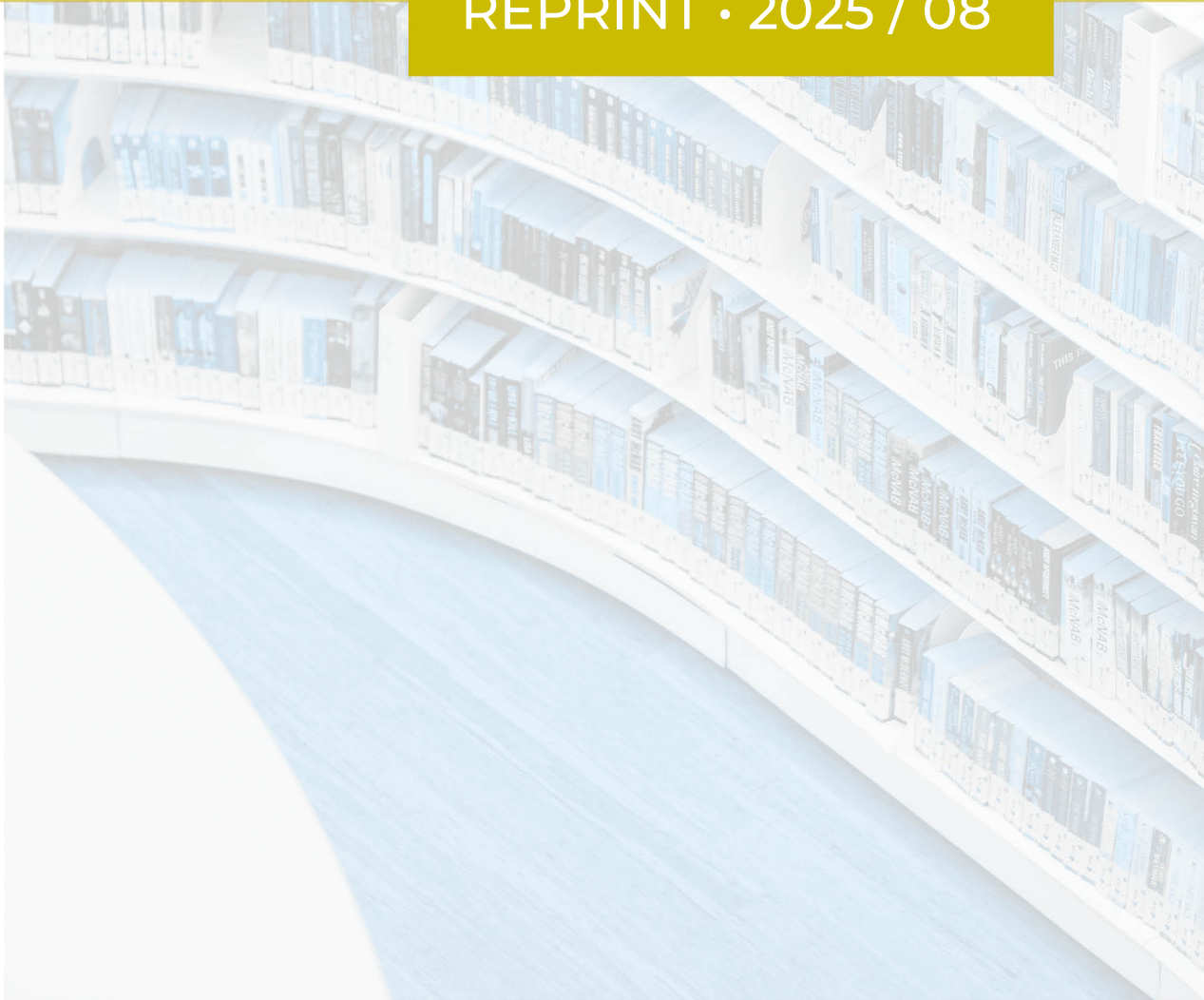


CONVERGENCE VS. DIVERGENCE IN EMERGING MARKET SOVEREIGN SPREADS

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Convergence vs. Divergence in Emerging Market Sovereign Spreads

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Introduction

Sovereign spreads in emerging market economies (EMEs) are typically found to be driven by both domestic or country-specific and global factors. In this context, the movements of sovereign spreads over time can be generally viewed as a balancing act between external (global) factors leading to common dynamics that give rise to convergence across emerging market sovereign spreads and country- or region-specific characteristics implying divergence across EMEs. Using a compact VAR setting, this study provides evidence on the implications of the most recent shock episode—the onset of the Covid-19 pandemic and the subsequent inflation surge (2021-23)—for sovereign spreads in three groups of EMEs: Latin America, Emerging Europe, and Emerging Asia. In particular, the analysis aims to explore (i) the extent to which sovereign spreads showed signs of convergence or divergence both within and across EME regions, and (ii) what role the onset of the Covid-pandemic played in terms of changing these dynamics.

Determinants of sovereign spreads

The determinants of sovereign spreads in emerging market economies have been a fertile ground for academic research and policy discussions. Starting with the seminar work by Edwards (1984), many studies have attempted to shed light on the factors that have an impact on sovereign spreads in emerging market economies. Some of these studies include Ciarlone, Piselli, and Trebeschi (2009), Bellas, Papaioannou, and Petrova (2010), Baldacci, Supta, and Mati (2011), Csonto and Ivaschenko (2013), and Hadzi-Vaskov and Ricci (2022). Among others, these analyses identify a multitude of factors that play an important role in determining sovereign spreads, including various indicators capturing the fiscal situation and developments (such as gross or net public

debt, fiscal balances), general macroeconomic conditions (real GDP growth, inflation), developments in the external sector (reserves, current account movements, and external debt metrics), as well as indicators that gauge global financial market conditions (VIX and U.S. interest rates).

Origins of divergence

In general, the forces driving emerging market spreads may be classified in two groups – those that lead to common movements across different EMEs and others that lead to differences among individual EMEs. On the one hand, global developments and financial conditions affect overall movement of capital flows into or out of EMEs, treating all or most EMEs as a compact group. For instance, Csonto and Ivaschenko (2013) report that global factors are the main determinants of spreads in the short run. Similarly, Bellas, Papaioannou, and Petrova (2010) report that overall financial volatility is a more important determinant of spreads than fundamentals in the short run. To some extent, this dimension is related to the literature on contagion in which change in financial conditions in one market is quickly translated into other markets, thereby amplifying the initial shock.

On the other hand, country-specific fundamentals, especially captured by changes in fiscal indicators, lead investors to distinguish between different EMEs based on their perceived risk profiles. In turn, such country- or region-specific characteristics may result in divergence of spreads among EMEs even when they are faced with the same type of global shock or global (financial) conditions. In this case, investors may critically distinguish between EMEs in search of those that are perceived as less risky (reflecting developments in fiscal, financial, or external indicators, for example), thereby implying behavior similar to “flight-to-quality” (Beber et al., 2009).

Recent shock episodes

Emerging markets seem to have shown higher resilience to global interest rate volatility in the most recent episodes compared to previous ones (GFSR, October 2023). For instance, the October 2023 GFSR finds that the average sensitivity of sovereign yields in emerging markets to US interest rates declined considerably (between two-thirds and two-fifths) in the course of the monetary policy tightening

cycle in response to the inflation surge compared to the previous shock episodes, such as the taper tantrum. Nonetheless, GFSR October 2024 also points out that emerging markets and frontier economies with weak and worsening fiscal buffers have seen relative widening of sovereign bond spreads compared to other jurisdictions.

The analysis sheds light on the behavior of sovereign spreads in two period. First, it delves into the dynamics of emerging market sovereign spreads in the period from the early 2000s—including turmoil episodes such the Global Financial Crisis and the taper tantrum—until the onset of the Covid-pandemic. Second, the analysis explores the impact of several recent shocks on the convergence vs divergence of sovereign spreads in EMEs, such as: (i) the Covid-19 pandemic; and (ii) inflation surge (2021-23) and ramifications from the associated policy tightening. To our knowledge, this is the first study looking at divergence vs convergence of EM sovereign spreads around these most recent shocks.

The rest of the paper is organized as follows. Section 2 describes the dataset, and Section 3 presents the methodology and empirical strategy. Results are discussed in Section 4. Section 5 provides concluding remarks.

Data

Series on sovereign bond spreads for emerging market economies come from JP Morgan's Emerging Market Bond Index Global (EMBIG). Overall, the dataset includes sovereign spreads for six economies from Latin America (Brazil, Chile, Colombia, Mexico, Peru, and Uruguay), four economies from Emerging Europe (Hungary, Poland, Serbia, and Turkey), and four economies from Emerging Asia (China, Indonesia, Malaysia, and Vietnam). For systemic economies, we use data series for yields on 10-year U.S. Treasury bonds, 10-year German Bunds and 10-year Japanese bonds. The analysis is based on monthly observations over two time periods: pre-Covid pandemic

([January 2000 – March 2020]) and post-Covid pandemic period ([April 2020 – February 2025]).

Methodology and empirical strategy

To evaluate the divergence/convergence between the countries, we rely on traditional stationary VARX models, with the following representation:

$$y_t = c + \sum_{i=1}^p A_i y_{t-i} + B_i x_{t-i} + \varepsilon_t,$$

where y_t consists of stationary sovereign bond spreads, x_t are a set of exogenous variables composed by the 10-year sovereign bonds of the systemic countries (US, Japan, Germany and China), p the optimal lag order determined by the AIC information criterion and ε_t white noise errors with the following i.i.d ness properties $E(\varepsilon_t) = 0$, $E(\varepsilon'_t, \varepsilon_t) = \Sigma$, and $E(\varepsilon_t, \varepsilon'_s) = 0$ for $t \neq s$. Several VARXs are considered within the different regions (Latin America, Emerging Europe and Asia) but also VARX at a regional level.

Following Candelon, Luisi and Roccazzella (2022), the degree of convergence is evaluated via a fragmentation matrix, computed as the correlation of the forecasts generated by the VARX at a 6-month horizon. This measure of convergence presents the advantage of being forward-looking and not only based on past observations, but potentially biased by rare and temporary historical events.

We also complete the previous measure of convergence, by calculating the fragmentation matrix after a shock originating from US and Germany. To this aim, impulse response functions are calculated within the VARXs. The shocks are identified via a Cholesky decomposition and the country of origin of the shock is ordered first.

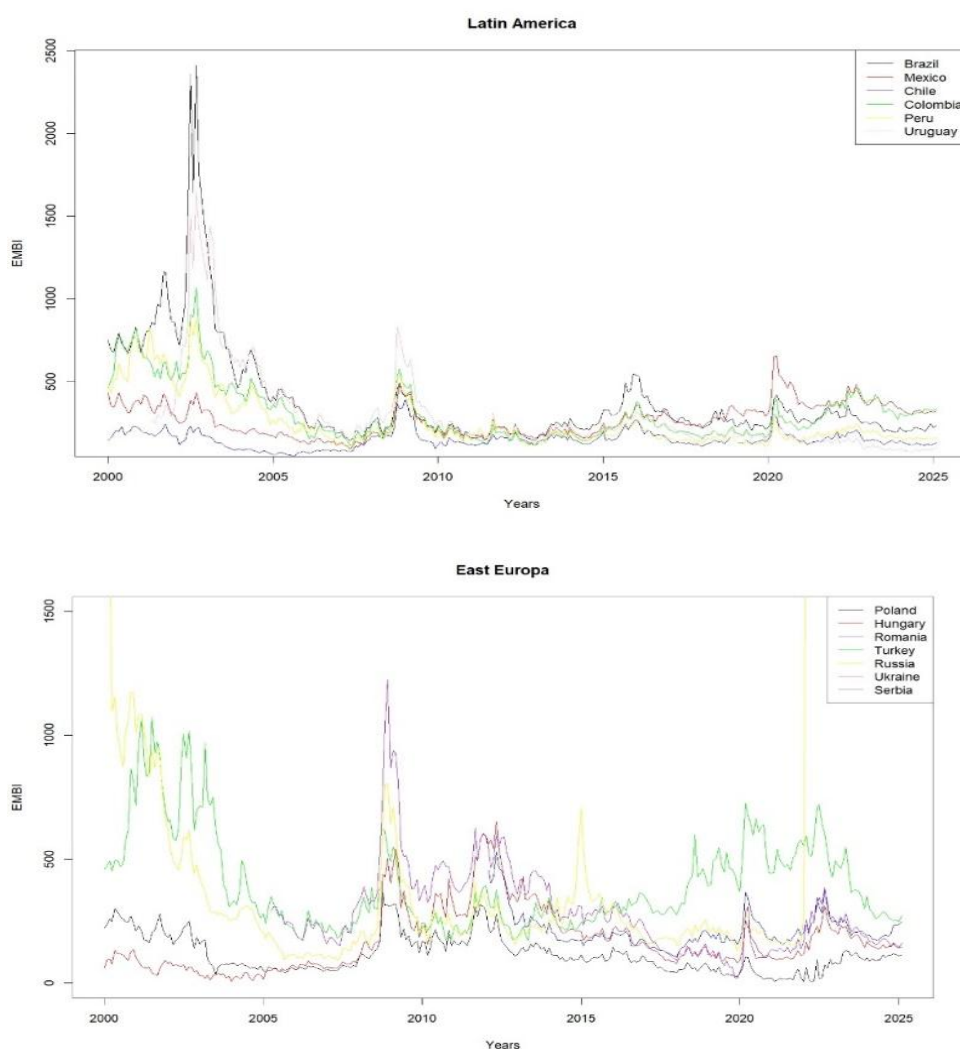
Results

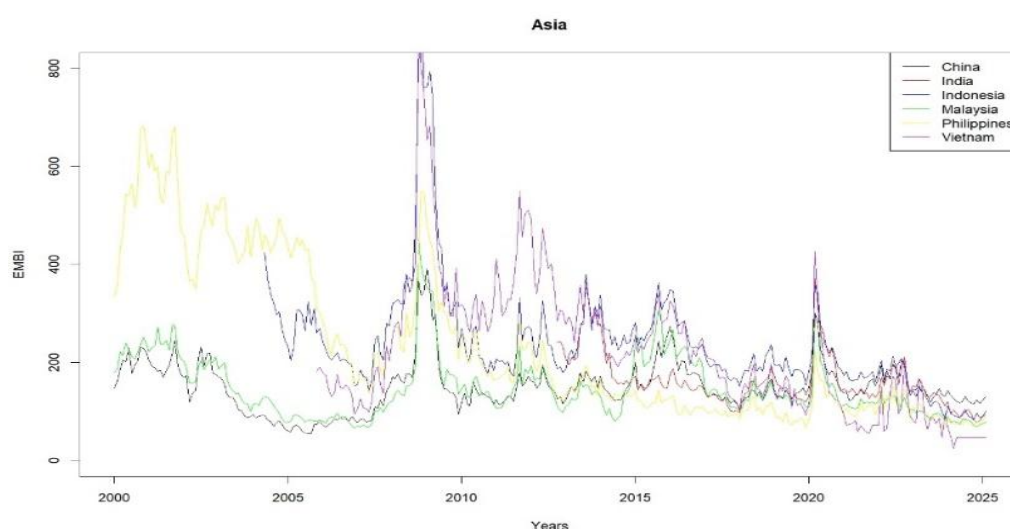
Descriptive evidence

Sovereign spreads of emerging market economies in different regions across the world have shown strong co-movement over the past quarter of a century (Figure 1).

In particular, this co-movement is particularly visible for sovereign spreads in Latin America across the full period (Figure 1, Panel A), while it has typically been gaining prominence during turmoil episodes in Emerging Europe and Emerging Asia (Figure 1, Panels B and C). For instance, the co-movements in these regions seem to have strengthened considerably during the Global Financial Crisis and the outbreak of the Covid-19 pandemic. On the other hand, Latin American economies seem to show close co-movement across the entire period, which peaked at the time of Argentina financial crisis in 2001-02.

Figure 1: Sovereign Spreads in Emerging Market Economies





Co-movement results: history, forecast and global shocks

The formal analysis reports three sets of results about the co-movement of sovereign spreads in emerging markets. The first set of results is based on historical correlations over the pre-Covid and post-Covid periods. The second set refers to results based on forecasts about correlations 12 months ahead. Finally, the third set shows results about the co-movements of sovereign spreads in emerging markets following global shocks in financing conditions, proxied by shocks to yields of 10-year U.S. Treasury bonds and yields of 10-year German Bunds.

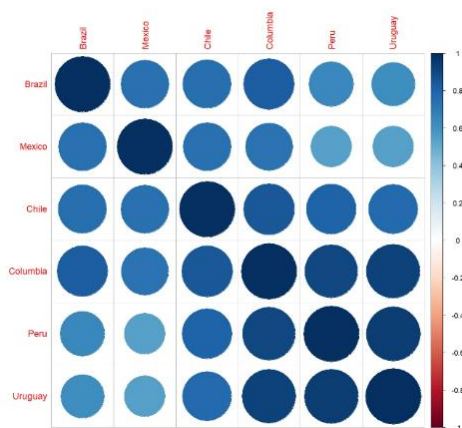
Exploring co-movements in historical data

The results from the formal analysis, presented in Figure 2, support the descriptive evidence about the movement of sovereign spreads for the emerging economies of Latin America. In the pre-Covid period, the correlation in sovereign spreads for each bilateral country pair was at least 0.5, and in many cases well above 0.8. In particular, the co-movement in spreads has been particularly strong among Chile, Colombia, Peru, and Uruguay. Overall, the weakest co-movement in the region was observed for Mexico-Peru and Mexico-Uruguay country pairs.

Turning to the post-Covid period, the co-movements in sovereign spreads have generally remained strong across the region, with a couple of exceptions. The most visible is the decline in the correlation of Colombia's sovereign spread with the rest of

the region. In particular, its correlation with Brazil, Chile, Mexico, and Uruguay dropped markedly, approaching zero in the last case. The correlations of Peru weakened somewhat too, albeit to a much lesser extent with the exception of the case of Uruguay.

Figure 2: Co-movements in Latin America
Pre-Covid



Post-Covid

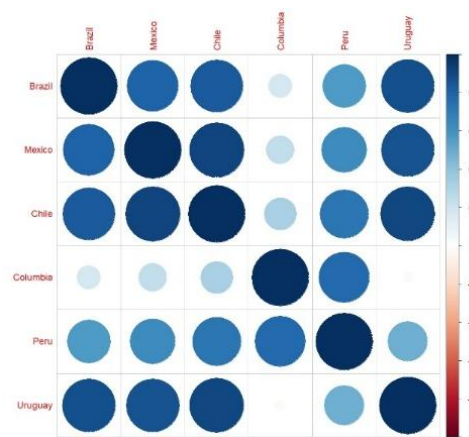
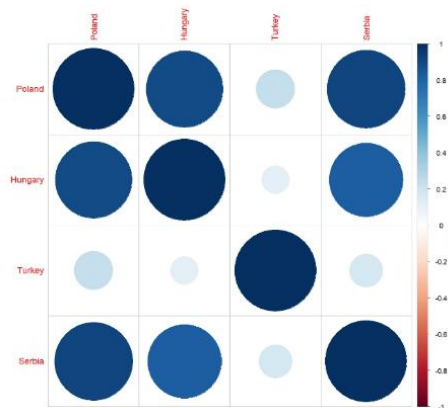


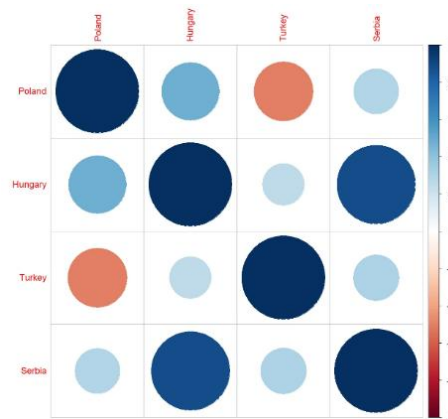
Figure 3 presents similar results from the formal analysis for the economies of Emerging Europe. Overall, the correlations of sovereign spreads have been very strong in the pre-Covid period, especially among Hungary, Poland, and Serbia, typically exceeding 0.8. In contrast, the sovereign spreads of Turkey showed much weaker co-movements with the other economies in Emerging Europe, with typical correlations in the range 0.1-0.3, largely reflecting the turbulent period following the financial crisis in Turkey in 2001.

In the period after the outbreak of the Covid pandemic, sovereign spread co-movements among the economies of Emerging Europe generally weakened, with the exception of the Hungary-Serbia country pair, where the co-movement was somewhat stronger relative to the pre-Covid period, with a correlation of above 0.8. In most other cases, correlations dropped below 0.5. In the case of the Turkey-Poland country pair, they even turned negative, implying a divergence of their sovereign spread trajectories.

Figure 3: Co-movements in Emerging Europe
Pre-Covid



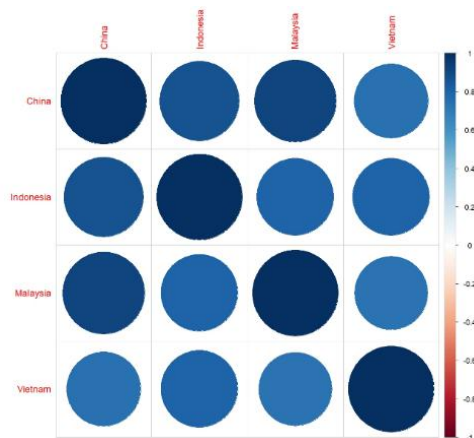
Post-Covid



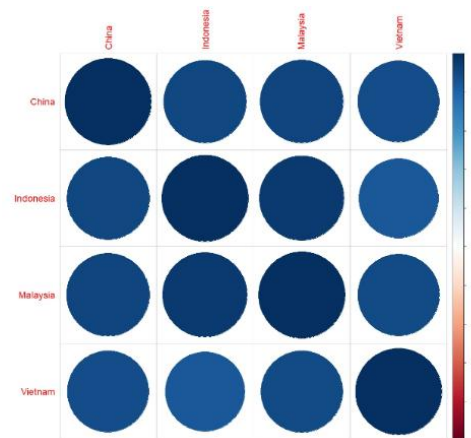
Turning to Emerging Asia, Figure 4 shows that co-movements of sovereign spreads were quite strong among China, Indonesia, Malaysia, and Vietnam in the pre-Covid period. For most country pairs, the correlations were well above 0.7, with the strongest being between the sovereign spreads of China and Malaysia.

In contrast to Latin America and Emerging Europe, the co-movements of sovereign spreads among the economies of Emerging Asia further strengthened in the period after the outbreak of the Covid pandemic. Overall, these results point at considerable convergence across the entire region in the post-Covid period, with correlations exceeding 0.8 for all country pairs in our sample.

Figure 4: Co-movements in Emerging Asia
Pre-Covid



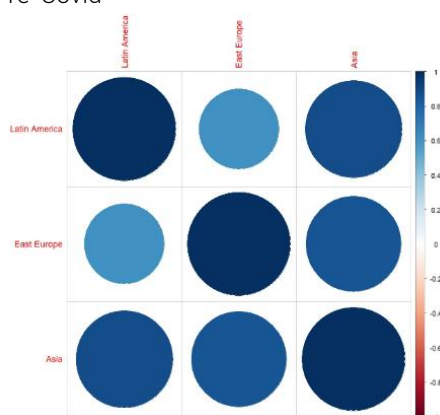
Post-Covid



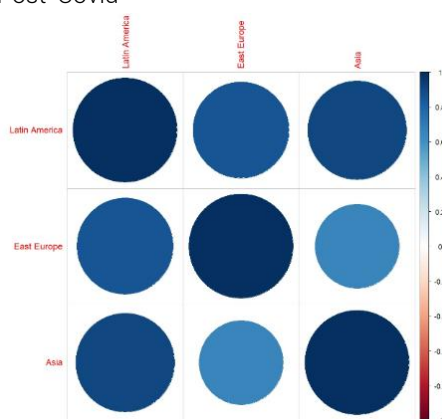
While Figures 2, 3, and 4 depicted the co-movements of sovereign spreads for individual countries within a specific region, Figure 5 turns to the co-movements among the regions themselves. The left panel shows the correlations among the average spreads for the three regions of interest in the pre-Covid period. Overall, the correlations seem quite strong, with the weakest—between Emerging Europe and Latin America—being well over 0.5.

In turn, the right panel shows the same matrix of correlations for the period after the outbreak of Covid. The general conclusion is that correlations have been strong and broadly similar to the pre-Covid period. A key observation worth underlining is that the weakest link is not Emerging Europe-Latin America but rather Emerging Europe-Emerging Asia. The co-movement of Latin America with the remaining two regions seems very similar.

Figure 5: Co-movements Across Regions
Pre-Covid



Post-Covid



Co-movements in forecasts

Correlations across 12-month-ahead forecasts for sovereign spreads of Latin American emerging economies are presented in Figure 6. Similar as the case for actual historical data over the pre-pandemic period, the left panel shows that the co-movements across forecasts of sovereign spreads for all economies of Latin America are very strong. In particular, the correlations across forecasts are even higher than for historical series, typically exceeding 0.9.

Turning to the post-Covid period, the right panel shows that the co-movements in 12-month-ahead forecasts for sovereign spreads have been generally weaker than in the pre-Covid period. In fact, for most country pairs, they weakened considerably, with the largest declines in correlations registered for country pairs involving Uruguay, and to a lesser extent, for country pairs involving Brazil. In turn, the largest decline is seen for Brazil-Uruguay, which is the only one that turns negative.

Figure 6: Co-movements Among Forecasts in Latin America
Pre-Covid

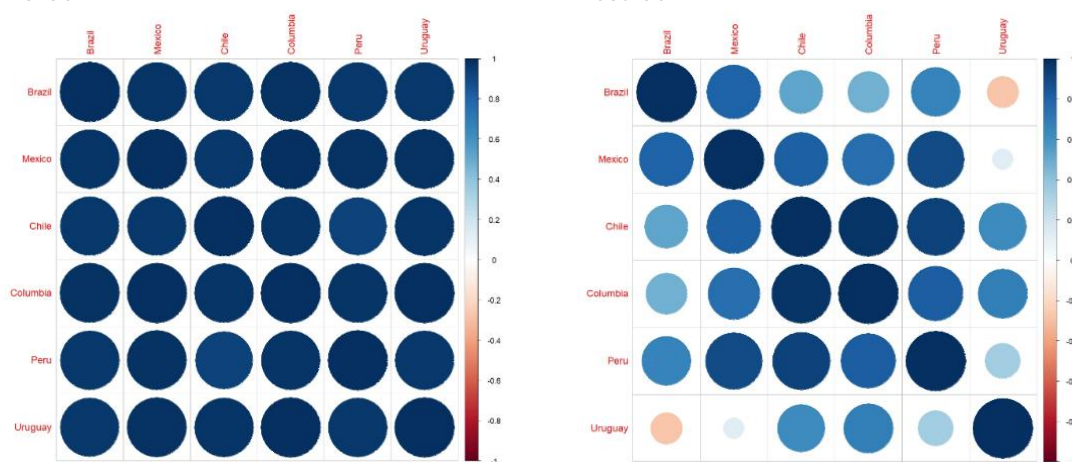
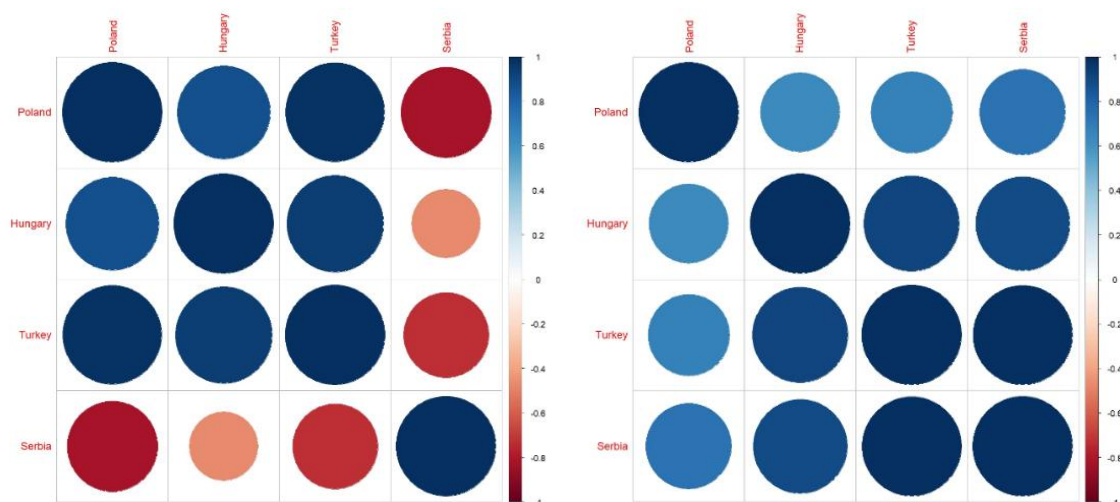


Figure 7 shows results about co-movements of 12-month-ahead forecasts for sovereign spreads of economies from Emerging Europe. These co-movements are generally found to be strong for the pre-Covid period, with correlations above 0.8 among Hungary, Poland, and Turkey. However, forecasts for Serbia's spreads seem to be disconnected from the rest of Emerging Europe, with correlations falling in the negative territory of all its bilateral pairs.

Turning to the period after the outbreak of the Covid pandemic, the right panel of Figure 7 shows that co-movement of forecasts for sovereign spreads strengthened markedly between Serbia and the rest of Emerging Europe, while it generally weakened for Poland, with the rest remaining broadly similar to the pre-Covid period.

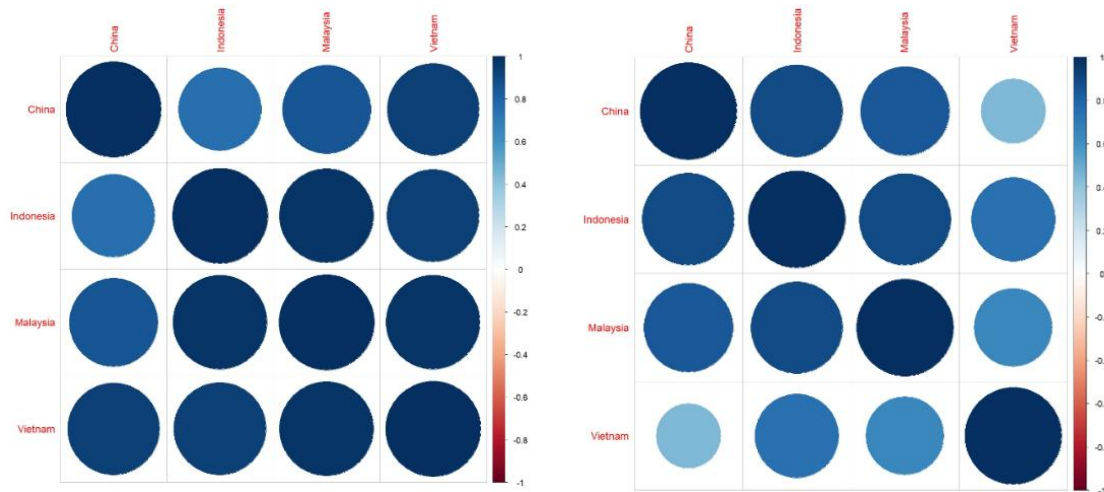
Figure 7: Co-movements Among Forecasts in Emerging Europe
Pre-Covid Post-Covid



Turning to Emerging Asia, Figure 8 shows that co-movements of the sovereign spread forecasts have been very strong among China, Indonesia, Malaysia, and Vietnam in the pre-Covid period. With the exception of the China-Indonesia country pair, the other correlations typically exceeded 0.8. These results are very close to the findings for the co-movements among these economies based on the historical data for sovereign spreads.

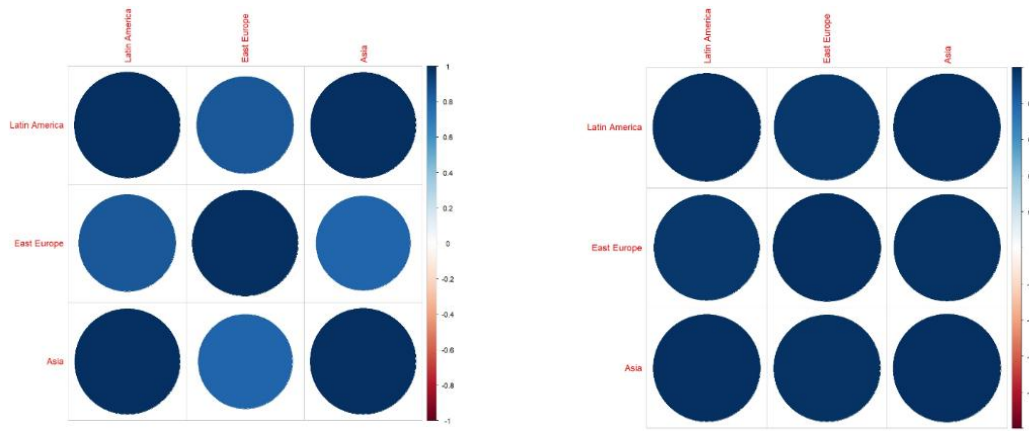
In addition, the right panel of Figure 8 shows that the co-movements of sovereign spreads among the economies of Emerging Asia only marginally weakened following the outbreak of the Covid pandemic. Overall, the correlations among forecasts for China, Indonesia, and Malaysia remained strong, typically exceeding 0.7. In the case of Vietnam, the correlations of its forecasts with the rest of the region weakened more markedly, albeit remaining in the 0.3-0.5 range.

Figure 8: Co-movements Among Forecasts in Emerging Asia
Pre-Covid Post-Covid



While Figures 6, 7, and 8 depicted the co-movements of forecasts for individual countries' sovereign spreads, Figure 9 reports co-movements among sovereign spread forecasts for the three emerging market regions. The left panel depicts the correlations among the average sovereign spread forecasts for the three regions of interest in the pre-Covid period. Overall, the correlations seem strong, typically above 0.7. Somewhat weaker correlations are reported between Emerging Europe and Latin America—similar as was documented in the case with the historical data—as well as for between Emerging Europe and Emerging Asia. Turning to the post-Covid period, the right panel shows that all correlations among sovereign spread forecasts strengthened markedly, implying remarkably convergence of forecasts for the three major emerging market regions.

Figure 9: Co-movements Among Forecasts Across Regions
Pre-Covid Post-Covid



Response to external shocks

In the period before the outbreak of the Covid pandemic, the response of sovereign spreads to a shock in U.S. Treasury yields was quite synchronous across economies in Latin America. In fact, most of the correlations among the spreads of these economies is estimated at about 0.9, with the sole exception of Chile, which response following a shock to U.S. Treasury yields was somewhat muted, albeit with a correlation vis-à-vis the other Latin American economies still above 0.5, as depicted in the top left panel of Figure 10.

The results from the formal analysis, presented in Figure 2, support the descriptive evidence about the movement of sovereign spreads for the emerging economies of Latin America. In the pre-Covid period, the correlation in sovereign spreads for each bilateral country pair was at least 0.5, and in many cases well above 0.8. In particular, the co-movement in spreads has been particularly strong among Chile, Colombia, Peru, and Uruguay. Overall, the weakest co-movement in the region was observed for Mexico-Peru and Mexico-Uruguay country pairs. The response of sovereign spread co-movements across Latin America to shocks in yields of German Bunds was weaker compared to the case of U.S. Treasuries, though still generally positive, except for a few country pairs involving Peru and Uruguay.

Turning to the post-Covid period, most co-movements in sovereign spreads in response to global shocks to the U.S. and Germany weakened considerably. This seems to be especially the case with co-movements in response to U.S. Treasury shocks, when several co-movements across the region turned negative. most visible is the decline in the correlation of Colombia's sovereign spread with the rest of the region. On the other hand, the response to shocks to German Bunds resulted in somewhat weaker co-movements across the region, albeit without divergent trajectories as implied in the case of the U.S.

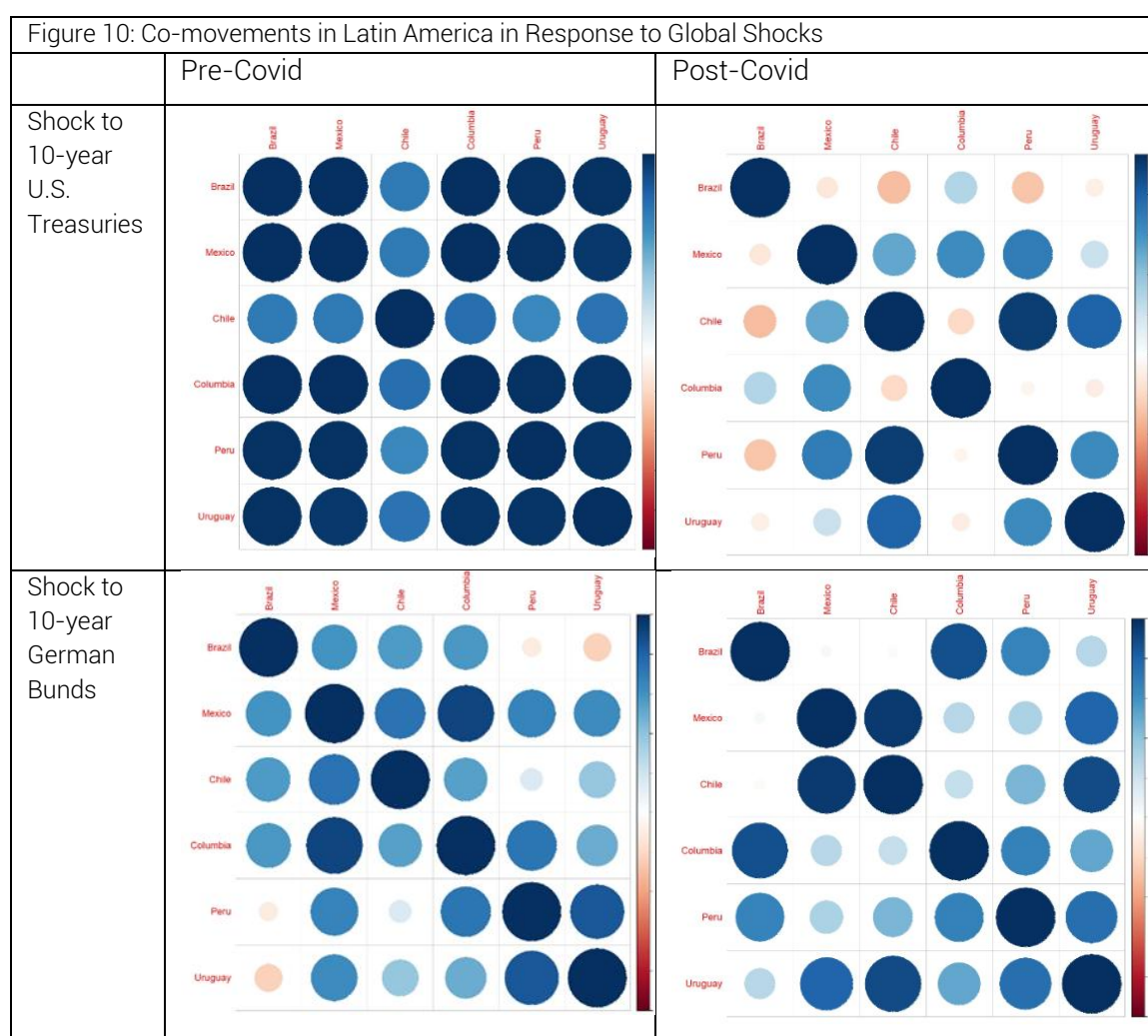


Figure 11 shows co-movements of sovereign spreads among the economies of Emerging Europe in response to shocks to U.S. Treasuries and German Bunds. Overall, in the period before the pandemic, the response across the region was much more

synchronous in response to shocks in German Bunds (with implied correlations across the region typically around 0.9) than the response to shocks in U.S. Treasuries (positive in all cases, but with average correlations of about 0.5). The post-Covid period saw a dramatic decline in the co-movements across Emerging Europe economies in response to German yield shocks. On the other hand, the co-movements in response to U.S. shocks seem to have remained broadly similar.

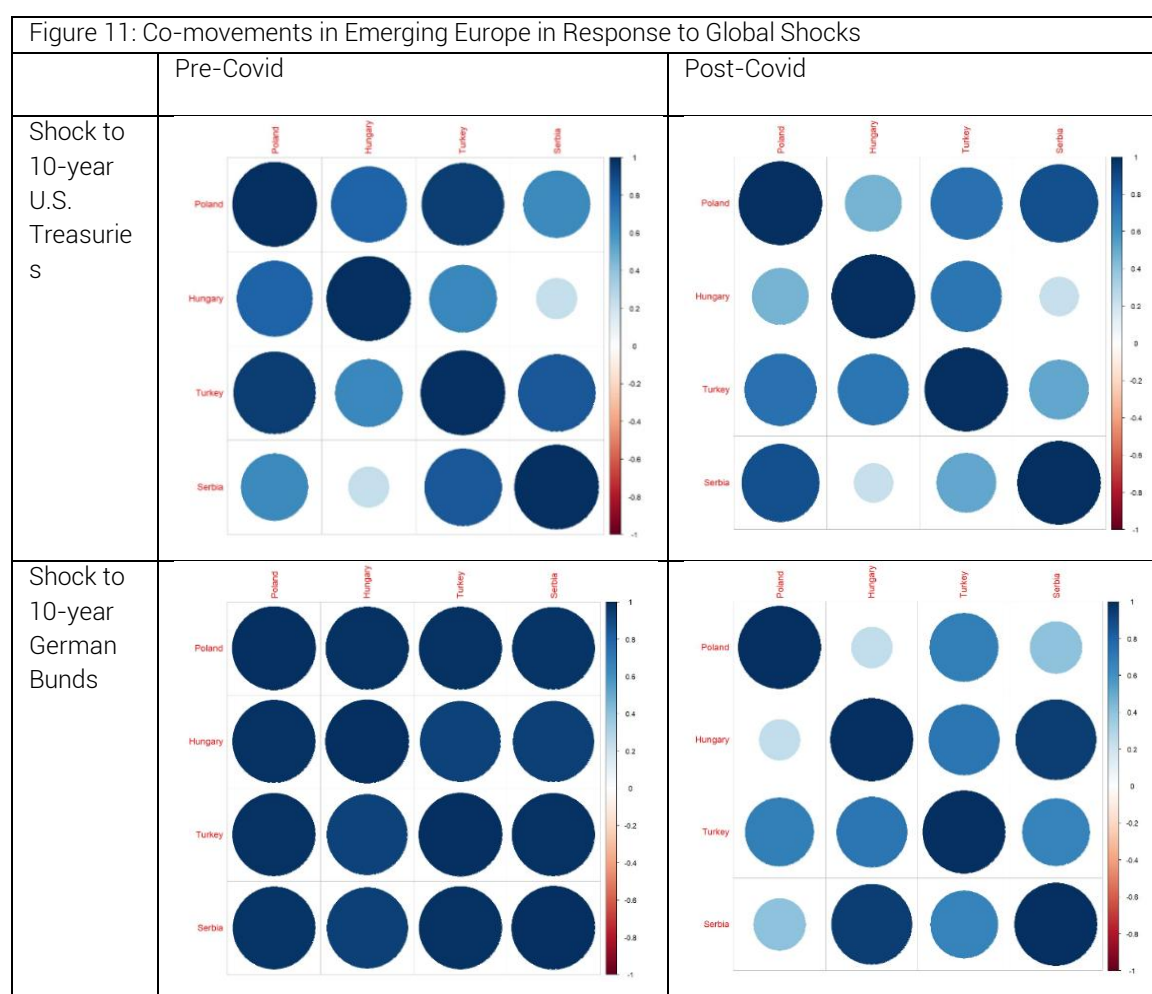
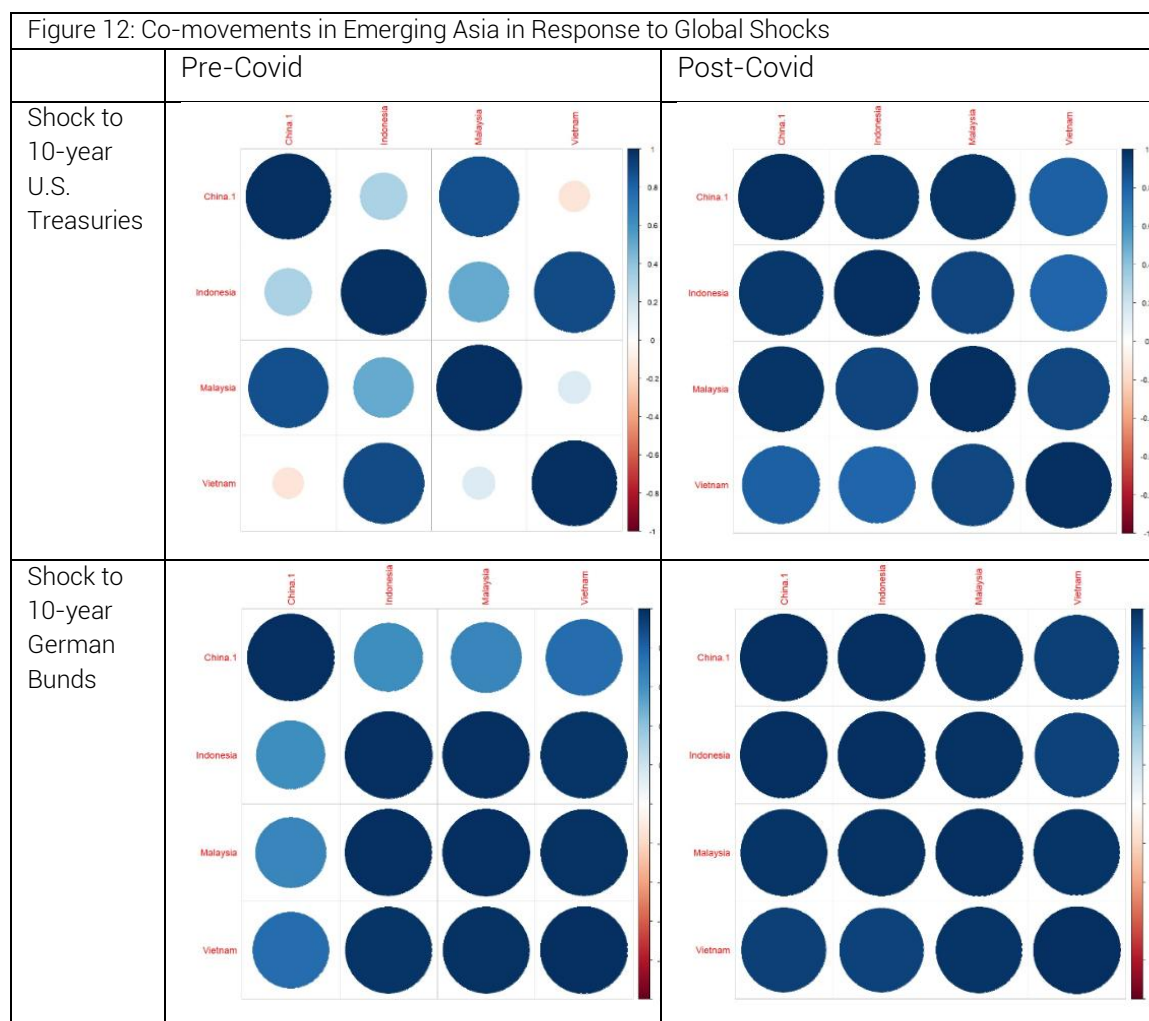


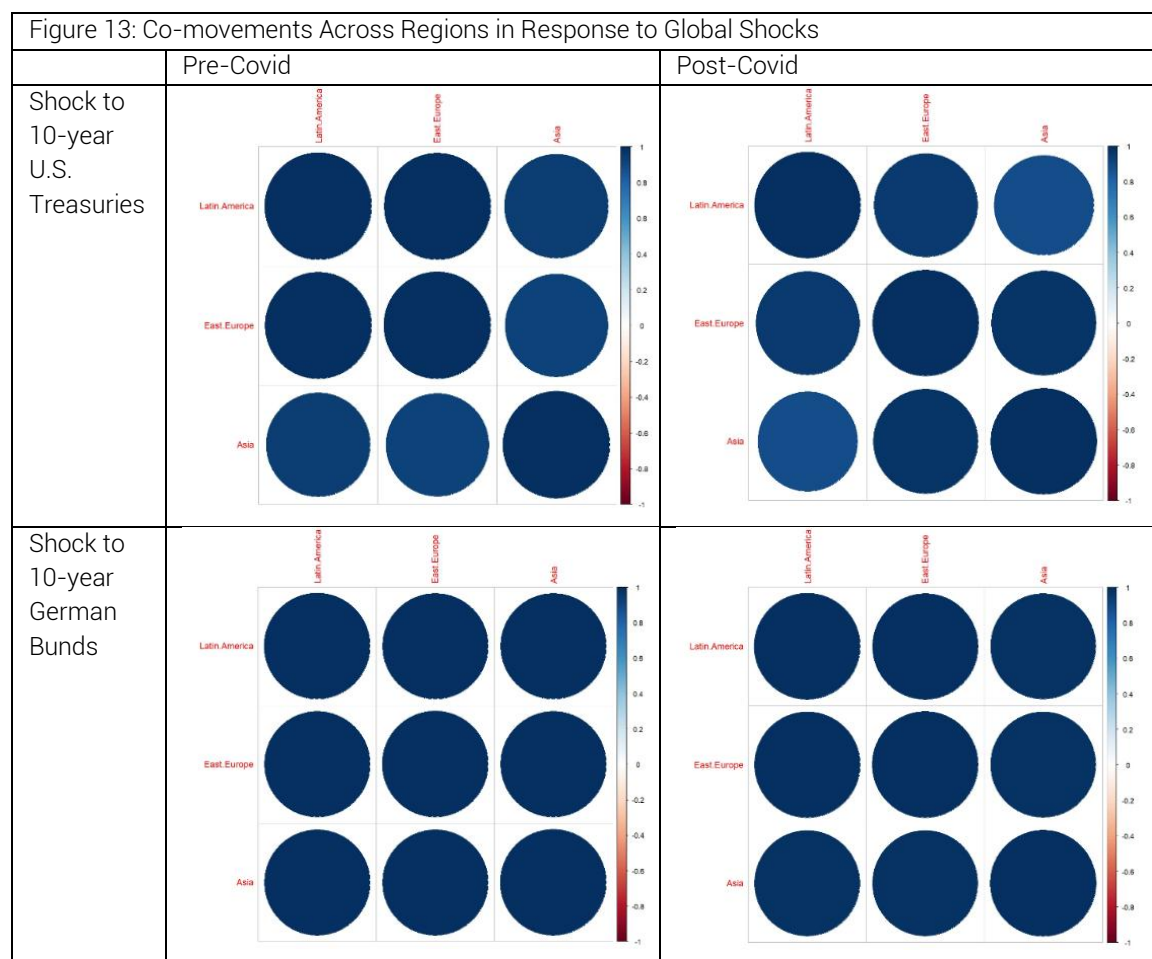
Figure 12 shows co-movements of sovereign spreads among the economies in Emerging Asia following shocks to U.S. Treasury and German Bund yields. In the pre-Covid period, the co-movements among China, Indonesia, Malaysia, and Vietnam were considerably stronger following a shock to German than U.S. yields, with the only exception being the country pair China-Malaysia. In the period following the outbreak of the pandemic, the co-movements across this region strengthened in response to

shocks to both systemic economies, a finding that stands in sharp contrast to the results for the economies within the previous two regions – while the onset of the pandemic seems to have led to divergence among the spreads within Latin America and Emerging Europe, it seems to have contributed to more convergence among the spreads of economies with Emerging Asia.



Turning from the findings for individual economies within specific regions to co-movements of average spreads among the three regions, Figure 13 shows that the co-movements among the regions to both shocks to U.S. Treasuries and German Bunds were very strong in the pre-pandemic period. Most correlations were above 0.9 over this time period. In addition, the onset of the pandemic does not seem to have materially affected the co-movements among the regions – overall, even if co-

movements of spreads changed considerably within the regions, they seem to have remained almost intact among the three regions themselves.



Concluding remarks

Exploring the extent to which sovereign spreads showed signs of convergence or divergence both within and across the three major emerging market regions before as well as after the onset of the Covid-pandemic, our analysis arrives at four main findings.

First, the co-movements implied by actual historical data imply that sovereign spreads within the three major emerging market regions showed a high degree of convergence over the pre-pandemic period, which has generally weakened for Latin

America and Emerging Europe in the post-pandemic period, while it remained broadly similar in the case of Emerging Asia.

Second, looking at the co-movements implied by forecasts of sovereign spreads suggests that the convergence generally weakened among emerging economies within Latin America (consistent with the result based on historical series), and to a lesser extent for Emerging Asia, while the results for Emerging Europe show stronger convergence for some and weaker for other country pairs.

Third, the exercise based on the response of emerging market spreads to global shocks in systemic economies suggests that the convergence among sovereign spreads within Latin America and Emerging Europe generally weakened after global shocks affecting U.S. Treasury yields or German Bunds, or even turned from convergence into divergence for some country pairs in Latin America following a shock to U.S. Treasury yields in the period after the onset of the Covid pandemic. On the contrary, the convergence among sovereign spreads for Emerging Asia economies strengthened somewhat following shocks to yields of either U.S. Treasuries or German Bunds in the post-Covid period.

Finally, the co-movement across the three regions seems quite resilient to the different shocks, showing strong convergence both in the pre-Covid as well as in the post-Covid period. Overall, these findings that sovereign spreads across the different emerging market regions show a high degree of convergence, which— notwithstanding some noise for specific country pairs within the regions—display robust convergent trajectories that seem to have been immune to the series of recent shocks, including the onset of the Covid-pandemic.

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