/gates classification, discussing its limits. Section 8 concludes. Appendix A records the coding conventions and the data-construction details, including the classification rules for borderline measures and the sources used to verify effective months.

2 Data and Coding

The source is the AMRO database of CFMs and MPMs in the ASEAN+3, version 4 (March 2024). Like the IMF Taxonomy that underlies BDP, the AMRO compilation records *changes* to policy rather than the standing stock of restrictions; the database is therefore, at its core, a directional record of policy actions. We code each action with: a classification (CFM, including CFM/MPM, versus pure MPM); the direction of the flow targeted (inflow, outflow, or both); the direction of the policy (a sign, $+1$ for an introduction or tightening, -1 for an easing or removal); one of fourteen instrument types, grouped into price-based and administrative; and flags for the balance-of-payments functional categories affected. Pure macroprudential measures—those that do not, by design, act on cross-border flows—are excluded from the CFM indices and aggregated separately.

Actions that carry a policy direction—an introduction, tightening, easing or removal—are *index-affecting*; entries that only document a standing measure, with no dated change, do not enter the indices. Of the 446 index-affecting actions in the region, 230 are CFMs (including CFM/MPMs) and 216 are pure MPMs. All figures and tables in this paper, like BDP's, are based on the CFMs. Throughout, the advanced economies are Brunei, Hong Kong, Japan, Korea and Singapore; the low-income economies are Cambodia, Lao PDR and Myanmar; and the emerging markets are China, Indonesia, Malaysia, the Philippines, Thailand and Vietnam. The sample is dominated numerically by the region's emerging mar-

kets, which account for 190 of the 230 CFM actions, against 28 for the region's advanced economies and 12 for its low-income economies—a composition that matters for several of the comparisons below.

Effective-month dating for monthly-frequency use

A distinctive feature of the database, and the step that makes it usable at monthly and quarterly frequency, is a sustained effort to recover the *effective month* of measures that the AMRO source dates only to a year. Each index-affecting action carries a month-known flag mk: mk=1 when the month is stated in the source; mk=0 when only the year is given, in which case the month is imputed to June as a neutral convention and is *not* a reliable monthly date; and mk=2 when an originally year-only date has been verified against an external public record—a central-bank regulation or circular number, an official legal-gazette database, a central-bank press release, or BIS/IMF documentation—and the true effective month substituted. Both mk=1 and mk=2 are reliable monthly dates.

In the raw source only 334 of the 446 index-affecting actions (75 percent) carried a stated month; the other 112 were year-only. Verification re-dated 59 of these to their documented effective month (mk: $0 \rightarrow 2$), cutting the year-only count from 112 to 53 and raising reliable monthly coverage from 75 to 88 percent (393 of 446). Each verified action records the underlying regulation number and date in its notes field, so the dating is traceable. A clear pattern governs what is recoverable: discrete regulatory acts—anti-speculation measures, crisis responses, major prudential regulations—are datable, because they are implemented through a numbered circular whose effective date is on public record; gradual liberalization programs, in which a quota is widened step by step over several years, often have no single effective month and are properly left at mk=0. The residual year-only actions are concentrated in Thailand's multi-year outward-investment liberalization, for which no single month exists. Table 1 reports the verified and remaining year-only actions by economy; raising the mk=2 count and lowering mk=0 is the database's central improvement over a year-only reading of the same source.

Table 1: Effective-month dating by economy: index-affecting actions verified from year-only to a documented month (mk=2) and those that remain year-only (mk=0). Economies already month-dated in the source (mainly Japan, Korea and Lao PDR) need no verification and do not appear. Columns sum to the regional totals of 59 verified and 53 year-only.

Economy	Verified (mk=2)	Year-only (mk=0)
Indonesia	24	7
Thailand	14	34
China	8	3
Cambodia	3	2
Malaysia	3	2
Singapore	3	0
Philippines	2	1
Vietnam	2	1
Brunei	0	1
Hong Kong	0	1
Myanmar	0	1
Total	**59**	**53**

Validation against BDP over the overlapping sample

Seven of the fourteen economies—China, Hong Kong, Indonesia, Korea, Malaysia, Singapore and Thailand—also appear in BDP, so the two databases can be reconciled month by month over BDP's window (Novem-

ber 2012–December 2021),[3] both as a validation and to locate where the independent coding of two related but distinct source documents diverges. Table 2 reports the comparison. Over the window BDP records 48 CFM action-months (economy-months with at least one CFM action) for these seven economies and the present database records 52. Twenty months carry an action in both; the two agree on the net direction of the action in eighteen of them, and the two disagreements are documented coder-judgment differences (the treatment of a 2015 Korean levy reform and a 2016 Malaysian measure). The remaining action-months appear in only one database—28 in BDP alone and 32 here.

Table 2: Reconciliation against BDP over the overlapping sample: CFM action-months by economy, November 2012–December 2021. "Both" counts months in which both databases record an action; "Agree" is the subset on which the two agree on the net direction; "BDP-only" and "AMRO-only" count action-months recorded in only one database. "BDP" and "AMRO" are the column totals (Both plus the respective one-sided count).

Economy	BDP	AMRO	Both	Agree	BDP-only	AMRO-only
China	23	11	2	2	21	9
Hong Kong	4	4	4	4	0	0
Indonesia	2	12	1	1	1	11
Korea	5	4	4	3	1	0
Malaysia	9	11	6	5	3	5
Singapore	3	2	2	2	1	0
Thailand	2	8	1	1	1	7
Total	**48**	**52**	**20**	**18**	**28**	**32**

These one-sided records are expected rather than errors: the two compilations apply different macro-criticality filters (judgments about which measures are significant enough to record) and cover slightly different scopes. The AMRO source dates and includes regional measures the IMF Taxonomy does not separately record—most visibly for Indonesia and Thailand, where the present database carries 12 and 8 action-months against BDP's two each—while the Taxonomy includes staff-assessed measures the AMRO source treats differently or omits, most visibly for China, where BDP records 23 action-months against 11 here. Where the two databases see the same measure they agree on its net direction in all but two cases, and the financial centres whose coding is least ambiguous (Hong Kong, Singapore) reconcile almost exactly; the economies with the largest scope gaps—China on the Taxonomy side, Indonesia and Thailand on the AMRO side—are where the two records diverge most. Two readings follow. The divergences reflect the sources rather than coding error: the IMF Taxonomy and the AMRO compilation rest on different documents and apply different macro-criticality filters, so the two records are complementary: each contains measures that the other does not. And the AMRO database contains measures that BDP does not—most clearly the regional inflow and outflow measures for Indonesia and Thailand that the Taxonomy does not separately record—so for the ASEAN+3 it adds to the BDP record rather than merely reproducing it. The exercise thus validates the coding where the two overlap while making transparent, economy by economy, where and why they differ. The reconciliation sheet of the workbook lists every action-month with a short explanatory note.

3 Indices

From the coded actions we construct a monthly panel of indices defined to match BDP. Each action is a tightening (or introduction) or an easing (or removal) of a measure on inflows, on outflows, or on both. For economy i in month t, let T_{it}^{in} and E_{it}^{in} be the *numbers* of inflow-directed tightenings and easings, and T_{it}^{out} and E_{it}^{out} the numbers of outflow-directed tightenings and easings. Following BDP, the *net inflow index*

[3] BDP describe their database as covering January 2008 to December 2021. The replication panel released with their paper begins in November 2012 and carries 42 economies; the reconciliation here uses that panel, so the comparison window opens in November 2012.

counts the measures that work to limit net inflows—inflow tightenings together with outflow easings—and the *net outflow index* counts those that work to limit net outflows—outflow tightenings together with inflow easings:

$$\mathrm{NII}_{it} = T^{\mathrm{in}}_{it} + E^{\mathrm{out}}_{it}, \qquad \mathrm{NOI}_{it} = T^{\mathrm{out}}_{it} + E^{\mathrm{in}}_{it}.$$

Both are counts of actions and so are non-negative by construction, exactly as in BDP. Each draws on *both* sides of the capital account: an outflow easing adds to NII, and an inflow easing adds to NOI. The *cumulative net tightening index* is the running difference of the two,

$$\mathrm{CI}_{it} = \sum_{k=t_0}^{t} \big(\mathrm{NII}_{ik} - \mathrm{NOI}_{ik}\big), \tag{1}$$

so CI rises as the measures that limit net inflows accumulate and falls as the measures that promote net inflows accumulate. This is the index that BDP call the "stance" and plot in their Figure 4.

A second, *undirected* cumulative convention is used in Section 7 and is defined there.

4 The Stance of Policy

Before we turn to the cumulative indices, Figure 1 shows *when* the region acted and through which margin. It is the analogue of BDP Figure 2, at annual frequency; we use annual rather than quarterly counts because the fourteen-economy counts are small at quarterly frequency. BDP construct their Figure 2 on the 2008–2021 window of the Taxonomy at quarterly frequency, with all forty-nine countries present throughout, whereas Figure 1 covers 1983–2024. The two figures therefore do not describe the same period. The comparison below is made on the years they have in common, and the years outside BDP's window are discussed separately. The upper panel plots the net inflow measures, decomposing NII into its two components—inflow tightenings and outflow easings—as stacked bars, with introductions and removals shown as outlined bars, changes to existing measures as solid bars, and the annual NII as the dashed line. The lower panel does the same for the components of NOI: outflow tightenings and inflow easings. Following BDP's colour convention, actions on inflows are green and actions on outflows are red in both panels. Because economies enter the sample at different dates (Section 2), counts in the early years cover fewer economies.[4]

BDP describe their Figure 2 as showing both indices driven by tightening measures in the earlier phase of 2008–2021 and by easing measures towards the end. The ASEAN+3 record over the same window has three phases rather than two. It opens with easing. Over 2008–2010 the upper panel records six inflow tightenings against fourteen outflow easings, and the lower panel one outflow tightening against eight inflow easings, so both indices are driven by easing at the start of the window.[5] The phase in which each index is driven by tightening comes in the middle of the window, but the two panels do not reach it at the same time. The upper panel is tightening-driven over 2011–14, with seventeen inflow tightenings against four outflow easings; the lower panel over 2015–17, with sixteen outflow tightenings against eight inflow easings: the region tightened on inflows first and on outflows later. The end of the window agrees with BDP, and in a stronger form: over 2020–21 every action is an easing. Over the window as a whole easing components account for the majority of both indices—forty-three of the seventy-eight components of NII are outflow easings, and thirty-eight of the fifty-nine components of NOI are inflow easings.

The easing at the start of the window is concentrated in 2008–09. The upper panel there records two inflow tightenings against eight outflow easings, and the lower panel seven inflow easings against no outflow tightening; the fourteen actions of those two years are twelve easings and two tightenings. The

[4] The annual counts are unaffected by the June convention for year-only dates.

[5] Counts of bars belong to one panel and are components of that panel's index; counts of actions, used below, run across both panels. A measure directed at both sides of the capital account, such as China's June 2016 regulation of the settlement of portfolio investment, is one action but produces a bar in each panel. The twenty-nine bars of 2008–2010 come from twenty-four actions, five of them directed at both sides.

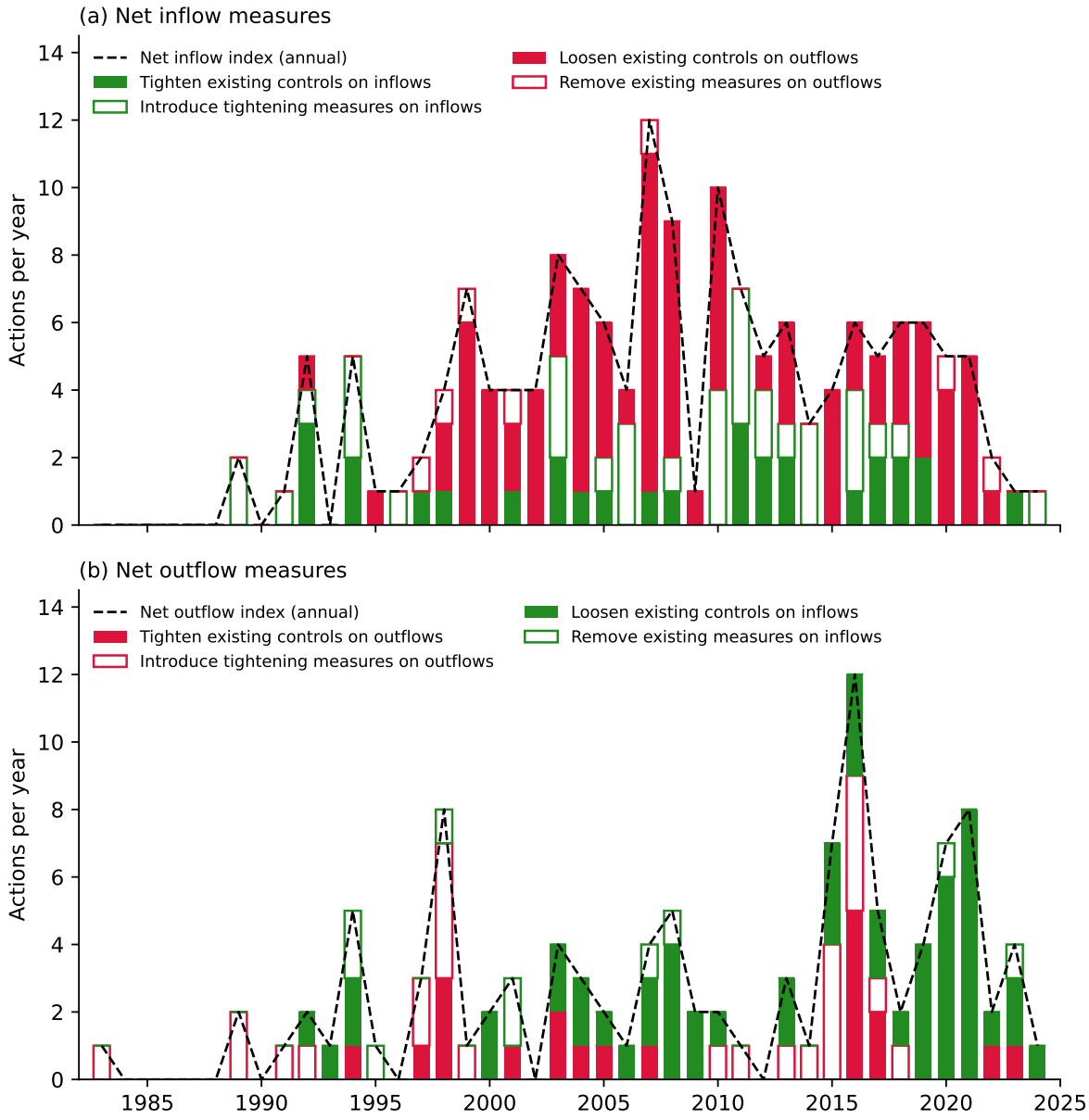

Figure 1: Annual profile of CFM actions, all fourteen economies, 1983–2024: the analogue of BDP Figure 2, at annual frequency. The upper panel decomposes the net inflow measures into the components of NII (inflow tightenings, green, and outflow easings, red); the lower panel decomposes the net outflow measures into the components of NOI (outflow tightenings, red, and inflow easings, green). Solid bars are changes to existing measures; outlined bars are introductions and removals; the dashed line is the annual index, the sum of the components. Measures directed at both sides enter both panels. Counts in early years cover fewer economies because coverage windows differ.

direction is the opposite of the one BDP report for the early part of their sample: the region met the global financial crisis by relaxing restrictions rather than by imposing them.

The middle phase opens on the inflow side. Over 2011–14 the upper panel records seventeen inflow tightenings against four outflow easings, while the lower panel has five bars in all, three outflow tightenings against two inflow easings.[6] These are the years of the post-crisis surge of inflows into emerging markets:

[6] The twenty-six bars of 2011–14 come from twenty-five actions, nineteen of them tightenings; one measure is directed at both sides of the account.

Korea lowered its cap on banks' foreign-exchange derivative positions twice within the window and introduced its levy on non-deposit foreign-currency liabilities in August 2011. The episode is spread across economies: the seventeen inflow tightenings come from eight economies, and no economy has more than four of them. The 2013 taper tantrum produced no comparable cluster: nine actions, four tightenings and five easings.

The phase closes on the outflow side. Over 2015–17 the lower panel records sixteen outflow tightenings against eight inflow easings.[7] Twelve of the sixteen outflow tightenings are China's, three Malaysia's and one Indonesia's. Nine of the sixteen are outlined, that is new restrictions rather than adjustments to existing ones, and eight of those nine are China's. Malaysia's three tightenings are all changes to measures already in force.

The end of the window is the same in both records. BDP report that easing measures drive both indices towards the end of their sample, and the region's record has the same composition: over 2020–21 the upper panel shows ten bars, all red (outflow easings), and the lower panel fifteen bars, all green (inflow easings). What is specific to the region is that the easing has no tightening counterpart at all. The nineteen actions behind those bars are all easings or removals, spread across seven economies, six of which acted in 2020 alone.[8] They fall on both sides of the capital account—inflow restrictions eased to support access to foreign funding, and outflow restrictions eased as a continuation of liberalization already under way.[9]

Outside BDP's window the record continues rather than reverses. Before 2008 the upper panel records forty-nine outflow easings against twenty-eight inflow tightenings, the same composition as within the window, and the easing of 2008–2010 carries it forward. What distinguishes these earlier years is concentration: thirty-four of the forty-nine easings are Malaysia's and a further eight Thailand's, so the early bars record the unwinding of controls in a small number of economies rather than a region-wide stance. These years also cover fewer economies than the later ones.

The lower panel has one spike outside BDP's window, in 1998, when the region records seven outflow tightenings against one inflow easing. Six of the seven are Malaysia's controls of September 1998—the twelve-month holding period on non-residents' proceeds from Malaysian securities, the approval requirement for transfers between external accounts, limits on carrying currency across the border, and the prohibition on ringgit credit to non-resident institutions. These were imposed to stop capital already in the country from leaving, which the index counts as tightenings of outflows. The unwinding begins in 1999, when Malaysia accounts for six of the seven outflow easings of that year, and continues through the years before 2008.

After BDP's window closes the record is mixed: over 2022–24 the upper panel records two inflow tightenings against two outflow easings, and the lower panel two outflow tightenings against five inflow easings, so the easing of 2020–21 was not the beginning of a one-directional movement. Both panels are dominated by their easing component over the full window: the upper panel records ninety-four outflow easings against sixty-five inflow tightenings, and the lower panel sixty-four inflow easings against forty-six outflow tightenings. Figure 2 turns these annual counts into cumulative indices.

Figure 2 aggregates NII, NOI and CI over all fourteen economies, at quarterly frequency, rebased to zero in 2010q1.[10] The two lines are the cumulative net inflow index NII and the cumulative net outflow

[7] The thirty-nine bars of 2015–17 come from thirty-four actions, twenty-one of them tightenings; five measures are directed at both sides of the account.

[8] Six of the nineteen are directed at both sides of the account, which is why the twenty-five bars outnumber the actions.

[9] The absence of any tightening is a property of the AMRO record. Over the same two years and the same economies, BDP record three country-months of tightening that the AMRO compilation does not: China in December 2020 and January 2021, and Singapore in December 2021. These are among the BDP-only action-months of Table 2.

[10] The window begins in 2010q1 because the panel is effectively complete from that year. Ten of the fourteen economies are already covered, and the remaining four—China, Brunei, Korea and Lao PDR—have their first dated entry during 2010. Before 2010 only seven economies record any CFM action, and seventy-two of those 118 actions are Malaysia's, so a cumulative index started earlier would largely trace one economy's history and would step up as economies entered. Annual counts of actions remain informative under uneven coverage, as in Figure 1; a cumulative level rebased to zero does not.

index NOI; the shaded area is CI itself, which BDP call the stance. Over 2010q1–2024q1 NII rises by about 72 and NOI by about 58, so both classes of measures—those limiting net inflows and those limiting net outflows—accumulated in large numbers. BDP take the upward trend of CI in their Figure 4(A) to suggest that policymakers adjusted the scope or magnitude of CFMs intensively in response to the capital flow cycle. The region's authorities were active in the same sense, and the regional CI has the same shape: it rises, falls back, and rises again. The difference is in which of the two rises dominates. In BDP's sample the second is the larger; in the region CI reaches twenty-six by 2015q2, falls to thirteen by 2017q1 and recovers only to twenty-one by 2019q4 before ending at fourteen, so the first rise is never regained.

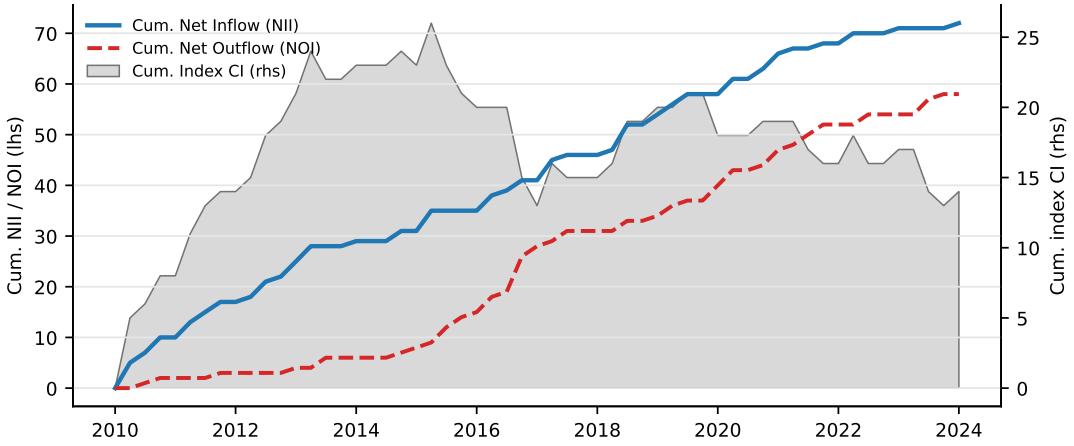

Figure 2: Cumulative net inflow (NII), net outflow (NOI) and net tightening (CI) indices, ASEAN+3 sample aggregate, 2010q1–2024q1, rebased to zero at 2010q1. Lines: left axis; shaded CI: right axis. The analogue of BDP Figure 4(A).

Figure 3 disaggregates the same window by economy, with each panel rebased to zero in 2010q1; the per-economy CI series sum to the aggregate. The sign of CI summarizes the direction of each economy's actions, but only the separate NII and NOI lines show how much activity lies behind it. What the figure cannot show is which side of the capital account an economy acted on, and it is worth saying so before the panels are read. NII and NOI each combine measures on both sides—a rise in NII can be an inflow tightening or an outflow easing—so no line here isolates either side. That information is in the database, and the two cases below are read from the underlying actions; Section 5 builds a cumulative index for each side of the account, and Figure 5 shows the same comparison directly. China's panel can be read at face value. Its NOI line rises to fifteen while its NII line reaches only four, and thirteen of those fifteen components are outflow tightenings, so the negative CI is what it appears to be. Thailand's panel cannot. There the NII line rises to twenty-one while the NOI line barely moves, which invites the reading that Thailand spent the window tightening on inflows. It did not: only two of the twenty-one components are inflow tightenings, and nineteen are outflow easings—the liberalization of resident outward investment—which add to NII because they promote net outflows and so limit net inflows. Thailand's positive CI is therefore a liberalization, and one of the CFMs that regulate its own residents investing abroad, not a tightening of those that regulate foreign agents. The two economies reach opposite signs of CI by acting on the same side of the account—the outflow side—so economies at opposite ends of the CI scale can arrive there through the same class of measures. More broadly, the per-economy CI splits by sign across the region. Most economies sit on the positive, net-inflow-limiting side—Thailand much the largest at about +19, with Hong Kong, Singapore, Indonesia, Korea and Cambodia modestly positive—while China is the main economy on the negative side (about −11), joined mildly by the Philippines and Lao PDR; Malaysia, despite holding the region's largest stock of measures, is close to zero because its many tightenings and easings cancel out. This dispersion of signs is the key point: a single regional aggregate conceals economies moving in opposite directions, and only the per-economy decomposition recovers them.

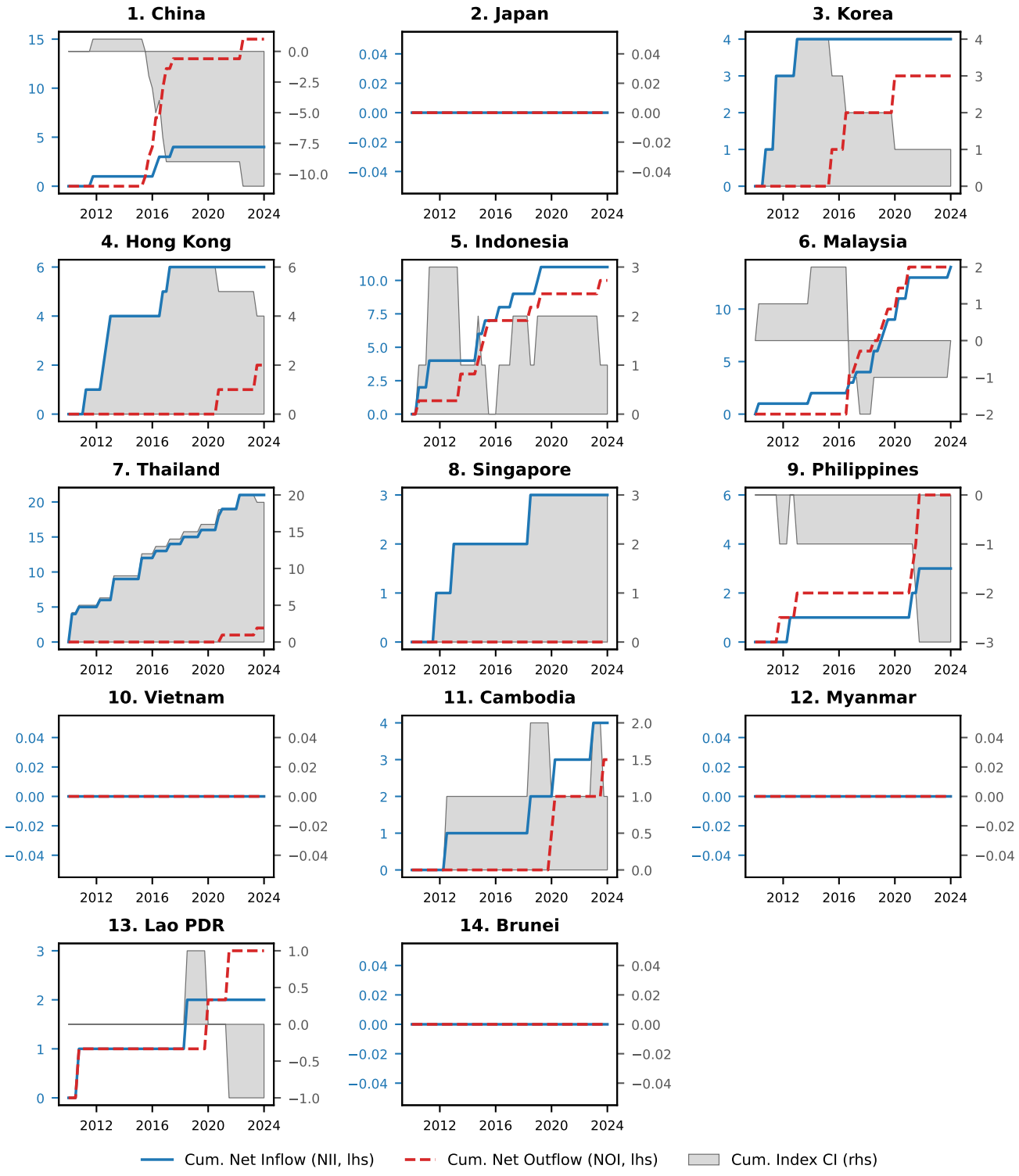

Figure 3: Cumulative NII, NOI and CI by economy, 2010q1–2024q1, each panel rebased to zero at 2010q1 (the analogue of BDP Figure 4, by economy). Lines: left axis; shaded CI: right axis. Per-economy CI series sum to the aggregate of Figure 2.

5 Directed Indices of CFMs on Gross Flows

The NII/NOI decomposition classifies each action, following BDP, by the direction of the *net* flow it works toward: an outflow easing, for example, adds to NII because it promotes net outflows and so limits net inflows. A complementary reading, which goes beyond BDP, classifies each action instead by the side of the capital account it regulates. Measures on inflows regulate cross-border transactions by foreign agents, and measures on outflows regulate those by domestic agents; this is the same distinction the capital-flow literature draws between *gross inflows* and *gross outflows* (Forbes and Warnock, 2012; Zhou and Kitano, 2026c). Define the *inflow-directed* index as the net tightening of CFMs on inflows, $T^{\text{in}} - E^{\text{in}}$, and the *outflow-directed* index as the net tightening of CFMs on outflows, $T^{\text{out}} - E^{\text{out}}$, with measures that regulate both sides entering both indices, as in Table 3.[11] The cumulative versions of these two series satisfy an exact identity with CI:

$$\text{CI}_{it} \;=\; \sum_{k=t_0}^{t} \left(T_{ik}^{\text{in}} - E_{ik}^{\text{in}}\right) \;-\; \sum_{k=t_0}^{t} \left(T_{ik}^{\text{out}} - E_{ik}^{\text{out}}\right), \tag{2}$$

because $\text{NII} - \text{NOI} = (T^{\text{in}} + E^{\text{out}}) - (T^{\text{out}} + E^{\text{in}}) = (T^{\text{in}} - E^{\text{in}}) - (T^{\text{out}} - E^{\text{out}})$; measures directed at both sides cancel in the difference. Figures 4 and 5 are therefore a second decomposition of the same CI, alongside the NII/NOI decomposition of Figures 2 and 3.

Figure 4 applies the decomposition to the regional aggregate, on the same window and rebasing as Figure 2. The two components move in different periods. The inflow-directed index rises through 2010–12 and stays between fifteen and nineteen from 2013 to 2019, so the first rise in CI is a net tightening of CFMs on gross inflows. The eighteen inflow tightenings of 2010–13 come mostly from Korea's limits on banks' foreign-exchange derivative positions and its levy on non-deposit foreign-currency liabilities, Indonesia's holding period on central bank bills and its reserve requirement on foreign-currency deposits, and Hong Kong's and Singapore's stamp duties and loan-to-value caps on non-resident property buyers. The index then falls back to zero by 2024q1: the tightening of the first half of the window is undone in the second, and over the window as a whole the region's thirty-five inflow tightenings are matched by thirty-five inflow easings. The region's CFMs on gross inflows were tightened and then eased again, ending the window where they began. The outflow-directed index stays between -9 and -4 until 2016, rises to $+3$ by 2017q1 as China's controls take effect, and then falls to -14, led by Thailand's liberalization of resident outward investment and by Malaysia's easing of its own outflow CFMs. At 2024q1 the inflow-directed index is back at zero, so by (2) CI is the outflow-directed index with its sign reversed: the outflow-directed index ends at -14 and CI at $+14$. The whole of the regional CI is produced by the net easing of CFMs on gross outflows.

The split adds two facts about the region that Figure 2 cannot show. The first is that a positive CI does not always mean the same thing. CI is positive at every date after 2010q1, but what produces it changes: of the twenty-six at the 2015q2 peak, seventeen came from the net tightening of CFMs on gross inflows, whereas at 2024q1 that component is zero and the whole of the fourteen is the net easing of CFMs on gross outflows. The second is what drives the fall after the 2015q2 peak. From 2015q2 to 2017q1 the outflow-directed index rises from -9 to $+3$ while the inflow-directed index moves only from seventeen to sixteen, so the fall comes from tightening on the outflow side and not from relaxation on the inflow side. Fourteen outflow tightenings fall in this span, eleven of them China's and three Malaysia's. Neither fact can be read from Figure 2, because each of its two lines mixes measures on the two sides of the account.

Figure 5 plots the two cumulative directed indices by economy, with the same CI as Figure 3 shown as the shaded area; all three series share one scale, so the shaded area equals the solid line minus the dashed line at every date. The figure shows directly what the NII/NOI decomposition of Figure 3 could only state in words, and Thailand is where that matters. In Figure 3 Thailand's NII line rises to twenty-one

[11] Cumulative directed indices of this kind are also the form in which the database enters empirical work. Zhou and Kitano (2026a) construct direction- and category-specific cumulative CFM indices from the BDP data to estimate the response of the corresponding gross flows for India, and Kitano and Zhou (2022) conduct a parallel category-level exercise for China.

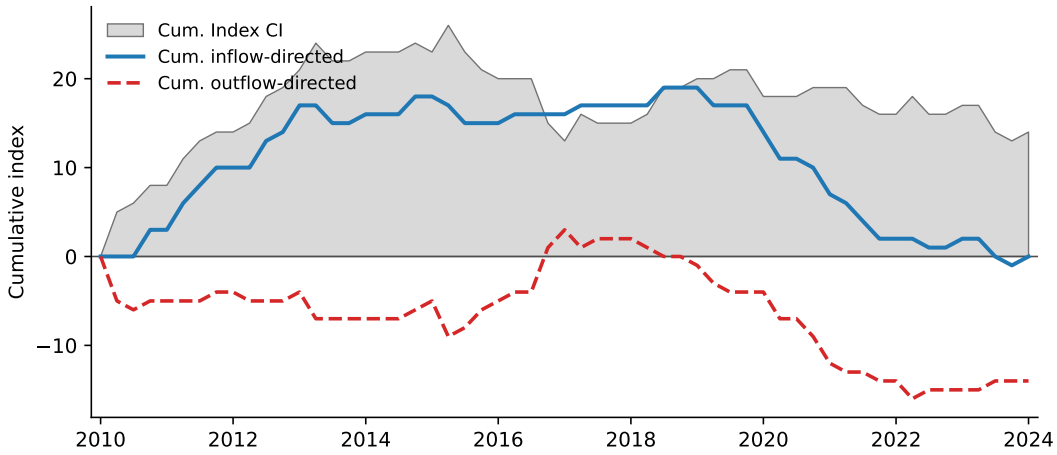

Figure 4: Cumulative inflow-directed and outflow-directed CFM indices, ASEAN+3 sample aggregate, 2010q1–2024q1, rebased to zero at 2010q1, with the cumulative net tightening index CI as the shaded area. All series share one scale; by the identity in (2), the shaded area equals the solid line minus the dashed line at every date. Measures directed at both sides enter both lines and cancel in CI. The aggregate analogue of Figure 2; this decomposition goes beyond BDP.

while its NOI line barely moves, which invites the reading that Thailand spent the window tightening on inflows. Here its inflow-directed line is flat and its outflow-directed line falls to −19, so its positive CI can be read off the panel as a net easing of CFMs on gross outflows. With China the natural reading of Figure 3 turns out to be right, but the figure cannot establish it: a rise in NOI could equally have been inflow easing. The directed indices show which it is. China's inflow-directed line barely moves (+2) while its outflow-directed line rises to +13: its negative CI is a net tightening of the side Thailand eased. The two economies sit at opposite ends of the CI scale, yet in both panels it is the outflow-directed line that moves. The reason lies in the construction of the indices: NII and NOI each combine measures on the two sides of the account—a rise in NII can be inflow tightening or outflow easing, and a rise in NOI can be outflow tightening or inflow easing—so no line in Figure 3 isolates the outflow side. Here it is read directly from a single line: the outflow-directed index, which falls for Thailand and rises for China. Malaysia's panel adds a fact that the NII/NOI panels of Figure 3 cannot show, for the same reason. There, both of Malaysia's lines rise, so the activity itself is visible, but not which side of the account it acts on or in which direction. The directed indices show it: over this window Malaysia eased CFMs on both sides of the account by the same amount (−9 and −9), and its flat CI is the difference of two equal liberalizations.

6 Incidence of Instruments and Functional Categories

Table 3 cross-tabulates the instruments against the direction of policy, with the lower block split by income group; Table 4 does the same for the balance-of-payments functional category. Both cover CFMs and CFM/MPMs only and are the analogues of BDP Tables 6 and 7.

The core regularities of BDP reappear almost exactly. Administrative measures account for the large majority of CFMs (187 of 230). Limits are the single most common instrument (98 actions) and are most often outflow easing (45 of their actions), which reflects the region's gradual liberalization of resident outward investment. Price-based measures go the other way, towards inflows and tightening: 82 percent target inflows and two-thirds of those tighten (eighteen of twenty-seven), close to the roughly 80 percent and two-thirds reported by BDP.

By income group, emerging markets account for the bulk of administrative measures (168 of 187, or 90 percent). The tilt of price-based measures towards inflow tightening comes mainly from the region's ad-

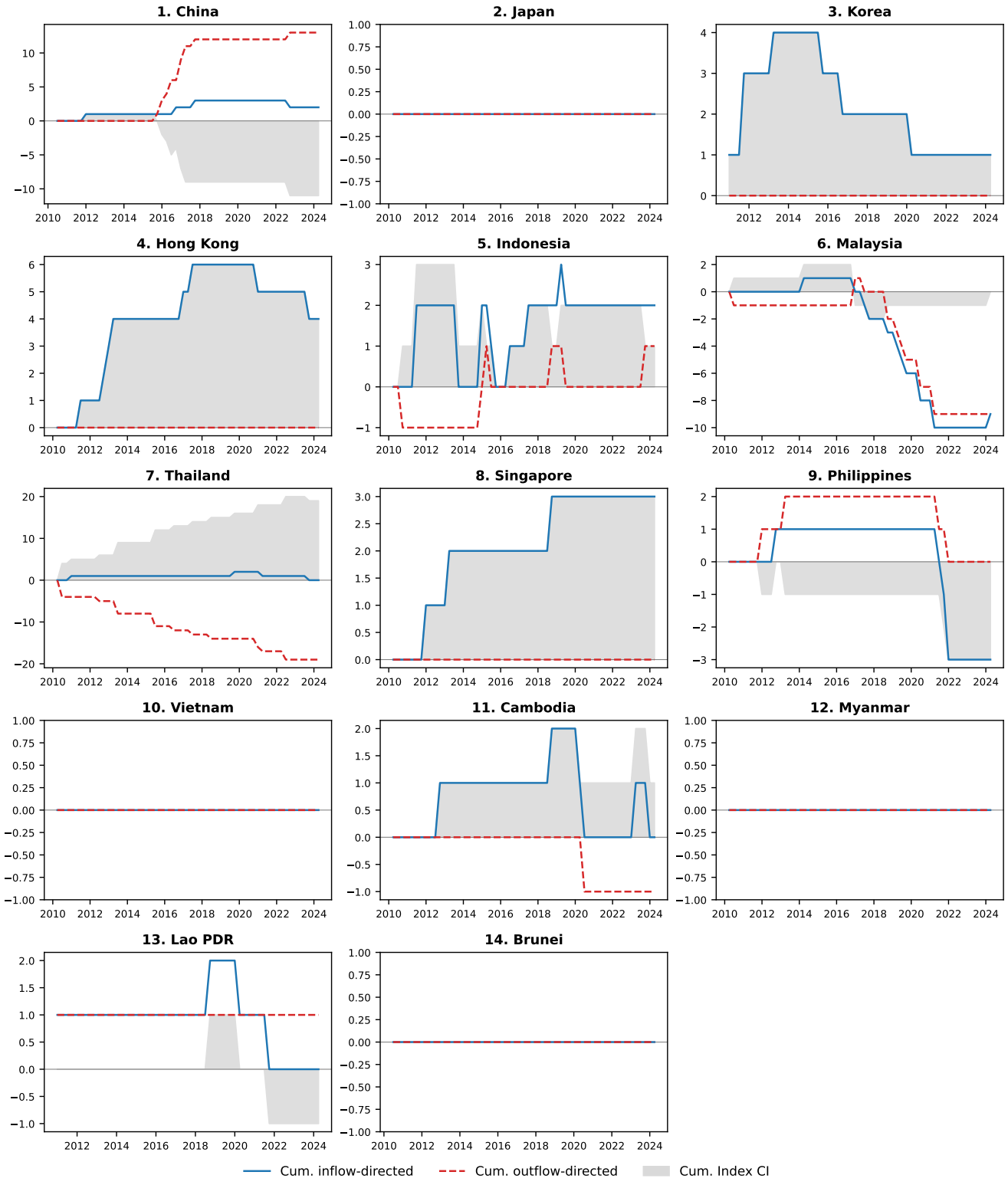

Figure 5: Cumulative inflow-directed and outflow-directed CFM indices by economy, 2010q1–2024q1, with the cumulative net tightening index CI (identical to Figure 3) as the shaded area. All series share one scale; by the identity in (2), the shaded area equals the solid line minus the dashed line at every date. Measures directed at both sides enter both lines and cancel in CI. Panels are rebased to zero at 2010q1 where coverage includes 2010q1; economies whose coverage begins later are shown at raw levels. This decomposition goes beyond BDP.

Table 3: Instruments and the direction of capital account policies (the analogue of BDP Table 6). CFMs and CFM/MPMs only. An action directed at both inflows and outflows is counted in both direction columns but once in "All," so rows need not sum across.

	All	Inflow		Outflow	
Instrument	actions	Tight.	Ease	Tight.	Ease
Administrative					
Approval req.	29	2	17	9	14
Limit	98	27	25	20	45
Limit / approval	10	0	0	1	9
Ban	29	8	7	6	10
Loan-to-value	3	2	1	0	0
Holding period	8	3	2	1	2
Repatriation req.	3	0	0	2	1
Surrender req.	4	0	0	1	3
Surrender/repat.	3	0	0	0	3
Price-based					
Fee	2	1	1	0	0
Reserve req.	16	8	7	1	0
Stamp duty	9	8	1	0	0
Tax	6	1	0	1	4
Other					
Other	10	5	3	4	3
Administrative	**187**	42	52	40	87
Advanced	17	6	4	1	6
Emerging	168	35	47	38	80
Low-income	2	1	1	1	1
Price-based	**33**	18	9	2	4
Advanced	10	8	2	0	0
Emerging	13	5	2	2	4
Low-income	10	5	5	0	0
Other	**10**	5	3	4	3
Total	**230**	**65**	**64**	**46**	**94**

vanced economies: their ten price-based actions are all on the inflow side, and eight of them tighten—Hong Kong's and Singapore's property stamp duties and Korea's levy on non-deposit foreign-currency liabilities. The emerging markets use price-based measures in both directions, and the low-income economies ease as often as they tighten. This matches BDP, who report a heavy use of price-based CFMs by the advanced economies of their sample against housing-sector vulnerabilities.

Table 4: Direction of policy by functional category of the balance of payments (the analogue of BDP Table 7). An action can affect several categories, so column totals exceed the number of actions.

	Inflow		Outflow	
Category	Tight.	Ease	Tight.	Ease
Direct Investment	2	8	6	9
Portfolio Debt	17	14	7	26
Portfolio Equity	4	4	7	27
Financial Derivatives	8	18	6	18
Other Investment	55	42	37	55
of which: Banks	*40*	*35*	*20*	*37*
Total	**86**	**86**	**63**	**135**

On the functional categories (Table 4), the ASEAN+3 results align closely with BDP: "Other Investment," dominated by banking-sector flows, is the most heavily targeted category; portfolio debt and equity follow; and direct investment and financial derivatives attract the fewest measures. The one regional nuance is that outflow easing is especially prominent in the portfolio categories, reflecting the gradual opening of residents' access to foreign securities.

The instrument mix also differs by income group (Figure 6). The emerging markets rely overwhelmingly on administrative instruments (88 percent), while the region's advanced economies use them for 61 percent of their CFMs and price-based measures for 36 percent, reflecting Hong Kong's and Singapore's property stamp duties. The gap between the two groups is much wider than in BDP, where the advanced and emerging economies use administrative measures in almost the same proportion, 67 and 71 percent. The low-income group runs opposite to BDP. In BDP the low-income economies used almost no price-based measures (a single reserve requirement in the entire sample) and relied almost wholly on administrative controls; the region's low-income economies are the reverse, overwhelmingly price-based—ten of their twelve CFM actions are Cambodia's and Lao PDR's currency-differentiated reserve requirements. This difference comes from which economies make up the two low-income groups, not from a general difference in how low-income economies choose their instruments.

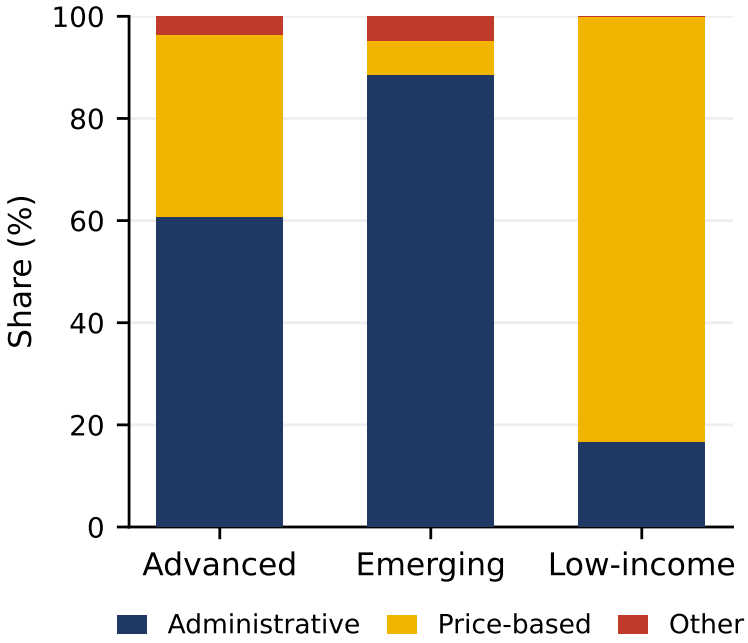

Figure 6: Price-based, administrative and other CFMs by income group, as a share of the group's CFMs (the analogue of BDP Figure 6(a)).

Figure 7 adds the time dimension, showing, for each income group, the share of each instrument in the group's CFM actions by year. Limits and approval requirements are the two main instruments of the emerging markets over the period plotted (31 and 27 percent of their actions), while stamp duties and limits are those of the advanced economies (44 and 28 percent). Stamp duties are an advanced-economy instrument in BDP as well, used there only by Australia, Hong Kong and Singapore. The place of approval requirements is where the emerging-market panel departs from BDP. Limits dominate that panel throughout in BDP Figure 6(b), whereas here approval requirements are almost as common as limits, and they come from five economies—Malaysia (ten actions), China (eight), Indonesia and Thailand (two each) and the Philippines (one). The low-income panel, though sparse, differs from BDP in kind: BDP's low-income group relied heavily on surrender and repatriation requirements to build foreign-exchange reserves, whereas the region's low-income economies use none of these—their few measures are the reserve requirements of

Cambodia and Lao PDR. Both groups act on foreign exchange, but with different instruments.

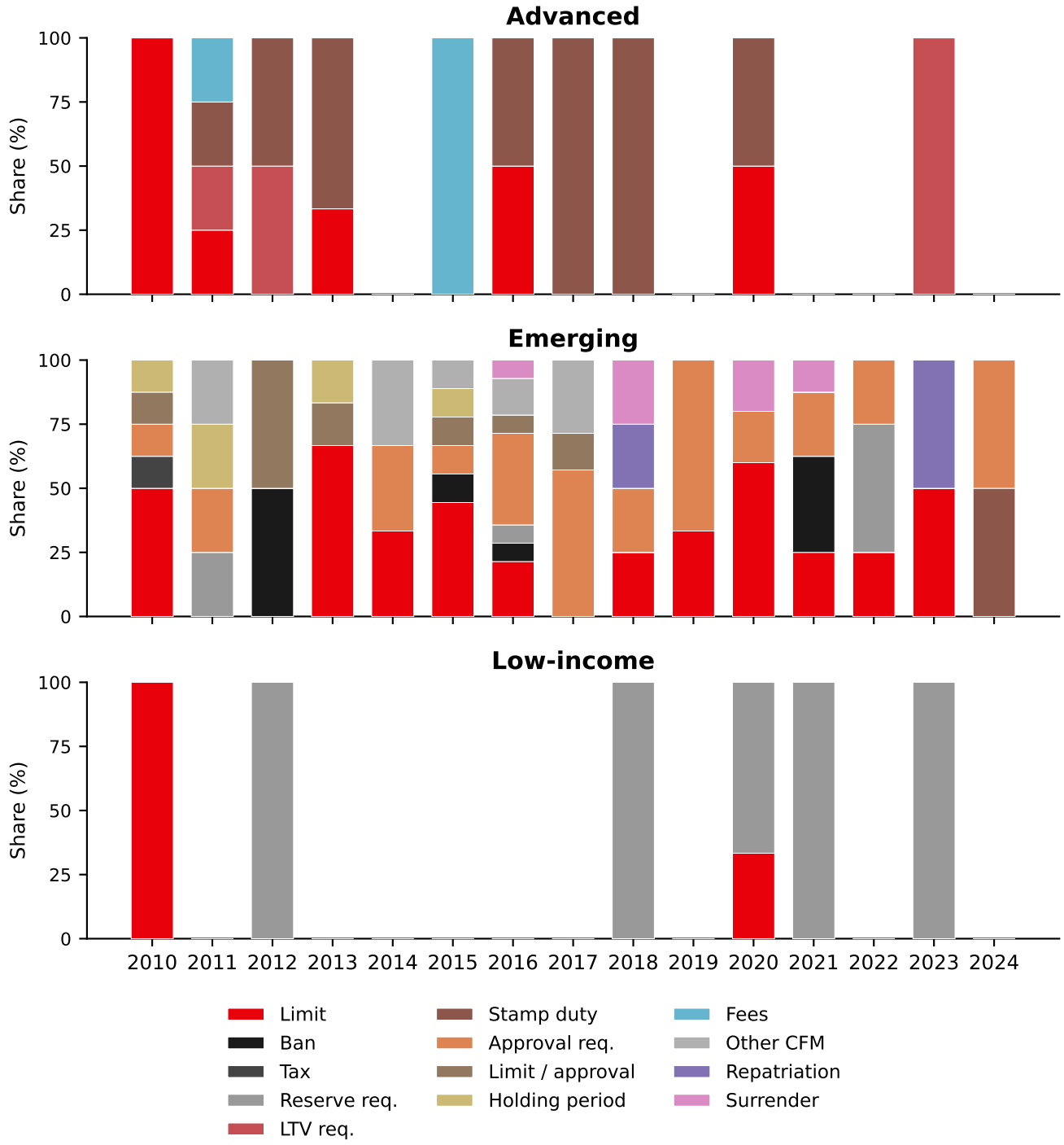

Figure 7: Relative use of CFM instruments by income group over time, as a share of the group's CFM actions each year (the analogue of BDP Figure 6(b)).

Where the samples agree, and where they diverge

Four main differences from BDP emerge, and each can be traced to the regional composition of the sample rather than to a coding inconsistency. First, administrative measures are directed at outflows less

strongly than in the full sample (67 percent here versus about 80 percent in BDP), because the crisis-era outflow controls of Greece, Iceland and Ukraine that drive BDP's skew toward outflows are absent from the region. Second, bans are not exclusively an outflow instrument here—16 of 29 target outflows and 15 target inflows—because the region used prohibitions on the inflow side as well (for example Thailand's ban on non-deliverable forwards), whereas in BDP bans are almost entirely a crisis-era outflow instrument, with two of their forty-six targeting inflows. Third, the low-income direction pattern is reversed (all twelve low-income CFM actions target inflows—two of them outflows as well—against six of BDP's thirty-five), but the count is tiny and comes almost entirely from Cambodia's and Lao PDR's currency-differentiated reserve requirements; with so few actions, the reversal says more about which economies are in the group than about low-income policy in general. Fourth, taxes are less inflow-oriented, as the region relies on reserve requirements and stamp duties instead. These are differences in what the two samples contain, not in how the measures are coded. On the main patterns—which instruments are used most and which balance-of-payments categories are targeted most often—the two databases agree, even though each was built separately from a different source. The instrument mix by income group is where they part: the region's emerging markets use administrative instruments more heavily than BDP's (88 against 71 percent), and the low-income group runs the other way, for the compositional reason above.

7 Recalibration of Existing Measures and the Limits of Stock-Taking

The indices so far classify actions by the direction of the flows they regulate. This section sets that direction aside and follows the *measures* instead: how often each is adjusted after its introduction, whether the adjustments tighten or ease, and what stands in force at the end. One number per action is enough for this reading, and the index that carries it is the simplest the database supports. The *undirected CFM index* counts an economy's CFM actions in a month—tightening against easing—without distinguishing inflows from outflows. Following BDP, the index is inverted: positive denotes easing, so that its cumulative version reads like an annual openness index, with higher meaning more open. Formally, let T_{it} and E_{it} be the numbers of CFM tightenings (or introductions) and easings (or removals) of any direction by economy i in month t, each action counted once even when it is directed at both sides. The *cumulative CFM index* is

$$\mathrm{CUM}_{it} \;=\; \sum_{k=t_0}^{t} \big(E_{ik} - T_{ik}\big), \tag{3}$$

computed over the economy's own coverage span. This is a different object from CI. In (1) an inflow easing and an outflow easing enter with opposite signs; in (3) both count as easing and raise the index, so the same economy can have a CI of one sign and a CUM of the other. BDP plot the undirected index economy by economy (their Figure 7) to compare it with annual indices from other sources. We do not pursue that comparison: the index is reported here through its endpoints—the "Cum. CFM" column of Table 5—and through one excerpt at readable scale (Figure 8); Appendix Figure A.1 reports it in full for all fourteen economies.

The central observation of the monthly record parallels BDP: there are significant intra-year changes to capital account policies, and most economies use both tightening and easing measures, often within a single year. Here the distinction between a measure and an action matters: a *measure* is a single regulation, and an *action* is a dated change to one—its introduction, adjustment, easing or removal—so one measure can generate many actions (Section 2). Of the 230 CFM actions, only 54 are introductions of new measures; the remaining 176 (77 percent) adjust, ease or remove a measure already on the books. The 230 actions are spread over 83 distinct measures, an average of 2.8 actions per measure, and 29 measures record three or more actions. The most-adjusted measures show the style of policy: Thailand's ceiling on outward portfolio investment by mutual funds was changed thirteen times over the sample, and Malaysia's restrictions on ringgit credit between residents and nonresidents eleven times. As in BDP, capital account policy in the region works mainly by recalibrating existing instruments rather than by creating new ones.

This two-directional recalibration is precisely the high-frequency feature that annual indices, by construction, obscure. In the ASEAN+3 record, 17 of the 110 economy-years with at least one CFM action contain both a tightening and an easing—these years account for 75 of the 230 actions—and in six measure-years the *same* measure is tightened and eased within a single year. A year-end snapshot would record little or no net change in these years despite active management. Figure 8 shows the pattern at a readable scale in the Malaysian record of the 1990s, a window in which every action carries a documented month. The inflow controls introduced in January–February 1994 are removed in August of the same year; the August 1997 ban on short selling is lifted the following month; and in February 1999 the graduated exit levy is introduced in the month the twelve-month waiting period is abolished, so even at monthly frequency the index nets to zero—the levy is then eased in March.

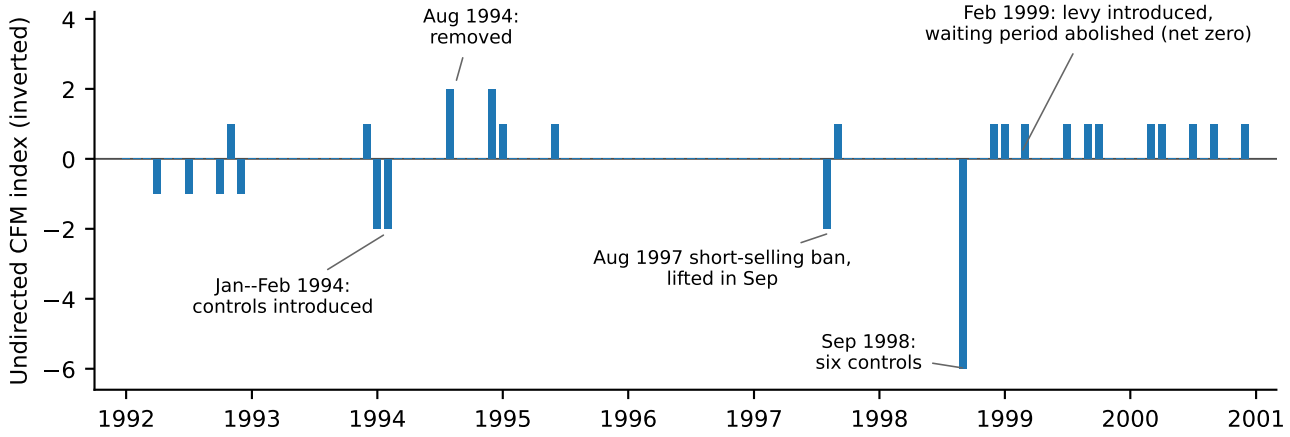

Figure 8: The undirected CFM index for Malaysia, 1992–2000, inverted (positive = easing). Positive bars count measures eased or removed in the month, negative bars measures introduced or tightened (equation (3) cumulates these bars). All 38 actions in this window carry a documented month.

A stock-taking reading asks a different question of the same record: not what was done to the measures, but what is in place. BDP take this view in their Table 9, which classifies each economy by the number of years its CFMs were in place over the 2008–2021 sample: *All* (a wall) if a CFM in place at the start of the sample is still in place at the end; *Some* (a gate) if a CFM introduced during the sample is in place at the end; and *Few* (open) if in-sample CFMs were removed before the end. The wall/gate vocabulary comes from Klein (2012), whose classification Fernández et al. (2016) apply to a broad range of countries; BDP's count-based rule is analogous to that classification rather than identical to it, since Klein classifies by the share of transaction subcategories subject to controls.[12] The thresholds 2008 and 2021 are the first and last years of BDP's sample, not absolute dates; what matters is whether a measure was already in place when observation began. The classification below follows BDP's method.

Because the ASEAN+3 database does not share a single common window—the record of CFM actions begins as early as 1983 for Singapore and as late as 2010–11 for China, Hong Kong, Korea and Lao PDR—a fixed calendar threshold would misclassify economies whose record starts late: a structural control already in place when observation began, but first recorded only later, would be read as a within-sample introduction. We therefore adapt the BDP logic to each economy's own observation window. A measure is treated as predating observation—a structural "wall" element—when its first recorded action is not an introduction but a tightening, easing or removal (left-censored), or when it is a standing measure; such measures must already have existed when the record opens. Table 5 reports the result. This adaptation reproduces BDP's classification of China and Malaysia as walls, which a fixed-2008 threshold would not, because it correctly treats China's pre-observation controls— recorded from 2011 as tightenings of existing

[12] Zhou and Kitano (2026b) examine whether the effectiveness of capital controls differs between walls and gates.

measures—as structural. The classification is possible only because the record is at the action level: whether a measure predates observation is read from the dated sequence of actions on that measure, and the "Cum. CFM" column of Table 5 is the endpoint of the cumulative index (3).

Table 5: Walls, gates and open regimes in the ASEAN+3 (stock-taking classification, adapted to each economy's observation window; the analogue of BDP Table 9). "Origin" records whether the economy's standing CFMs predate its observation window (*predates* = wall), were introduced within it (*in-window* = gate), or were introduced and then removed (*removed* = open). "Of which: eased" counts in-force measures eased at least once; "Cum. CFM" is the endpoint of the cumulative CFM index (3) (positive = more open).

Economy	Class	Origin	CFM meas.	In force	of w. eased	Cum. CFM
China	Wall	predates	13	13	2	−13
Hong Kong	Gate	in-window	4	2	0	−4
Indonesia	Wall	predates	10	10	4	−11
Korea	Gate	in-window	2	2	2	−1
Malaysia	Wall	predates	27	19	16	+46
Singapore	Gate	in-window	3	2	1	+2
Thailand	Wall	predates	14	11	7	+26
Philippines	Wall	predates	14	14	4	−5
Vietnam	Wall	predates	5	5	0	0
Cambodia	Wall	predates	2	2	2	0
Lao PDR	Gate	in-window	2	2	1	0
Myanmar	—	—	0	0	0	0
Japan	Open	removed	1	0	0	+1
Brunei	—	—	0	0	0	0

The "Cum. CFM" column summarizes each economy's flow record in one number. Thailand and Malaysia are strongly positive (+26 and +46), their liberalization of outward investment dominating; China, Indonesia and the Philippines are negative (−13, −11 and −5) as their measures accumulate; Hong Kong is negative (−4) with its residency-based property measures; and Japan, Brunei, Myanmar and Vietnam are at or near zero, with few or no dated CFM actions.

The "Origin" column makes the classification easy to interpret, because the counts alone do not. Korea and Cambodia are the clearest case: each has two CFMs, both still in force and both eased at least once, and their cumulative CFM columns are almost identical, yet Korea is a gate and Cambodia a wall. The difference is one of timing, not size. Both of Korea's measures were introduced within its observation window—the cap on banks' foreign-exchange derivative positions in October 2010 and the macroprudential levy on non-deposit FX liabilities in August 2011—so its standing stock is entirely "Some," a gate. Cambodia's stock, by contrast, includes a standing limit on banks' net open positions whose only recorded action is an easing in June 2020, when the restriction on positions in the national currency was removed: the limit itself predates the record and is observed solely as an easing (left-censored), which counts as "All," a wall. It is the origin of the in-force stock, not its count or its cumulative CFM index, that places an economy on one side or the other.

Two caveats, both arising from the nature of the stock measure, should be read alongside the table. First, the classification turns on whether measures are still formally in force, not on whether they still bind. The stock does not distinguish tightening from easing: a measure that has been substantially eased but not formally repealed still counts as one in force. The right-hand columns show this. Malaysia and Thailand are classified as walls, yet sixteen of Malaysia's nineteen in-force measures and seven of Thailand's eleven have been eased at least once, and the cumulative CFM index of both is strongly toward openness (+46 and +26). Malaysia is the clearest example of this problem: it built up many controls during the 1997–98 Asian financial crisis and then removed them gradually over the 2000s, without formally repealing every one. A high in-force count therefore reflects the breadth of the standing regulatory apparatus, not the current restrictiveness of the capital account; classifying an economy as a wall on the strength of its stock

alone can be misleading.

Second, two economies are classified differently from BDP, and the two divergences have different causes. Indonesia is a "wall" here but a "gate" in BDP. This difference comes from the length of the record, not from the coding: BDP's record begins in 2008 and first sees Indonesian CFMs as introductions in 2010–11, so Indonesia's standing stock reads as in-window; the record here is longer and shows that part of Indonesia's standing apparatus—the foreign-exchange reserve requirement, whose first recorded action is a 2011 tightening of an existing rule, and its standing withholding tax—predates observation. This is the same left-censoring that the per-economy adaptation is designed to detect. Hong Kong, by contrast, is a "gate" here but "open" in BDP, and this divergence is a difference in what each record contains, not in the window. The present record carries four Hong Kong CFMs, all residency-differentiated property measures—the Buyer's Stamp Duty, the doubled ad valorem duty and its successor, the New Residential Stamp Duty, and a non-resident loan-to-value limit—introduced from 2011 to counter a housing boom, with two still in force at the March 2024 cutoff, which makes Hong Kong a gate under a rule that counts in-force CFMs.[13] The divergence from BDP is explained by the coverage of the two records, and here the regional database is the fuller one. BDP classify Hong Kong as open under their years-with-CFM rule: their Table 9 records one instrument for Hong Kong and treats it as introduced within the sample and removed before the end. The AMRO database records four measures—the three stamp duties and the residency-differentiated loan-to-value cap, which does not appear among Hong Kong's instruments in BDP's Table 5—and two of them are still in force at the end of the window. When the same counting rule is applied to this fuller record, Hong Kong becomes a gate. The divergence is therefore a gain from the regional database rather than a disagreement: the AMRO record captures a sustained residency-based tightening of the property market that the global Taxonomy does not, and the "gate" classification carries that additional information.

8 Conclusion

For the ASEAN+3, the monthly, action-level database built here covers all fourteen economies, including the seven that BDP's sample does not cover, over a window that runs through March 2024. The effective-month verification is what makes the monthly reading possible: it raises the share of actions with a documented month from 75 to 88 percent. The two databases are complementary, and the AMRO source adds the regional measures that the IMF Taxonomy does not separately record, most clearly for Indonesia and Thailand.

The database reproduces the instrument-level and functional-category regularities that Binici, Das and Pugacheva (2024) document for a broader sample: price-based measures are directed mostly at inflows and tightening, administrative measures dominate and are most often outflow easing, and bank-oriented "Other Investment" is the most heavily targeted category. Because our regional sample is not the same as BDP's, the picture differs in three ways: inflow and outflow measures are more evenly balanced, the crisis-driven outflow controls that are prominent in BDP are mostly absent, and a steady, long-run easing of restrictions on residents investing abroad appears throughout the CI figures. The timing is different. BDP's two indices are driven by tightening early in their window and by easing at the end. The region has three phases instead: it eased over 2008–10, tightened in the middle of the window—on inflows over 2011–14 and on outflows over 2015–17—and eased again in 2020–21, when every recorded action was an easing. The instrument mix by income group differs as well: the region's emerging markets rely on administrative

[13] This differs from the classification of Fernández et al. (2016), who record Hong Kong as open. The two count different things. Following BDP, measures that discriminate by residency are treated here as CFMs even when their instrument is macroprudential, and all four Hong Kong measures are of this kind: stamp duties on residential purchases from which permanent residents are exempt, and a loan-to-value cap on mortgage lending to applicants whose income comes from outside Hong Kong (Appendix A.1 and A.4). The index of Fernández et al. codes whether transactions in a capital-account subcategory are subject to controls, and a residency-differentiated tax or lending limit is not such a control. The "gate" label follows from counting measures in force under the first convention, not from any restriction on capital-account convertibility.

instruments more heavily than BDP's. And, as in BDP, policy works mainly by recalibrating existing instruments: 77 percent of the region's CFM actions adjust a measure already on the books.

Classifying each action by the side of the capital account it regulates, rather than by the direction of the net flow it works toward, adds facts that the BDP indices cannot show. Over 2010q1–2024q1 the region tightened CFMs on gross inflows thirty-five times and eased them thirty-five times, so the inflow-directed index ends the window where it began. CI therefore rests entirely on the outflow side: the outflow-directed index ends at −14 and CI at +14, the same number with its sign reversed. The region's positive CI is the record of a liberalization of CFMs on gross outflows, not of a tightening on inflows. What produces CI also changes over the window: CI is positive at every date after 2010q1, but seventeen of the twenty-six at its 2015q2 peak came from the net tightening of CFMs on gross inflows, and that component is zero at the end. The same split resolves a case the net indices leave open. Thailand's NII line rises to twenty-one, which suggests that it spent the window tightening on inflows; the directed indices show a net easing of CFMs on gross outflows instead, and China's negative CI a net tightening of the same side.

The comparison also clarifies the interpretation of a "stock-taking" view of the data. A walls/gates classification adapted to each economy's observation window reproduces BDP's classification of China and Malaysia as walls, but the exercise shows that an in-force count says nothing about whether measures still bind: Malaysia is the region's clearest "wall" by stock yet its most liberalizing economy by flow. The two economies classified differently from BDP illustrate two distinct sources of divergence: Indonesia becomes a "wall" once its record is read over a longer observation window, and Hong Kong's "gate"—"open" in BDP—reflects the fuller coverage of the regional record, which carries Hong Kong's residency-based property measures, two of them still in force. In both cases the regional record adds information rather than contradicting BDP. The database is released with the paper as an Excel workbook, together with the coding conventions and the month-by-month reconciliation against BDP.

Appendix A: Coding conventions and data construction

Quantifying a textual compilation requires judgment at several points. The conventions below were applied consistently and are recorded in the per-action notes, so that any user can audit or revise them.

A.1 CFM versus MPM

Each measure is classified as a CFM or a pure MPM from the AMRO narrative. Pure macroprudential measures—those that do not, by design, act on cross-border flows—are excluded from the CFM indices and aggregated into a separate MPM index and MPM in-force stock. Measures that discriminate by residency or currency, or that otherwise bear on the cross-border flow of capital, are treated as CFMs (or CFM/MPMs) and enter the CFM indices. Of the 446 index-affecting actions, 230 are CFMs and 216 are MPMs.

A.2 Currency-differentiated reserve requirements

Reserve requirements that fall differentially on foreign-currency deposits or on certain debt inflows are treated as price-based inflow CFMs, consistent with BDP; uniform reserve-requirement changes that do not discriminate by currency or residency are treated as MPMs. The Indonesian foreign-exchange reserve requirement and the Cambodian reserve requirement on foreign-currency deposits are coded as CFMs on this basis.

A.3 Net open foreign-exchange position limits

Limits on banks' net open foreign-exchange position are coded as in/out-flow CFMs (instrument: limit), following BDP, since they constrain banks' ability to intermediate cross-border currency flows. The In-

donesian net-open-position series, recalibrated repeatedly between 2003 and 2015, is the leading regional example.

A.4 Property transfer taxes and stamp duties

A distinction is drawn between residency-differentiated and uniform property taxes. Residency-differentiated duties—Hong Kong's Buyer's Stamp Duty and its residency-differentiated ad valorem duties (the doubled duty and the New Residential Stamp Duty), Singapore's Additional Buyer's Stamp Duty, and Malaysia's non-citizen stamp duty—are coded as price-based inflow CFMs, matching BDP over the overlapping window. Uniform anti-speculation duties that do not discriminate by residency—Hong Kong's Special Stamp Duty and Singapore's Seller's Stamp Duty—are coded as MPMs, consistent with BDP's treatment of the Singapore duty. This convention is what places the two Hong Kong Special-Stamp-Duty actions among the MPMs rather than the CFMs, and so underlies the 230/216 split.

A.5 Anti-speculation measures on the domestic currency

Measures aimed at curbing offshore speculation against the domestic currency—limits on non-resident local-currency accounts, caps on local-currency lending to non-residents without an underlying transaction, and bans on non-deliverable forwards against the domestic currency—are coded as inflow CFMs, again following BDP. The Thai non-resident-baht-account and baht-lending measures of 2003, and the Singapore-dollar non-internationalization policy, are coded on this basis.

A.6 Effective-month verification: sources and two by-products

The month verification of Section 2 drew on national legal and regulatory records: Bank Indonesia PBI and PADG regulations cross-checked in the BPK and OJK gazette databases; National Bank of Cambodia Prakas; the State Council notices and PBOC and NDRC circulars behind China's housing measures; State Bank of Vietnam resolutions and directives; Monetary Authority of Singapore notices; Bangko Sentral ng Pilipinas circulars and memoranda; and Bank of Thailand circulars, alongside central-bank research and BIS country papers. Each verified action records the regulation number and date in its notes field. Two by-products of the exercise are worth recording. First, several long-standing measures were tied to their founding regulation: the Indonesian net-open-position series to its sequence of PBI amendments (2003–2015), the Singapore-dollar non-internationalization policy to the Monetary Authority's November 1983 statement and its July 1992 revision, and China's housing measures to the named State Council and PBOC packages (the "Ten Articles" of 2010, the "Eight Measures" and the Shanghai–Chongqing property-tax pilot of 2011, the "Five Articles" of 2013, the "330" easing of 2015, and the "three red lines" of August 2020). Second, the cross-checking exposed a dating error in the source: the Indonesian green-property loan-to-value relaxation, listed under 2020, was in fact effective in December 2019 under PBI 21/13/PBI/2019; it was corrected in the database, with the correction recorded in the notes.

A.7 One announced measure at the sample boundary

One action lies outside the monthly panel. The relaxation of the conditions of the Malaysia My Second Home programme is listed in the AMRO source under 2024 with no effective month, and with wording that indicates a change announced but not yet implemented at the database's March 2024 cutoff. The action is included in the action counts of this paper—it is one of the 230 CFM actions and appears in Tables 3 and 4—but, with its year-only date imputed to June 2024, it falls after the end of the monthly panel (March 2024) and therefore does not enter the monthly indices, Appendix Figure A.1, or the cumulative column of Table 5. If it were included, Malaysia's cumulative CFM index in Table 5 would be +47 rather than +46; no other statistic in the paper is affected. The action is flagged in the notes field of the Actions sheet.

A.8 The undirected CFM index by economy

Figure A.1 reports, for reference, the undirected CFM index and its cumulative sum (3) for all fourteen economies. BDP plot the corresponding figure (their Figure 7) to compare the index with annual openness indices from other sources, a comparison this paper does not pursue; the figure is therefore reported here rather than in the main text.

Data availability

The database is released as an accompanying Excel workbook (`asean3_cfm_mpm_index_ver36.xlsx`). It contains an Actions sheet with every coded action—its instrument, direction, sign, functional-category flags, month-known flag and a notes field citing the underlying regulation for each verified date—together with a monthly Data panel and an annual Data_Annual panel of the net inflow, net outflow, cumulative and in-force stock indices used throughout this paper, a Readme documenting the coding conventions and the dating change-log, and a BDP_Reconciliation sheet giving the month-by-month comparison of Table 2. The Data panel also carries the cumulative directed indices of Figure 5 (columns `inflow_index_cum` and `outflow_index_cum`, which include measures directed at both sides), so the identity `ci_cum` = `inflow_index_cum` − `outflow_index_cum` holds row by row. All figures and tables in this paper are computed from that workbook, so the results are fully reproducible from the released data. For monthly or quarterly work we recommend restricting to actions with mk=1 or mk=2, or using the year-end values of the cumulative and stock columns, which are invariant to the June imputation; the annual panel is unaffected by it. One boundary case is recorded in Appendix A.7.

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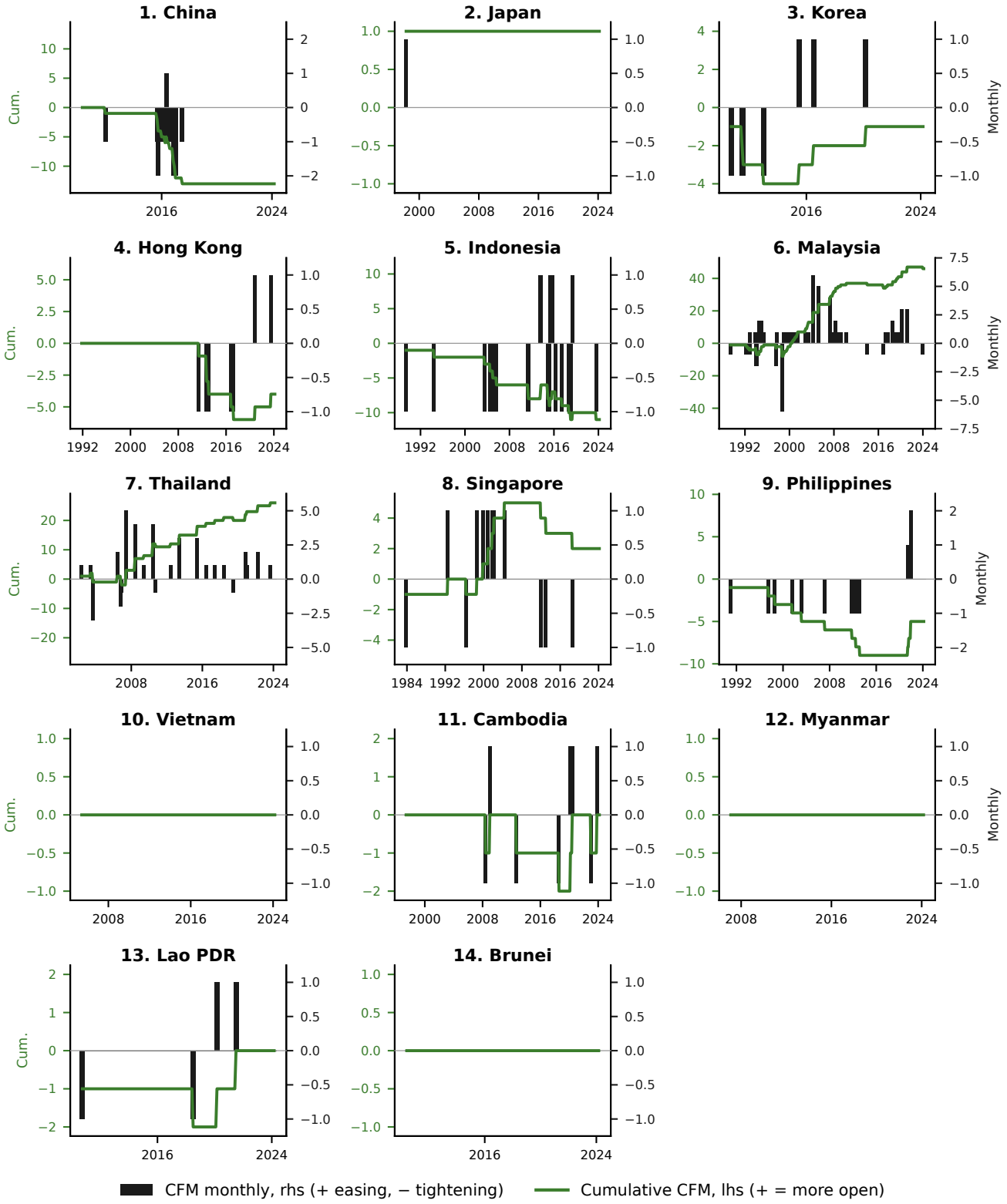

Figure A.1: Undirected CFM index (monthly bars) and its cumulative sum (line) by economy, following BDP Figure 7. CFMs are inverted so that positive values indicate more openness (easing or removal); the line is the cumulative CFM index (3). Each panel uses the economy's own coverage span.

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