BOFIT Discussion Papers
5 • 2024

Kari Heimonen and Risto Rönkkö

The RMB's global role as an anchor currency: no evidence

THE BANK OF FINLAND INSTITUTE FOR EMERGING ECONOMIES

BOFIT Discussion Papers
Editor-in-Chief Zuzana Fungáčová

BOFIT Discussion Papers 5/2024
23 April 2024

Kari Heimonen and Risto Rönkkö :
The RMB’s global role as an anchor currency: no evidence

ISSN 1456-5889, online

Bank of Finland
Helsinki 2024

Kari Heimonen and Risto Rönkkö

The RMB's global role as an anchor currency: no evidence

Abstract

This study examines the role of the Chinese renminbi (RMB) as an international anchor currency. After China abandoned its tight US dollar (USD) peg in 2005, the RMB found greater popularity as a reserve currency. This change in the RMB's role reflected China's growing presence in the global economy, even challenging the USD in some of the 155 countries that signed on to the Belt and Road initiative (BRI). Modifying the approach of Ahmed (2021) to estimate basket weights in exchange rate policy for the currencies of 63 advanced and emerging economy currencies, we account for potential drivers of the exchange rate omitted in previous studies to obtain unbiased anchor weight estimates. Unlike earlier studies, we find that the RMB's anchor weight in exchange rate policies remains low irrespective of China's global role. Overall, the weight of the RMB averaged 6 %, compared to an average share of 58 % for the USD and 35 % for the euro. We also find that the USD, euro and yen anchor choices are strongly interlinked. A change in the anchor weight of any of these three currencies results in a strong opposite change in the weights of other two. Changes in RMB anchoring, however, do not materially impact USD, euro and yen weights. An increase in financial markets volatility leads developing countries to increase anchor weights of the developed countries currencies USD, euro and yen. Heightened geopolitical uncertainty only increases the weights of the USD and euro.

Keywords: exchange rate, currency peg, RMB
JEL: F31, F33

Kari Heimonen, University of Jyväskylä and University of Jyväskylä International Macro Finance Research Group (JyIMaF), kari.o.heimonen@jyu.fi, ORCID: 0000-002-7783-8018.
Risto Rönkkö, BOFIT, Tampere University and University of Jyväskylä International Macro Finance Research Group (JyIMaF), risto.ronkko@bof.fi, ORCID: 0009-0001-5865-8548.

We thank Yin-Wong Cheung, Jan Fidrmuc, Zuzana Fungáčová and Iikka Korhonen for their valuable comments and suggestions. We are also grateful for the constructive comments from the participants of seminar at the Bank of Finland in March 2023.

Non-technical summary

FOCUS

China's growing role in the global economy has raised interest in the internationalization of the renminbi (RMB). In this paper we study one aspect of the internationalization, use of the RMB as a pegging currency. The RMB's importance as an international currency is increasing. Moreover, already now China is the most important trading partner for many countries, and source of capital. These all are expected to increase the RMB role as the pegging currency. We provide new evidence of the importance of RMB as a pegging currency and examine also the factors driving the RMB peg.

CONTRIBUTION

Estimation of the anchor weights involves regressing domestic currency exchange rate change with respect to anchor currency exchange rate changes and common shocks hitting both domestic and anchor currency exchange rates. We argue that the previous studies have not adequately controlled the common shocks, which potentially biases the anchor weight estimates. Moreover, in earlier studies exchange rate policy is often imprecisely controlled, if controlled at all. Due to measurement error, this is another potential source of bias. We control the common shocks as exhaustively as possible. Also, with help of two novel datasets, we aim to control foreign exchange rate policy in our regression as precisely as possible. Lastly, previous studies' exploration of the RMB's global role ends in the early 2010s. Our analysis with 63 countries for the period 2010-2018 provides fresh evidence on the issue.

FINDINGS

We find that the use of the RMB as an anchor currency is still low, 6 percent on average. The United States dollar and the euro are still the most common anchor currency with 58 percent and 35 percent average shares, respectively. Anchoring with the dollar, euro and yen is strongly interlinked, a change in the anchor weight of any of the three translates to strong opposite change in the weights of other two. We also find that the increased geopolitical uncertainty had impacts on the currency pegs as heightened uncertainty increased the anchor weights of the USD and euro.

1 Introduction

With China's increasing prominence in the global economy, the internationalization of the Chinese currency, the renminbi (RMB), has spurred robust academic and policy interest. This study examines one aspect of the currency internationalization, its role as a pegging currency.

Several factors have boosted the RMB's role as an anchor currency (Cheung, 2022). The RMB accounted for 7 % of the global foreign exchange market turnover in 2022 and 4.0 % of cross-border payments in February 2023 (BIS, 2022; SWIFT, 2024). The RMB's role as a reserve currency, albeit with just a 3 % share, is increasing (COFER, 2023). A significant milestone in RMB internationalization was passed in 2016, when the Chinese currency was included in the IMF basket of Special Drawing Rights (SDR) currencies. The RMB's current SDR allocation is 12.28 %. China also accounted for 11 % of global trade in 2021, being a major trading partner for many countries (WB WDI, 2023). China has provided financing to many countries, most notably under its Belt and Road Initiative (BRI). China's expanding role in the BRICS coalition has amplified its geopolitical importance.

Rising geopolitical tensions, especially since Russia's invasion of Ukraine and enhanced sanctions, could lead to a bipolar financial landscape; one centered around the United States with the dollar as the main currency and the other around China and RMB usage. The decoupling has contributed to the rise of the digital renminbi or Digital Currency Electronic Payment (DCEP). The shift may also increase the use of the RMB in international transactions by making it easier to bypass the Western-dominated SWIFT messaging system. For example, imposition of increased sanctions on Russia in 2022 resulted in Russian firms turning to the DCEP system. Russia's increased trade with China also boosted the use of RMB as a trading currency in commodity trade between China and Russia.

Our study also considers the determinants of anchor currency choices. Typically, an increase in trade and borrowing in a certain currency raises the incentive to peg to that currency. Accordingly, an increased RMB anchor currency weight is expected to provide stability to trade and investment, while simultaneously decreasing fluctuations in the value of RMB-denominated assets and liabilities. Among others The BRI in particular has increased the probability of adopting RMB as an anchor currency (Cai, 2022). The significant role of the BRI has also been noted by He et al. (2023), who also point out the significant impact of RMB currency swaps for currency co-movements between RMB in larger, more developed economies. Bahaj and Reis (2020) and He et al. (2023) estimate that this impact of currency swaps runs through its positive impact on bilateral trade and thus potentially a significant determinant for the peg. Under the core-periphery theory of

Dooley, Folkerst-Landau and Garber (2004), periphery countries (e.g. commodity exporters) tend to mitigate their exchange-rate risk in trade, monetary reserves and investment by anchoring their currency to the currencies of core economies such as China. In contrast to previous studies, however, our estimates do not provide strong evidence to support the increased role of the RMB as an anchor currency.

We study the RMB's role as an anchor currency empirically by extending and estimating the model of Ahmed (2021) for 63 countries in 2010–2018. These countries account for more than 70 % of global GDP outside the four anchor currency entities (US, Japan, euro area and China). The Frankel-Wei (FW) method has been extensively used to estimate currency baskets It was initially used to assess emergence of a yen bloc in Asia (Frankel & Wei, 1994), and later China's own exchange rate policy (Frankel & Wei, 2005). More recently it has been used to assess formation of an RMB bloc. In this paper, we develop the method to better address potential sources of bias in the estimation of anchor weights.

The literature on the global role of the RMB as an anchor currency can be divided in two waves. The first wave emerged after China relaxed its USD peg in 2005. Among others estimating a standard FW model or currency co-movements in a vector auto regression (VAR) set-up, Fratzscher and Arnaud (2013), Chow (2014) and Shu et al. (2015) find that the RMB's significance as an anchor currency increased after the Global Financial Crisis, especially among the East Asian countries. Kawai and Pontines (2016), however, report that the RMB's role in East Asia, although increasing over time, remained limited in the 2010s. Mora and Nor (2018) also note that the RMB's anchor role during the early 2010s was quite modest.

With the People's Bank of China's (PBC) exchange rate management evolving over time (Cheung, 2022), subsequent studies have been able to study the RMB's anchor role in different periods of the RMB management. Also there has been methodological advancements to control structural breaks in exchange rate policies. Overall, these later studies find that the RMB is a significant anchor currency, with its anchor weight typically ranging between 0.5 and 1 (Keddad, 2019; Keddad and Sato, 2019; McCauley and Shu, 2018). Park and An (2020) also report a lower, but still significant, RMB anchor share.

Digging into the details, McCauley and Shu (2018) find that co-movement of other currencies with the RMB depends on the PBC's RMB management. Specifically, currency co-movement with the RMB tends to increase when the PBC's exchange policy is more transparent. Chen and Hao (2023) make a similar finding. Chiappini and Lahet (2020), using VAR and autoregressive-distributed lag models, find that Asian currency exchange rates have been driven by the Chinese macroeconomic climate and RMB exchange rate. Keddad and Sato (2019) find that the RMB weight depends on national exchange rate policies vis-à-vis the USD. Estimating a Markov-switching version of the FW model for Asian countries, the RMB peg of these countries tends to tighten as they relax their USD peg. Keddad (2019), who estimates a Markov-switching FW model for seven East Asian countries, finds that RMB and USD basket weights depend on domestic currency behavior. When a domestic currency appreciates, the RMB weight is relatively high, around 0.5. In depreciation periods, the RMB weight climbs to around one. Unlike these studies, we find no dependence of RMB weights on the USD, euro or yen.

Many researchers explicitly study factors influencing anchor weights. Balasubramaniam et al. (2020), Cai (2020), He et al. (2023), Keddad et al. (2019), Park et al. (2020) and Subramanian et al. (2013) find that the RMB weight increases as trade integration with China progresses. Park et al. (2020) show that financial linkages in terms of portfolio investment with China increase RMB weight. Cai (2020) and Balasubramaniam et al. (2020) posit that BRI participants have higher RMB anchor weights. Our study adds to the literature on currency weights by augmenting an FW model with possible central bank open market operations and common shocks. This removes potential bias in the anchor weight estimates. We also explore the role of uncertainty factors in anchor currency choice. This is potentially an important facet of anchor currency choice in the face of increasing geopolitical tensions.

Keddad (2019), in contrast, links the RMB anchor weight to the RMB exchange rate. With a sample of East Asian currencies, he finds that countries tend to peg to the RMB when the RMB is depreciating and reduce RMB weight when the RMB appreciates. This may suggest fear of appreciation by East Asian countries earlier found by Pontines and Rajan (2011) and Pontines and Siregar (2012). Keddad et al. (2019) links the RMB anchor policy among Asian countries to their overall exchange rate policy. They find that when countries loosen their USD peg, the RMB peg tightens. The probability that a country will adopt an RMB peg also decreases when a country's exports are similar with those of China, potentially suggesting a policy to maintain external competitiveness relative to China. Our estimates consider the impacts of changes in both anchor and pegging currency exchange rates on the determination of the currency peg.

Our contribution to the literature is two-fold. First, we address possible sources of bias in our FW model estimation that were omitted in earlier analyses. For example, co-movement of a currency with an anchor can reflect a deliberate policy choice to peg to a particular anchor. In a non-pegged policy regime, co-movement may simply reflect the common shock hitting both currencies. We argue that failing to carefully control for possible common shocks could lead to attributing a currency co-movement due to a common shock to a deliberate anchor policy. To reduce potential bias in the anchor weight estimates, we control as exhaustively as possible for other possible sources of currency co-movement in our regression set-up. We also refine the exchange market pressure (EMP) measure used in the literature to capture the effect of exchange rate interventions. We think the modelling of size and effectiveness of interventions in previous studies, if modelled at all, is imprecise. This is a possible source of bias due to measurement error. To reduce the measurement error, we combine the data of Patnaik et al. (2017) on intervention effectiveness with the data of Adler et al. (2021) on interventions to create a new EMP measure. Second, we analyze a group of countries that generate over 70 % of global GDP outside the anchor countries, enabling us to form a comprehensive view of global role of the RMB as an anchoring currency.

We find that the RMB's use as an anchor currency is still low – just 6 % on average in our sample – a stark contrast with the studies mentioned above. As expected, the USD is the most important anchoring currency with a 58 % average share, followed by the euro with a 35 % share. We find no evidence that the RMB's anchor share has increased over time. Surprisingly, the average RMB anchor share across geographical regions is relatively even. Regions such as East Asia and Sub-Saharan Africa, which have close trade and financial links to China, do not have significantly higher RMB anchor shares than other regions.

In exploring the determinants of anchor weights, we find that USD, euro and yen anchor choices are strongly interlinked. A change in the anchor weight of any of these three translates to a strong opposite change in the weights of other two. In contrast, changes in RMB anchoring does not materially impact USD, euro or yen weights. A change in the USD or euro weight affects the RMB weight, while yen and RMB anchor weight choices are not interlinked. We also find that an increase in financial market volatility can cause developing countries to increase the anchor weights of all four anchor currencies. In times of heightened geopolitical uncertainty, countries prefer the USD and euro in their exchange rate anchoring.

Our study proceeds as follows. In section 2, we present our empirical model to estimate the anchor currency weights. In section 3, we present results from the anchor weight estimations. We explore potential determinants for anchor weight in section 4. Section 5 concludes.

2 Empirical model

Haldane et al. (1991) and Frankel and Wei (1994) were the first to estimate anchor currency baskets by regressing a domestic currency exchange rate on potential anchor currency exchange rates. The Frankel-Wei regression can be written as

$$\Delta e_{\mathrm{i,t}} = \mathrm{c}_i + \omega_{\mathrm{R}MB}\Delta e_{\mathrm{RMB,t}} + \omega_{\mathrm{USD}}\Delta e_{\mathrm{USD,t}} + \omega_{€}\Delta e_{€\mathrm{,t}} + \omega_{¥}\Delta e_{¥\mathrm{,t}} + \varepsilon_{it}, \qquad (1)$$

where $\Delta \mathrm{e}_{\mathrm{i,t}}$ is the relative change of domestic currency exchange rate, and $\Delta e_{\mathrm{RMB,t}}$, $\Delta e_{\mathrm{USD,t}}$, $\Delta e_{€\mathrm{,t}}$, and $\Delta e_{¥\mathrm{,t}}$ the relative change in RMB, USD, euro and yen exchange rates, respectively. The subscripts i and t denote to country and date, respectively. The numeraire currency with respect all the currencies in Equation (1) as expressed should be floating and not strongly linked with any anchor currency. While the Swiss franc is occasionally used (e.g. Chen and Hao, 2023; Frankel & Wei, 1994), it does not suit to our purposes due to the Swiss National Bank's target rate relative to the euro in the early 2010s. Instead, we use the New Zealand dollar (NZD), a floating currency since 1985. It has been used in several studies, including Balasubmariam et al. (2020), Kawai et al. (2016) and Keddad et al. (2019). New Zealand is not insulated from China. In 2021, for example, 33 % of the country's exports went to China (Gaulier et al., 2010). However, checking the robustness of our results below using the USD as numeraire, we get essentially the same results.

The RMB is widely known to be linked to other anchor currencies in Equation (1). It has had a particularly close linkage with the USD, even after the PBC dropped its tight USD peg in 2005 (Cheung, 2022; Cheung et al., 2018). The RMB officially floats within a band with respect to basket of currencies.[1] The band mid-rates are updated daily, and there is some degree of management of the exchange rate. Thus, it is likely that the RMB is correlated with other anchor currencies in Equation (1). That causes multicollinearity and potentially unstable anchor weight estimates.

To solve the multicollinearity problem, we follow Balasubramanian et al. (2011), Fratzerscher et al. (2014) and Kawai et al. (2016) by first estimating orthogonal movements of the RMB with respect to other anchor currencies. In essence, we estimate Equation (1) for the RMB (dropping the RMB from the set of anchors, of course) and use the resulting residuals from the regression as orthogonal movement of the RMB. Another possible option would be to use the USD as numeraire (which we do below), making RMB movements orthogonal to the USD movement by design. With such an approach, however, we are unable to estimate the USD weight ω_{USD}, and the RMB's correlation with the euro and yen would remain unaddressed.

A subset of countries in our sample tightly pegs their currency. In such case, the disturbance term in Equation (1) is zero and the equation becomes an identity. To better explain exchange rate behavior, we follow Frankel and Wei (2008) and Frankel and Xie (2010) and add exchange market

[1] 24 currencies since 2017.

pressure (EMP) to our model to capture degree of exchange rate management by monetary policy authorities. The measure gauges the degree of depreciation pressure a currency faces irrespective of exchange rate policy. For a floating currency, the EMP is equal to the actual exchange rate change. When a country intervenes in the FX markets, the effect of the intervention on exchange rate is captured in the EMP measure, which we can write as

$$EMP_{i,t} = \Delta e_{i,SDR,t} + \rho_i I_{i,t}, \qquad (2)$$

where $\Delta e_{i,SDR,t}$ is the relative exchange rate change of domestic currency vis-à-vis the SDR, $I_{i,t}$ is the amount of foreign exchange rate intervention, and ρ_i is the effectiveness of the interventions. We use intervention data from Adler et al. (2021). Their data set comprises actual interventions for those countries for which data are available. For the rest, they estimate an intervention proxy by cleaning from changes in reserves those valuation changes that are not related to actual interventions (i.e. exchange rate and asset valuation changes, earned income and other changes in reserves).[2] The conversion factor ρ_i proxies the extent to which a USD 1 billion intervention affects the exchange rate. We use data from Patnaik et al. (2017), who estimate their conversion factor by assuming that the variance of the EMP shocks within a country is the same over time, irrespective of exchange rate regime. This allows estimation of the conversion factor for countries that have experiences with both floating and fixed exchange rate regimes. In the former, EMP variance is due to the exchange rate variance. In the latter, it is due to the intervention variance. This approach allows them to estimate the conversion factor for 26 countries. Then they predict the conversion factor using standard macroeconomic variables. These estimates are used to predict the conversion factor for rest of the countries.

An EMP measure is also used to capture exchange rate policy in other studies (Chen et al., 2023; Kawai et al., 2016; Keddad, 2019, Shu et al., 2015). In all these studies, interventions are proxied with changes in reserves. However, changes in reserves is rather poor proxy for interventions because of the aforementioned valuation changes (Dominguez et al., 2012). Thus, we expect our intervention proxy to decrease measurement error a considerable amount.

In addition, none of the methods used to weight the intervention term in Equation (2) are well-justified. Keddad (2019) weights the intervention term equally with the exchange rate term.

[2] Such as allocation of reserves to investment branch of reserves, and foreign exchange operation vis-à-vis domestic sectors which do not change net foreign exchange rate position of central bank.

i.e. ρ_i equal to one. However, we do not assuming the conversion being one justified. One alternative, the approach followed by Chen et al. (2023), weights the exchange rate and intervention terms based on variance. The term with lower variance is given a greater weight. The variance of the intervention term does not reflect its effectiveness, but how much it is used (Klaassen et al., 2011). A third method involve weighting interventions by the inverse of the monetary base (Kawai et al., 2016; Shu et al., 2015). The monetary base is likely to be correlated with FX market depth, which in turn impacts on the effectiveness of inventions. However, we find our approach of directly tackling intervention efficiency more desirable. Although the data of Patnaik et al. (2017) is subject to measurement error due to the equal variance assumption and their prediction method, we think it is better suited in our application.

The model of Equation (1) overlooks common global factors that may drive domestic and anchor currency exchange rates. This biases basket weight estimates due to omitted variables. For example, while the yen and US dollar tend to appreciate during risk-off periods as investors allocate their funds to safe-haven currencies, many emerging market currencies depreciate (De Bock and de Carvalho Filho, 2015). Following Ahmed (2021), we control for three sets of global factors: commodity prices (Chen & Rogoff, 2003; Beckmann et al., 2020);[3] the VIX and EM spread (ICE BofA Emerging Markets Corporate Plus Index Option-Adjusted Spread). The resulting model can be written as

$$\Delta e_{\mathrm{i,t}} = \mathrm{c}_i + \omega_{\mathrm{R}MB} \Delta \hat{u}_{RMB,t} + \omega_{\mathrm{USD}} \Delta e_{\mathrm{USD,t}} + \omega_{€} \Delta e_{€,\mathrm{t}} + \omega_{¥} \Delta e_{¥,\mathrm{t}} + \gamma_{i,t} EMP_{i,t} + \boldsymbol{\beta}_{i,t} \boldsymbol{X}_{i,t} + \varepsilon_{i,t}, \quad (3)$$

where $\hat{u}_{RMB,t}$ is the orthogonal movement of the RMB obtained with the estimated FW model for China described above, and $\boldsymbol{X}_{i,t}$ is a vector of control variables. We estimate Equation (3) using daily data. Due to asynchronous trading hours, we use a two-day rolling average. Using rolling average data for every market day would result moving average residuals, so instead we use data for every other market day. Since the intervention component in the EMP data is only available at monthly frequency, we assume that EMP is at the same level each market day of the month. An outline of our data, which are taken from standard sources, is presented in Table B1 of Appendix B.

[3] Prices of crude oil, gold, aluminum, copper, wheat, coffee, corn, sugar, soybeans, cocoa and cotton.

3 Anchor weights

We estimate the anchor currency weights for each country-year pair separately for a period 2010–2018. The sample period is limited in the end due to data availability of our EMP measure. Observations in which the domestic currency exchange rate changes by more than 5 % are dropped so that outliers do not drive the results. We also drop euro area member countries for years when they are members of the bloc (i.e. so that they included in the sample before joining the bloc). This results a sample of 63 countries across the world. The sample countries are presented in Table A1 of Appendix A.

Table 1 shows descriptive statistics for the estimated anchor weights. Unsurprisingly, the USD has the highest average weight, 58 %, followed by the euro with an average 35 % weight. The average RMB weight, 6 %, equals the yen's average share. All these estimates align well with other measures of international usage of these currencies. For example, the USD accounts 59 % of global currency reserves (IMF COFER, 2022), 88 % of all FX market trade (BIS, 2022) and 40 % of export invoicing during 1999–2014 (Gopinath, 2015).

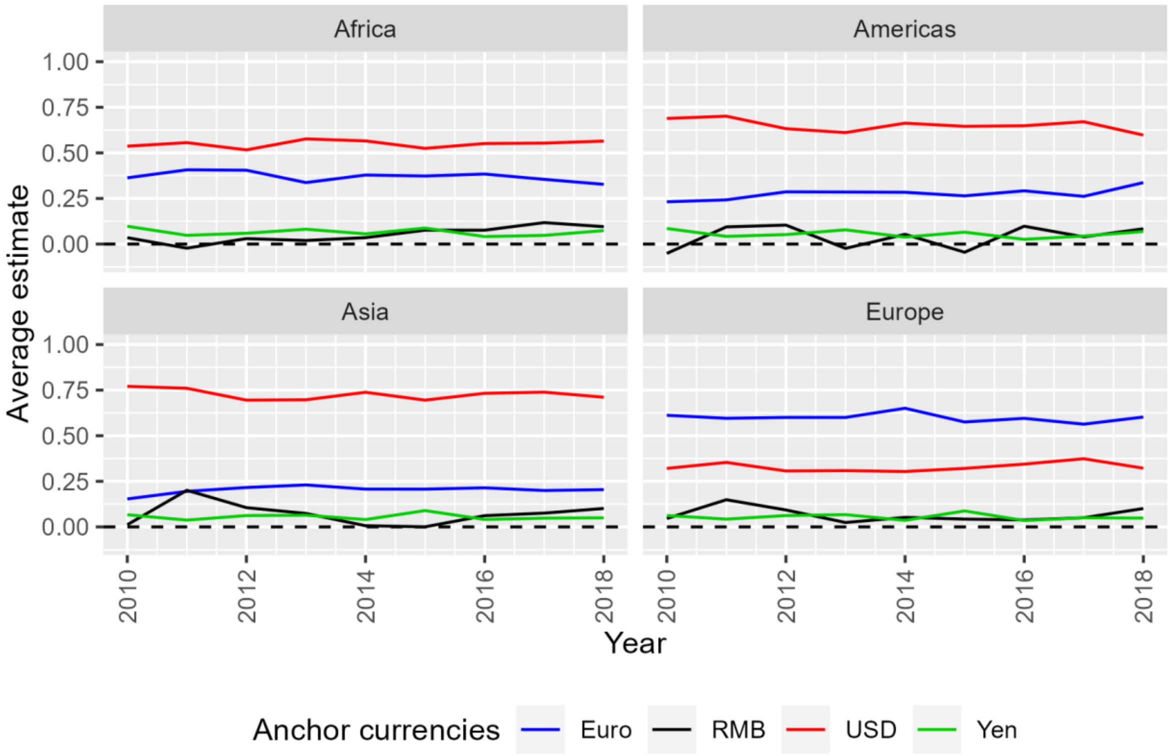
Table 1. Descriptive statistics of the anchor estimates.

Statistic	N	Min	Median	Mean	Max	Std. Dev.
Euro weight	548	-0.05	0.34	0.35	1.07	0.24
RMB weight	548	-0.48	0.04	0.06	0.70	0.15
USD weight	548	-0.04	0.56	0.58	1.03	0.25
Yen weight	548	-0.09	0.06	0.06	0.31	0.05

Figure 1 divides the estimation sample into geographical areas and shows the evolution of average weights over time. Countries in each geographical region are presented in Table A1 of Appendix A. The USD is the most important anchor currency in all geographical areas besides Europe. It is by far the most common anchor currency in the Americas and Asia, while the difference in anchor weights between the USD and euro is smaller for Africa.[4] Relatively high euro share in Africa likely reflects colonial history of the continent. The RMB is a slightly more important anchor in Asia and Africa (7 % average share over the sample period) than in other regions, but our analysis also provides no evidence of a significantly larger role for the RMB in Asia. There is no evidence that the RMB's anchor role increased during our sample period.

[4] Our sample contains no countries from the CFA franc zone as those currencies are pegged to the euro.

Figure 1. Aggregate weights across geographical areas.



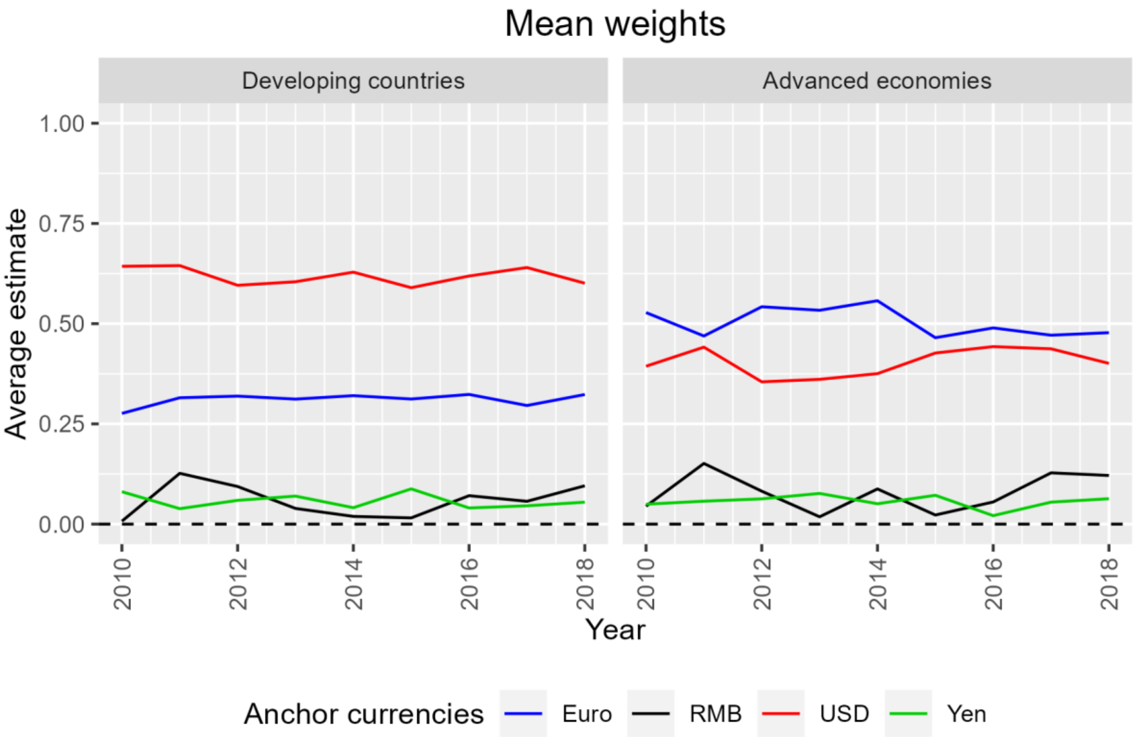
We divide the estimation sample in Figure 2 based on levels of country development (sample composition presented in Table A1 of Appendix A). The euro is the most important anchor currency among the developed countries, which heavily weighted with European countries. In developing countries, the USD is by far the most important anchor currency. There is no discernible difference in the importance of the RMB between developing and developed countries. Table C1 of Appendix C shows the average estimated anchor weights for all 63 countries in our sample. The highest average RMB anchor weight over our sample period is mostly reported for developing countries (Serbia 0.22, South Africa 0.18, Turkey 0.18, Nepal 0.16, Philippines 0.15), and also for some of the advanced economies (Hungary 0.17, Australia 0.15).

Our findings contrast with recent studies (McCauley and Shu, 2018; Chiappini and Delphine, 2020; Keddad, 2019; Keddad et al., 2019) that find high RMB weights, especially among East Asian countries, often in excess of 50 % and even approaching 100 %.[5] We believe our method of controlling for potential sources of bias results in more reliable anchor weight estimates.

[5] Their sample period mostly overlap with ours. Sample period in McCauley and Shu (2018) is 2014-2017, in Chiappini and Delphine (2020) 2000-2015, and both in Keddad (2019) and Keddad et al. (2019) 2005-2016.

Table 2 shows average parameter estimates for the control variables which included VIX for uncertainty and number of commodity prices. A positive parameter estimate signifies that an increase in a control variable is associated with a home currency depreciation vis-à-vis the NZD. In the F-test, we reject the joint null of all control variable coefficients (at 5 % significance level) in 84 % of our 517 country-year regressions. We interpret this as evidence that the previous studies which have not controlled cofounding factors might have produced erroneous inferences on the significance of different anchoring currencies.

Figure 2. Aggregate weights for developing and developed countries.



3.1 Robustness

Our implementation of the FW model incorporates modeling decisions that arguably could have been approached differently. In this subsection, we investigate robustness of our findings with alternative modeling choices.

First, we explore the choice of numeraire. As mentioned, China has economic links with New Zealand, which could increase co-movement of their currencies. For robustness, we estimate the model of Equation (3) with the USD as numeraire. For RMB exchange rate, we use the RMB per USD exchange rate instead of the orthogonal variation used in the baseline analysis. As the USD weight is not directly estimated, we calculate its weight by assuming all the anchor weights add up to one. Aggregate results are shown in Table D1 and in Figures D1 and D6 are quite similar to our baseline results with the RMB's weight averaging 7 % instead of 6 % as in the baseline analysis.

Second, we estimate the model of Kawai et al. (2016). They also use the NZD as the numeraire and orthogonal deviations of the RMB with respect to other anchor currencies. Unlike us, they include the British pound as an anchor, assume that the anchor weights add up to one, and use different set of control variables. Although Frankel et al. (2010) argue that constraining the sum of the anchor weights to one sharpens the estimates, it is obvious that the estimates are biased if the assumption fails. Results with their method, shown in Table D2 and Figures D2 and D7 are quite similar to our results. The average USD weight 61 % rather than 56 % as in our baseline results, and the euro weight is slightly lower, 31 % compared to 34 % in our baseline analysis. The average RMB share is 5 %. While a comprehensive comparison of the results of the modeling of Kawai et al. for the period 2000–2013 is not possible, the results are similar for countries where their sample overlaps with ours.

Table 2. Descriptive statistics for the control variable parameter estimates.

Variable	Mean	Median	Mean (stat. sig.)	Median (stat. sig.)
Total EMP	0.005	0.007	0.007	0.008
EM spread	0.002	0.001	0.009	0.011
Sugar price	0.002	0.002	0.001	0.004
Aluminium price	0.001	0.000	-0.002	-0.018
Coffee price	0.000	0.000	0.004	0.011
Corn price	0.000	0.000	-0.001	0.000
Cotton price	0.000	0.000	-0.008	-0.007
Oil price	0.000	0.000	0.015	0.027
VIX	0.000	0.000	0.000	0.000
Wheat price	0.000	0.000	0.010	0.011
Cocoa price	-0.002	0.000	-0.017	-0.023
Soy price	-0.002	0.000	-0.012	0.000
Copper price	-0.004	-0.001	-0.022	-0.032
Gold price	-0.007	-0.002	-0.049	-0.047

Note: The last two columns only include statistically significant (at 5 % significance level) parameter estimates.

We also estimate our model with the British pound added in the set of anchor currencies. Again the results, shown in Table D3 and Figures D3 and D8 coincide with our baseline results. The average RMB weight is 5 %, and the British pound weight is 7 %, both comparable with the yen weight at 6 % . Other results are also quite similar. The British pound is equally prevalent among regions. Countries with the highest British pound weights are Russia (16 %) Sweden (14 %) and Iceland (13 %).

As a fourth robustness check we drop the exchange rate component from the EMP variable. Looking at Equation (3), we have $\Delta e_{\mathrm{i,t}} = \Delta \log\left(\frac{LC_{i,t}}{NZD_t}\right)$ as a dependent variable, and $\Delta e_{i,SDR,t} = \Delta \log\left(\frac{LC_{i,t}}{NZD_t}\frac{NZD_t}{SDR_t}\right) = \Delta \log\left(\frac{LC_{i,t}}{NZD_t}\right) + \Delta \log\left(\frac{NZD_t}{SDR_t}\right)$ as an independent variable. By construction, this leads to endogeneity as $\Delta e_{i,SDR,t}$ and $\varepsilon_{i,t}$ are correlated. To assess the size of the potential bias, we drop the exchange-rate term from the EMP measure in Equation (2), and estimate the model of Equation (3) as above. The results shown in Table D4 and Figures D4 and D9 are virtually the same as in our baseline model with total EMP.

As our last robustness check, we analyze non-peggers only. Based on the classification of Ilzetzki et al. (2019), we have 20 hard peggers in our sample (see Table A2 of Appendix A). The pegging currency is usually the USD or euro. Including them in our sample may undervalue significance of the RMB as an anchoring currency among the non-peggers. Table D5 and Figures D5 and

D10 show the results for the non-peggers classified according the coarse exchange rate regime of Ilzetzki et al. (2019) as other than “Peg.” Excluding peggers does little to alter the picture; our basic results remain robust. The average RMB weight increases from 6 % to 8 %, which is still relatively low.

4 Anchor weight determinants

To explore determinants of anchor weights, we regress the estimated anchor weights on their potential determinants and country fixed effects. We consider five sets of potential determinants.

First, we control for domestic country characteristics with real GDP (in USD) and commodity exports per GDP. A priori it is not clear how these affect the anchor choice. Smaller countries may want to import monetary policy credibility by pegging their currency to a major currency, such as the USD or euro. Many commodity exporters peg their currency to the USD to match their (mostly USD) export income with local currency liabilities. However, domestic policy needs, such as accommodation to terms of trade shocks, may call for floating the currency or pegging to something else than the USD (Setser, 2007).

Second, we explore how integration between home and anchor countries via trade affects anchor choices. We measure trade links with bilateral trade (imports and exports) between home country and an anchor country per home country GDP. Increased trade with an anchor increases incentives to decrease exchange rate uncertainty between countries.

Third, we consider how uncertainty affects the anchor currency choice using three measures. The VIX index captures general uncertainty and risk aversion in financial markets. We hypothesize that in more uncertain periods countries prefer anchoring their currency to the USD and the yen, which fare better in risk off periods, as mentioned above. We then explore how global geopolitical uncertainty shapes anchor currency choice. We expect USD favourability to increase in geopolitically uncertain times, but countries geopolitically linked to China could still prefer the RMB. Current geopolitical and trade tensions between the US and China as well as financial sanctions on Iran and Russia highlight some of the challenges central banks face in the reserve currency allocation and anchor currency choice. Speculation about decoupling of the global economy and formation bipolar blocs around the US and China (e.g. a BRICS bloc) is also relevant. In this light, it may be worth asking whether geopolitical uncertainty has earlier affected the anchor currency choices. To measure geopolitical uncertainty, we use the data of Caldara et al. (2022). They use a newspaper-based index to identify the threat or realization of violent geopolitical conflicts. Finally, we measure uncertainty related to each anchor country with economic policy uncertainty (EPU) index (Data for the US and euro area: Baker et al., 2015; Japan: Arbatli et al., 2019; China: Davis et al., 2016). When the EPU of an anchor country increases, we expect other countries will seek to decrease their dependence on that currency by decreasing its anchor weight.

Fourth, we explore effect of anchor and home currency characteristics. As discussed above, Keddad (2019) noted that countries wish to increase the RMB anchor weight when the RMB is depreciating. McCauley and Shu (2018) found that the RMB anchor weight increased when the PBC's RMB policy is more transparent. It can also be argued that incentives to peg to the RMB increases when volatility of the RMB exchange rate increases. Countries would then peg to the RMB, which in turn is pegged to other major currencies. In the same time higher volatility of the USD, euro and yen exchange rates may decrease attractiveness of a peg to them if the monetary authority values stability of more traditional anchor currencies. Lastly, home currency exchange rate vis-à-vis the anchors may create incentives to anchor or de-anchor home currency from an anchor because of anchor currency debt or external competitiveness issues relative to the anchor countries.

We measure anchor currency exchange rate with nominal effective exchange rate (NEER) appreciation relative to previous year, anchor currency volatility with standard deviation of daily effective exchange rate and domestic currency exchange rate with appreciation of domestic currency relative to each anchor, relative to the previous year again.

Fifth, as anchor currency weight choices are done jointly, we add other currency weights in our regression. This should reveal whether the currencies included are substitutes or possibly complements for each other in the currency basket.

Table 3. Estimation results with anchor weights added in the model. FE estimation.

	USD weight	Euro weight	Yen weight	RMB weight
Real GDP	-0.003	-0.001	-0.000	-0.009
	(0.002)	(0.002)	(0.001)	(0.005)
Commodity exports per GDP	-2.533	-1.141	-8.568 *	14.701
	(4.963)	(4.993)	(4.207)	(14.991)
VIX	0.190 **	0.184 **	0.203 ***	0.291
	(0.058)	(0.061)	(0.052)	(0.164)
Geopolitical uncertainty	0.142 *	0.046 *	0.038	-0.024
	(0.056)	(0.022)	(0.027)	(0.072)
Anchor EPU	-0.010	-0.001	-0.006	0.028 **
	(0.011)	(0.006)	(0.030)	(0.011)
Trade concentration	1.283	-7.504	19.448	-25.617
	(16.866)	(8.484)	(23.505)	(31.284)
Anchor appreciation	-18.734 ***	6.096	-8.025	-19.517
	(5.079)	(5.163)	(4.959)	(14.106)
Anchor volatility	-1.291	0.460	0.116	1.398
	(0.708)	(0.341)	(0.269)	(0.839)
Bilateral appreciation	-2.265	-6.626 **	-1.893	-11.813
	(2.018)	(2.071)	(1.690)	(6.178)
Euro weight	-0.921 ***		-0.567 ***	-0.455 **
	(0.021)		(0.032)	(0.161)
Yen weight	-0.872 ***	-0.815 ***		-0.279
	(0.043)	(0.047)		(0.192)
RMB weight	-0.057 **	-0.051 **	-0.022	
	(0.017)	(0.017)	(0.014)	
USD weight		-0.912 ***	-0.599 ***	-0.484 **
		(0.021)	(0.030)	(0.159)
R^2	0.876	0.857	0.579	0.085
Adj. R^2	0.853	0.831	0.504	-0.080
Number of observations	423	424	424	421
Number of countries	53	53	53	53

Table 3 presents our estimation results.[6] Our evidence indicates that the USD, euro and yen are strong substitutes for each other in currency baskets. The RMB weight has a small effect on the USD and euro weights, and the effect on the yen weight is not statistically significant. The fourth column indicates that the USD and euro weights affect the RMB weight, while effect of the yen weight is not statistically significant.

[6] Countries included in the sample are Algeria, Argentina, Australia, Bahrain, Bangladesh, Bosnia and Herzegovina, Botswana, Brazil, Brunei, Bulgaria, Chile, Hong Kong, Colombia, Croatia, Czech Republic, Denmark, Egypt, Hungary, Iceland, India, Indonesia, Israel, Jordan, Kazakhstan, Kenya, Kuwait, Lebanon, Malaysia, Mauritius, Mexico, Morocco, Nepal, North Macedonia, Norway, Oman, Pakistan, Peru, Philippines, Romania, Russian, Saudi Arabia, Singapore, South Africa, Sri Lanka, Sweden and Switzerland.

An increase in the VIX increases all the anchor weights except the RMB. We can infer that countries seek to peg their currencies to the most widely used global currencies in times of financial market turbulence. Indeed, geopolitical uncertainty increases USD and euro anchor weights. This suggests that when geopolitical uncertainty is on rise, countries still side their exchange rate policies towards traditional Western powers and safe havens. Surprisingly, an increase in economic policy uncertainty in China increases the use of RMB as an anchor currency.

We find that trade with anchor countries does not explain anchor choices, a result that contrasts with earlier studies (e.g. Cai, 2020; He et al., 2023; Park et al., 2020). USD appreciation decreases its anchor weight. This may reflect fear or appreciation, the unwillingness of countries to let their home currency appreciate along with the dollar. While such fears could stem from external competitiveness concerns, there is evidence that it is the USD, not domestic currency strength, that dictates export volumes (Boz et al., 2017; Boz et al., 2022). Finally, bilateral appreciation against the euro decreases the euro weight, and commodity exporters are less willing to peg to the yen. Notably, our model is much worse here at predicting RMB weights as indicated by the lower R^2.

The interaction of the USD, euro, and the yen weights prevails when we estimate the model for different geographical regions. The results, presented in Table E1 of Appendix E, show that the RMB is a substitute for the USD and euro in the Americas and Africa, although the effect is rather small. The euro's anchor weight decreases among African countries when the euro area EPU increases, while Asian countries increase both the yen and RMB weights when the EPU in Japan and China increases, respectively. Policy behavior among African countries comports with our prior assumption of eschewing an anchor when the anchor country's policy uncertainty increases, although Asian countries tend to stick with their regional anchor currencies even when uncertainty in those anchor countries increases. We also estimate the model separately for developing and developed countries (the results are shown in Table E2) and find that increase in the VIX is especially strongly linked with the anchor currency choice in developing countries. For developing countries, an increase in the VIX increases the USD, euro and yen anchor weights, while the anchor weight estimate for the RMB is not statistically significant. In developed countries, the parameter estimates are mostly mixed and none statistically significant.

5 Conclusions

China's immense role in the global economy and gradual internationalization of the RMB have increased the RMB's potential role as a pegging currency. This study contributed the literature on the role, evolution and determinants of the RMB as a pegging currency.

We estimated currency baskets for 63 countries using Frankel-Wei method. Our estimations carefully control the impact of central bank interventions and global factors that potentially drive co-movement between currencies. In contrast to earlier studies, we the RMB share in currency baskets was shown to be low, just 6 % on average, with no sign of increase over time. Furthermore, the RMB's importance as an anchor currency is not more significant in Asia than in other geographical regions. The USD has the highest share, 58 % on average, followed by the euro with a 35 % share.

We also find that the USD, euro and yen anchor weights are interlinked, while the RMB weight is much more loosely related to the three other anchor currencies. This suggests that RMB anchor choices are dictated by different policy preferences than those of the other three currencies. We also find that an increase in financial markets volatility leads developing countries to peg more firmly to the developed countries currencies USD, euro and yen. Finally, in times of heightened geopolitical uncertainty, countries peg more strongly to the traditional anchor currencies and major reserve currencies – the USD and the euro.

Our result of low level of the RMB anchoring contrasts starkly with earlier studies (Keddad, 2019; Keddad et al., 2019; McCauley et al., 2018; Park et al., 2020) which report high RMB weights, often exceeding 50 % and even approaching 100 %. Our results further suggest little progress in the international use of the RMB as a pegging currency. That may be due to the central role of the USD (and the euro to a lesser extent) in the global economy as a denomination currency for trade, assets and safe haven. In addition, the non-convertibility of the RMB may also play a role here. In times of heightened geopolitical uncertainty, it seems countries still prefer to peg to the two top currencies, which may suggest that there is only limited willingness to peg to the RMB in the face of potential fragmentation of the global economy.

References

Arbatli, E., Davis, S.J., Ito, A. & Miake, N. (2019). Policy Uncertainty in Japan. NBER Working Paper 23411. Revised, August 2019.

Adler, G., Mano, R., Chang, K.S. & Shao, Y. (2021). Foreign Exchange Intervention: A Dataset of Public Data and Proxies. IMF Working Papers 2021/047, International Monetary Fund.

Ahmed, R. (2021). Monetary policy spillovers under intermediate exchange rate regimes. *Journal of International Money and Finance*, 112, 1024-1042.

Bahaj, S. & Reis, R. (2011). Jumpstarting an international currency. Bank of England Working Papers, 874.

Balasubramaniam, V., Patnaik, I. & Shah, A. (2011). Who cares about the Chinese Yuan? Working Papers 11/89, National Institute of Public Finance and Policy.

Balasubramaniam, V. & Kumar, S.H., Patnaik, I. & Shah, A. (2020). Who cares about the Renminbi? Working paper.

Bank of International Settlements (2022). Triennial Central Bank Survey. OTC foreign exchange turnover in April 2022.

Baker, S.R., Bloom, N. & Davis, S.J. (2016) Measuring Economic Policy Uncertainty. *Quarterly Journal of Economics*, 131(4), 1593-1636.

Boz, E., Casas, C., Georgiadis, G., Gopinath, G., Le Mezo, H., Mehl, A. & Nguyen, T. (2022). Patterns of invoicing currency in global trade: New evidence. *Journal of International Economics*, 136(C).

Boz, E., Gopinath, G. & Plagborg-Møller, M. (2017). Global Trade and the Dollar. NBER Working Papers 23988, National Bureau of Economic Research, Inc.

Cai, W. (2022). Determinants of the renminbi anchor effects: From the perspectives of the Belt and Road initiative. *International Journal of Finance and Economics,* 27, 3421-3433.

Caldara, D. & Iacoviello, M. (2022). Measuring Geopolitical Risk. *American Economic Review*, 112(4), 1194-1225.

Cheung, Y.-W. (2022). The RMB in the Global Economy. Cambridge University Press.

Cheung, Y.-W., Hui, C.-H. & Tsang, A. (2018). The RMB central parity formation mechanism: August 2015 to December 2016. Journal of International Money and Finance, 86(C) 223-243.

Chiappini, R. & Lahet, D. (2020). Exchange rate movements in Emerging Economies – Global vs Regional factors in Asia. *China Economic Review,* 60(C).

Chow, H.K. (2014). Is the Renminbi Asia's Dominant Reference Currency? A Reconsideration. *China Economic Policy Review,* 3(01), 1-20.

De Bock, R. & de Carvalho Filho, I. (2015). The behavior of currencies during risk-off episodes. *Journal of International Money and Finance*, 53(C), 218-234.

Davis, S.J., Liu, D. & Sheng, X.S. (2016) Economic Policy Uncertainty in China Since 1949: The View from Mainland Newspapers, Working paper.

Dominguez, K.M.E., Hashimoto, Y. & Ito, T. (2012). International reserves and the global financial crisis. *Journal of International Economics*, 88(2), 388-406.

Dooley, M. P. & Folkerts-Landau, D. & Garber, G. (2004). The Revived Bretton Woods System: The Effects of Periphery Intervention and Reserve Management on Interest Rates & Exchange Rates in Center Countries. NBER Working Papers 10332.

Frankel, J.A. & Wei, S.-J. (1994). Yen block or dollar block: Exchange rate policies of the East Asian Economies. In T. Ito and A. Kruger (eds.) *Macroeconomic Linkages: Savings, Exchange Rates and Capital Flows.*

Frankel, J.A. & Wei, S.-J. (2007) Assessing China's exchange rate regime. *Economic Policy*, 22(51), 576-627.

Frankel, J. & Wie, S.-J. (2008). Estimation of De Facto Exchange Rate Regimes: Synthesis of the Techniques for Inferring Flexibility and Basket Weights. *IMF Staff Papers*, 55(3), 384-416.

Frankel, J. & Xie, D. (2010). Estimation of De Facto Flexibility Parameter and Basket Weights in Evolving Exchange Rate Regimes. *American Economic Review*, 100(2), 568-572.

Fratzscher, M. & Arnaud, M. (2013). China's Dominance Hypothesis and the Emergence of a Tripolar Global Currency System. *Economic Journal*, 124(581), 1343-1370.

Gaulier, G. & Zignago, S. (2010). BACI: International Trade Database at the Product-Level. The 1994-2007 Version. CEPII Working Paper No. 2010-23.

Haldane, A.G. & Hall, S.G. (1991). Sterling's relationship with the dollar and the Deutschmark: 1976-1989. *Economic Journal,* Royal Economic Society, 101(406), 436-443.

He, Q., Liu, J. & Yu, J. (2023). Dancing with Dragon: The RMB and Developing Economies' Currencies. *Research in International Business and Finance*, 64(C).

IMF COFER (2023). Currency Composition of Official Foreign Exchange Reserves (COFER) 2023. IMF Database. Available in https://data.imf.org/?sk=E6A5F467-C14B-4AA8-9F6D-5A09EC4E62A4.

Ilzetzki, E., Reinhart, C. & Rogoff, K. (2019). Exchange Arrangements Entering the 21st Century: Which Anchor Will Hold? *Quarterly Journal of Economics*, 134(2), 599-646.

Ito, H. & McCauley, R.N. (2019). A key currency view of global imbalances. *Journal of International Money and Finance*, 94(C), 97-115.

Ito, H. & McCauley, R.N. (2020). Currency composition of foreign exchange reserves. *Journal of International Money and Finance,* 102(C).

Kawai, M. & V. Pontines (2016). Is there really a renminbi bloc in Asia? A modified Frankel-Wei approach, *Journal of International Money and Finance,* 62(C), 72-97.

Keddad, B. (2019). How do the Renminbi and other East Asian currencies co-move? *Journal of International Money and Finance,* 91(C), 49-70.

Keddad, B. & Sato, K. (2019). Pegging or Floating? A Regime-Switching Perspective of Asian Exchange Rate Practices. Discussion paper 19073, Research Institute of Economy, Trade and Industry.

Klaassen, F. & Jager, H. (2011). Definition-consistent measurement of exchange market pressure. *Journal of International Money and Finance*, 30(1), 74-95.

Ma, G. & McCauley, R.N. (2011). The evolving renminbi regime and implications for Asian currency stability. *Journal of the Japanese and International Economies*, 25(1), 23-38.

McCauley, R.N. & Shu, C. (2018) Recent RMB policy and currency co-movements. BIS Working Paper No.727.

Mora, C.E.T. & Nor, T.M. (2018). Reserve Currency Blocs: A Changing International Monetary System? IMF Working Papers 2018/020, International Monetary Fund.

Park, B. & An, J. (2020). What Drives Growing Currency Co-movements with The Renminbi? *East Asian Economic Review*, 24(1), 31-59.

Patnaik, I., Felman, J. & Shah, A. (2017). An exchange market pressure measure for cross country analysis. *Journal of International Money and Finance*, 73(PA), 62-77.

Pontines, V. & Rajan, R.S. (2011) Foreign exchange market intervention and reserve accumulation in emerging Asia: Is there evidence of fear of appreciation? *Economics Letters*, 111(3), 252-255.

Pontines, V. & Siregar, R.Y. (2012). Fear of appreciation in East and Southeast Asia: The role of the Chinese RMB. *Journal of Asian Economics*, 23(4), 324-334.

Setser, B. (2007). The Case for Exchange Rate Flexibility in Oil-Exporting Economies. Peterson Institute for International Economics Policy Brief PB07-8.

Shu, C., He, D. & Xiaoqiang, C. (2015). One currency, two markets: The renminbi's growing influence in Asia-Pacific, *China Economic Review*, 33(C), 163-178.

Subramanian, A. & Kessler, M. (2013). The Renminbi Bloc is Here: Asia Down, Rest of the World to Go? *Journal of Globalization and Development*, 4(1), 49-94.

SWIFT (2024). RMB Tracker February 2024.

WB WDI (2023), *World Development Indicators*. Washington, D.C.: The World Bank.

Appendices

Appendix A Countries in sample

Table A1. Sample countries in the baseline sample

Region	Developing	Advanced
Africa	Algeria, Botswana, Egypt, Arab Rep. of, Kenya, Mauritius, Morocco, Mozambique, South Africa, Tanzania, Uganda, Zambia	-
Americas	Argentina, Bolivia, Brazil, Chile, Colombia, Mexico, Peru, Uruguay, Venezuela	Canada
Asia	Bahrain, Bangladesh, Brunei, India, Indonesia, Jordan, Kazakhstan, Kuwait, Lebanon, Malaysia, Nepal, Oman, Pakistan, Philippines, Qatar, Saudi Arabia, Sri Lanka, Thailand, Turkey, United Arab Emirates, Vietnam	Hong Kong SAR, Israel, Singapore
Europe	Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, North Macedonia, Romania, Russia, Serbia, Ukraine	Czech Republic, Denmark, Estonia, Iceland, Lithuania, Norway, Sweden, Switzerland
Oceania	-	Australia

Table A2. Hard pegging countries based on classification of Ilzetzki et al. (2019). The countries have had hard peg for the entire sample period (2010-2018) unless otherwise mentioned.

Country	**Hard peg period**
Bahrain	Full sample
Bangladesh	2013-2018
Bolivia	Full sample
Bosnia and Herzegovina	Full sample
Brunei	Full sample
Bulgaria	Full sample
Croatia	Full sample
Czech Republic	2014-2018
Denmark	Full sample
Estonia	2010-2010
Hong Kong SAR	Full sample
Jordan	2010-2017
Kuwait	Full sample
Lebanon	Full sample
Lithuania	2010-2014
Mauritius	2015-2018
Morocco	Full sample
Nepal	2010-2017
North Macedonia	Full sample
Oman	Full sample
Qatar	Full sample
Saudi Arabia	Full sample
Serbia	2015-2018
Singapore	2017-2018
Switzerland	2012-2014
Ukraine	2010-2013
United Arab Emirates	Full sample

Appendix B. Variables

Table B1. Variables used in the analysis.

Variable name	Definition	Source	Units
Exchange rates	Local currency per the NZD and the SDR	BIS and Refinitiv Datastream	Relative change
VIX		FRED	Index
Gold price	Gold Fixing Price 3:00 PM London time in London Bullion Market	FRED	USD per troy ounce
Other commodity prices		Refinitiv Datastream	USD
EM spread	ICE BofA Emerging Markets Corporate Plus Index	FRED	Percent
FX interventions	Total FX intervention proxy	Adler et al. (2021)	Million USD
Effectiveness of the FX interventions		Patnaik et al. (2017)	Percentage change of exchange rate associated with a billion USD intervention
Trade concentration	Exports and imports to and from an anchor country per home country GDP	IMF DOT and authors' calculations	Ratio
Total EMP		Authors' calculation	Percent
Geopolitical uncertainty		Caldara et al. (2022)	Index
USA and euro area EPU		Baker et al. (2016)	Index
Japan EPU		Arbatli et al. (2019)	Index
China EPU		Davis et al. (2016)	Index
Anchor appreciation	Appreciation of the anchor NEER relative to the previous year	IMF IFS and authors calculation	Relative change
Anchor exchange rate standard deviation	Standard deviation of daily effective exchange rate	BIS and Refinitiv Datastream, and authors' calculations	Standard deviation units
Commodity exports per GDP	Agricultural raw materials, fuel, and ores and metals exports per GDP	WB WDI and authors' calculations	Percent
NEER appreciation	Appreciation of nominal effective exchange rate index	IMF IFS and authors' calculations	Ratio

Appendix C. Country estimates

Table C1. Average estimated anchor currency weights for each country.

Country	Euro weight	RMB weight	USD weight	Yen weight	R^2
Algeria	0.34	0.02	0.61	0.05	0.94
Argentina	0.21	0.03	0.78	0.02	0.97
Australia	0.32	0.15	0.49	0.08	0.90
Bahrain	0.06	0.03	0.91	0.05	0.99
Bangladesh	0.27	0.03	0.67	0.06	0.99
Bolivia	0.05	-0.02	0.94	0.01	1
Bosnia and Herzegovina	0.33	0.06	0.58	0.08	0.94
Botswana	0.38	0.10	0.47	0.05	0.84
Brazil	0.38	0.02	0.51	0.07	0.94
Brunei	0.34	0.13	0.49	0.11	0.89
Bulgaria	1	0	0	0	1
Canada	0.36	0.12	0.53	0.07	0.97
Chile	0.39	-0.01	0.51	0.10	0.97
Colombia	0.35	0.02	0.58	0.06	0.97
Croatia	0.92	0.01	0.05	0.02	0.98
Czech Republic	0.82	-0.02	0.13	0.03	0.94
Denmark	1	0	0	0	1
Egypt, Arab Rep. of	0.18	0.03	0.78	0.03	0.98
Estonia	1	0	0	0	1
Hong Kong SAR	0.03	0.06	0.95	0.01	1
Hungary	0.57	0.17	0.33	0.06	0.93
Iceland	0.47	0.09	0.40	0.09	0.96
India	0.32	0.10	0.61	0.04	0.95
Indonesia	0.32	0.08	0.60	0.05	0.95
Israel	0.37	0.10	0.56	0.05	0.94
Jordan	0.04	0	0.97	0	0.99
Kazakhstan	0.26	0.05	0.63	0.09	0.97
Kenya	0.25	0	0.68	0.07	0.98
Kuwait	0.18	0.05	0.70	0.13	0.95
Lebanon	0.02	-0.01	0.97	0	0.99

Country	Euro weight	RMB weight	USD weight	Yen weight	R2
Lithuania	1	0	0	0	1
Malaysia	0.28	0.09	0.58	0.07	0.92
Mauritius	0.41	0.12	0.48	0.14	0.96
Mexico	0.36	0.14	0.54	0.05	0.96
Morocco	0.68	0	0.32	0	0.99
Mozambique	0.38	-0.02	0.52	0.08	0.99
Nepal	0.32	0.16	0.63	0.05	0.95
North Macedonia	0.36	0.04	0.57	0.06	0.96
Norway	0.42	0.07	0.48	0.07	0.95
Oman	0.06	0.04	0.91	0.04	0.98
Pakistan	0.29	0.08	0.61	0.11	0.96
Peru	0.25	0.01	0.65	0.06	0.95
Philippines	0.28	0.15	0.61	0.05	0.96
Qatar	0.04	0.02	0.94	0.03	0.99
Romania	0.68	0.01	0.28	0.04	0.96
Russia	0.34	0.14	0.58	0.05	0.94
Saudi Arabia	0.06	-0.05	0.90	0.04	0.98
Serbia	0.43	0.22	0.47	0.09	0.96
Singapore	0.31	0.14	0.55	0.08	0.95
South Africa	0.38	0.18	0.50	0.07	0.96
Sri Lanka	0.21	0.16	0.72	0.07	0.97
Sweden	0.50	0.10	0.39	0.06	0.93
Switzerland	0.63	0.11	0.23	0.13	0.89
Tanzania	0.33	0.06	0.57	0.10	0.99
Thailand	0.27	0.12	0.63	0.06	0.95
Turkey	0.38	0.18	0.48	0.09	0.94
Uganda	0.38	0.09	0.53	0.09	0.98
Ukraine	0.27	0.05	0.65	0.07	0.97
United Arab Emirates	0	0	1	0	1
Uruguay	0.35	0.06	0.54	0.10	0.95
Venezuela	0.04	0.01	0.94	0.01	1
Vietnam	0.16	-0.01	0.82	0.03	0.99
Zambia	0.37	-0.02	0.58	0.06	0.97

Appendix D. Robustness results.

Table D1. Descriptive statistics with the USD used as a numeraire.

Statistic	N	Min	Median	Mean	Max	Std. Dev.
Euro weight	557	-0.02	0.34	0.34	1.06	0.25
RMB weight	557	-0.49	0.04	0.07	0.65	0.15
USD weight	557	-0.39	0.50	0.54	1.11	0.30
Yen weight	557	-0.07	0.05	0.05	0.31	0.05

Table D2. Descriptive statistics with Kawai et al. (2016) method.

Statistic	N	Min	Median	Mean	Max	Std. Dev.
Euro weight	548	-0.06	0.23	0.31	1.12	0.30
RMB weight	548	-0.36	0.02	0.05	0.64	0.11
USD weight	548	-0.29	0.68	0.61	1.29	0.32
Yen weight	548	-0.36	0.01	0.03	0.37	0.09

Table D3. Descriptive statistics of currency weight estimates from model that includes British pound as an anchor currency.

Statistic	N	Min	Median	Mean	Max	Std. Dev.
Euro weight	557	-0.05	0.30	0.31	1.06	0.24
Pound weight	557	-0.10	0.06	0.07	0.33	0.06
RMB weight	557	-0.48	0.03	0.05	0.71	0.14
USD weight	557	-0.05	0.52	0.54	1.04	0.26
Yen weight	557	-0.11	0.06	0.06	0.31	0.05

Table D4. Descriptive statistics of currency weight estimates from a model that includes EMP reserves.

Statistic	N	Min	Median	Mean	Max	Std. Dev.
Euro weight	548	-0.26	0.14	0.28	1.26	0.35
RMB weight	548	-1.43	0.03	0.10	1.79	0.37
USD weight	548	-0.52	0.72	0.62	1.66	0.38
Yen weight	548	-0.47	0.01	0.03	1.02	0.13

Table D5. Descriptive statistics of currency weight for non-peggers.

Statistic	N	Min	Median	Mean	Max	Std. Dev.
Euro weight	354	-0.01	0.36	0.35	0.94	0.14
RMB weight	354	-0.48	0.06	0.08	0.70	0.16
USD weight	354	0.01	0.55	0.56	1.01	0.16
Yen weight	354	-0.08	0.07	0.07	0.31	0.05

Figure D1. Aggregate weight estimates across geographical areas from a model that uses USD as numeraire.

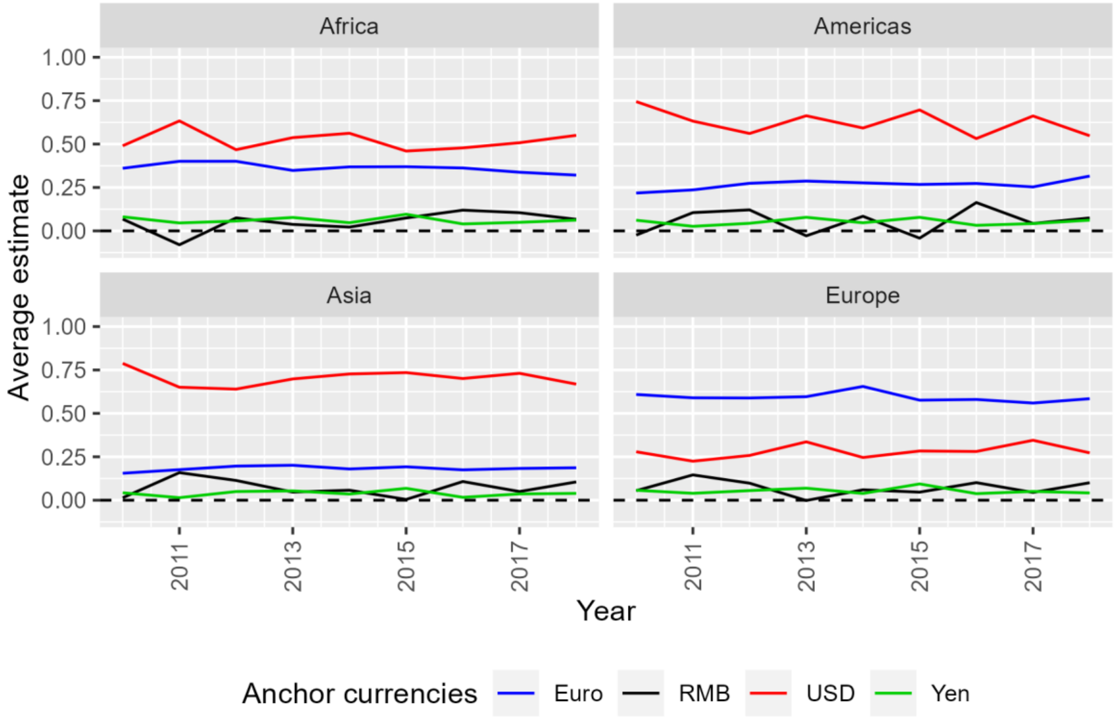


Figure D2. Aggregate weight estimates across geographical areas with Kawai et al. (2016) method.

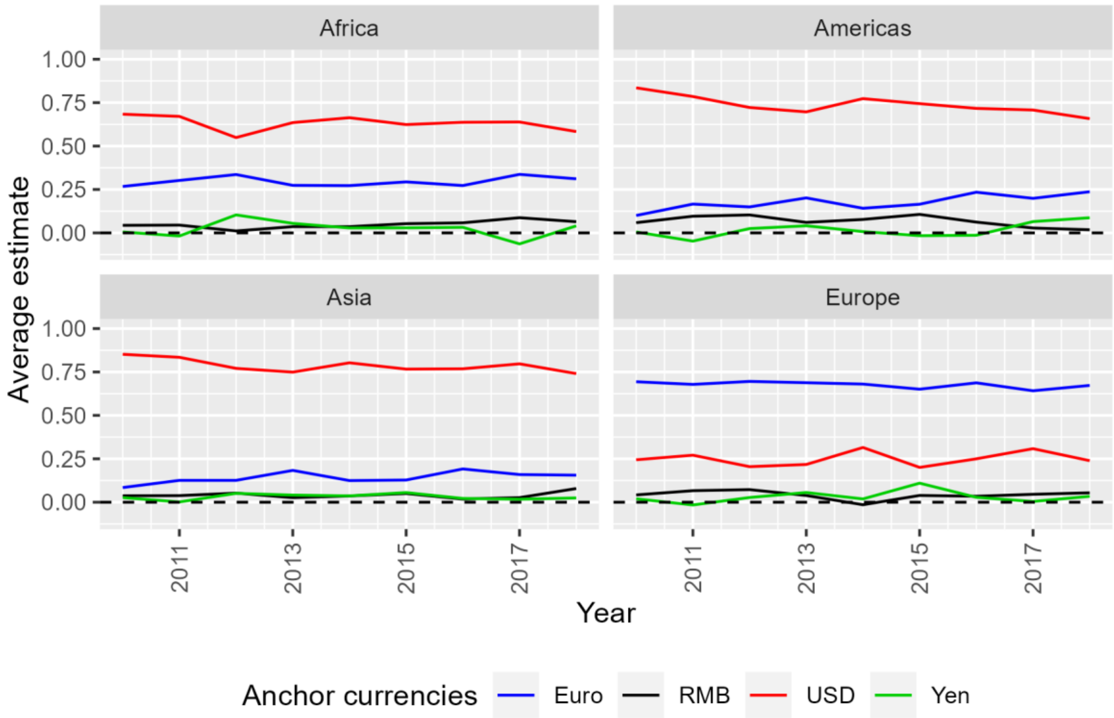


Figure D3. Aggregate weight estimates across geographical areas from a model that includes the British pound as an anchor currency.

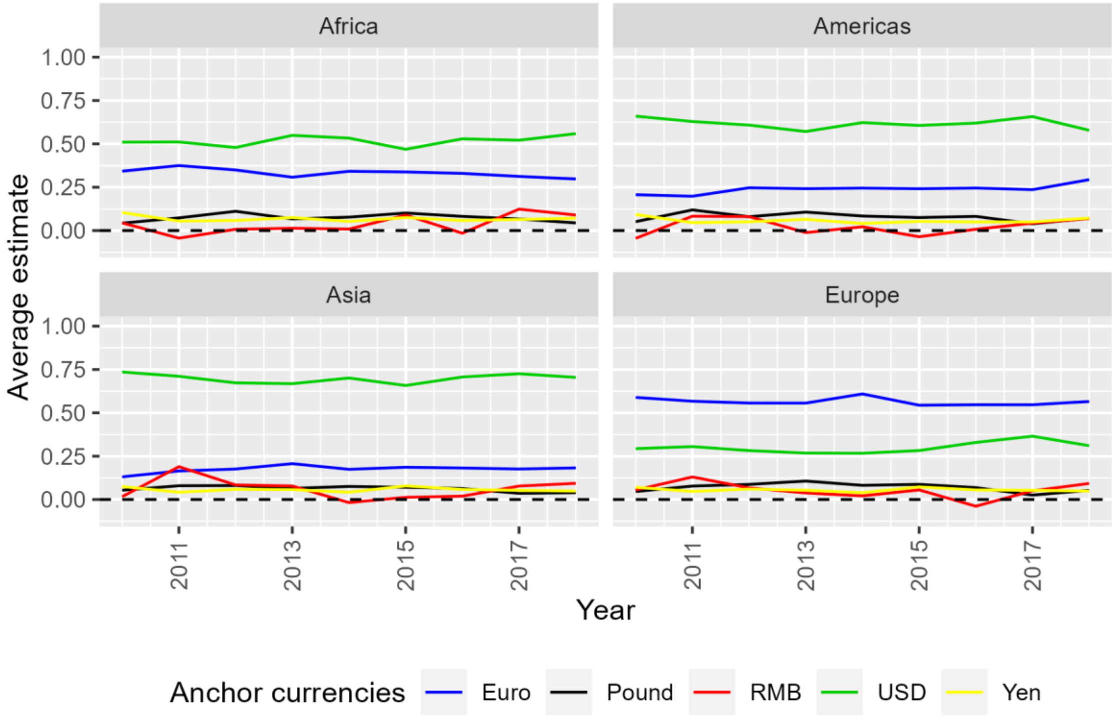


Figure D4. Aggregate weight estimates across geographical areas from a model that includes EMP reserves.

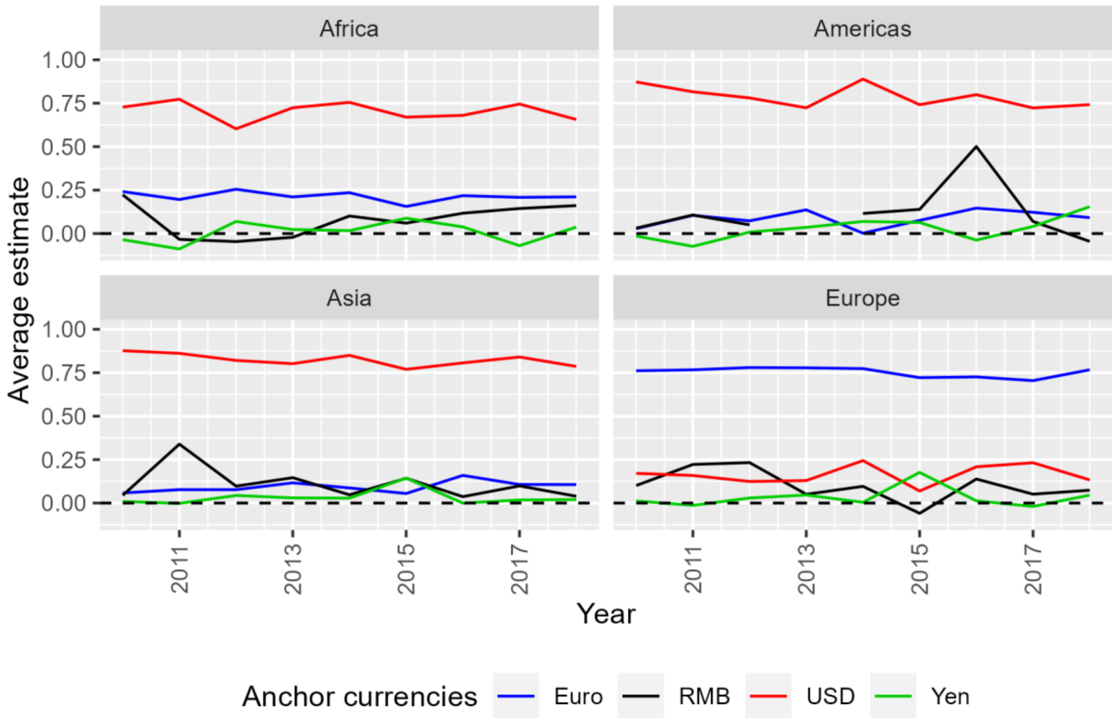


Figure D5. Aggregate weight estimates across geographical areas for non-peggers.

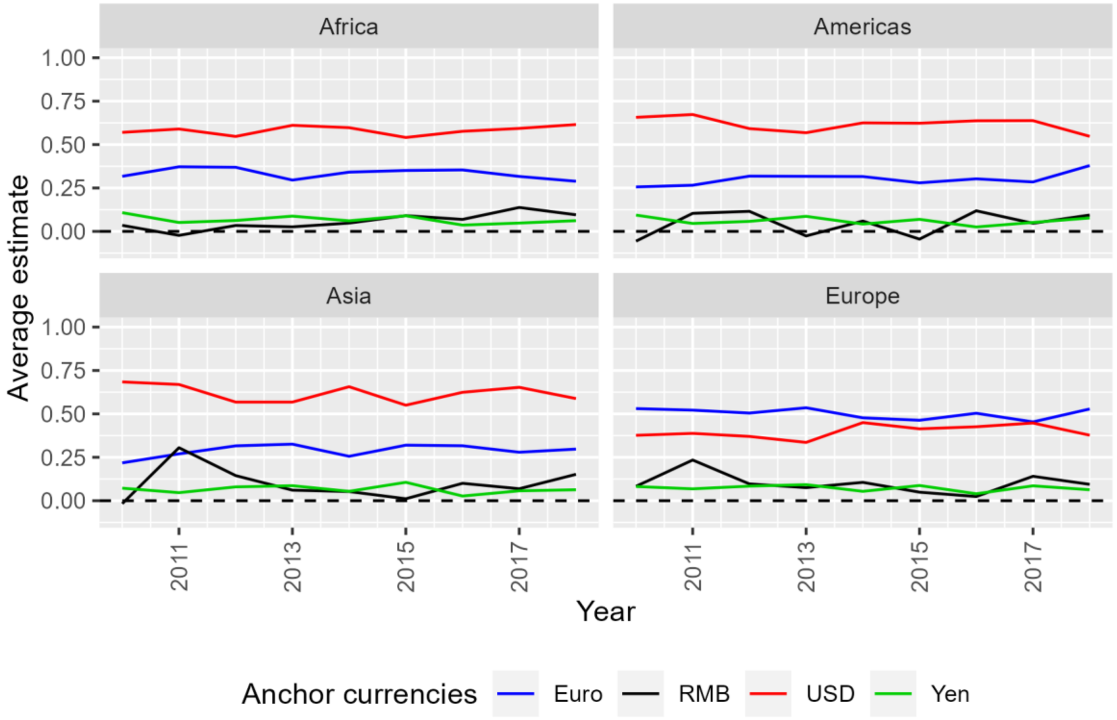


Figure D6. Aggregate weight estimates for developing and developed countries from a model that uses USD as numeraire.

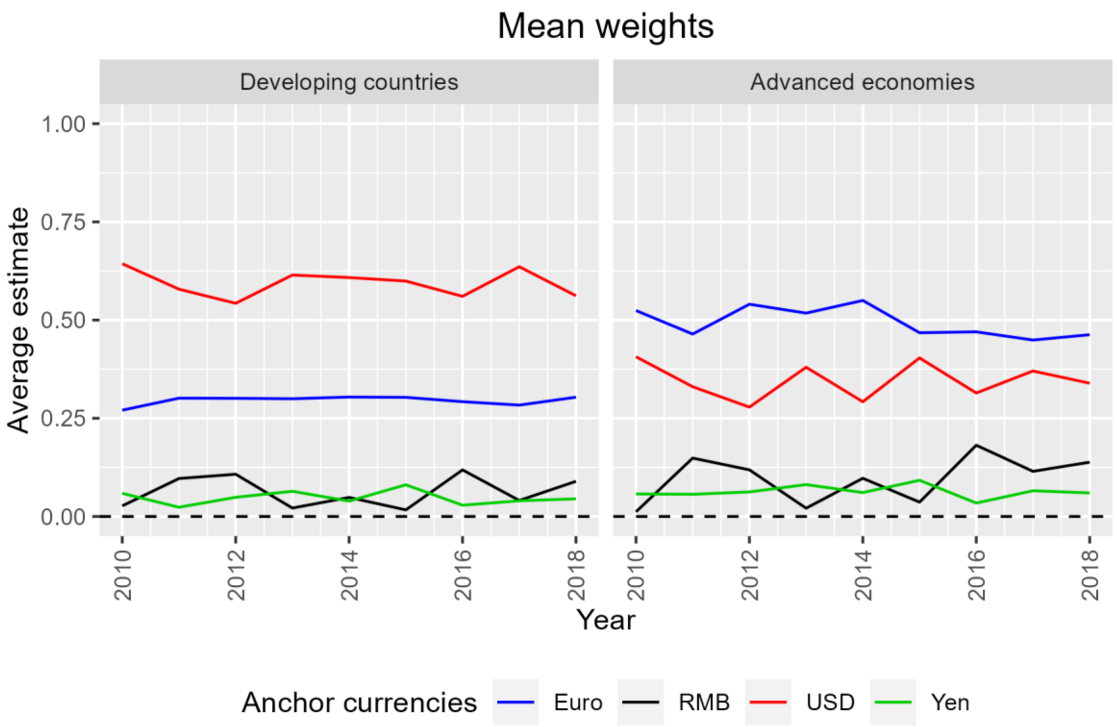


Figure D7. Aggregate weight estimates for developing and developed countries with Kawai et al. (2016) method.

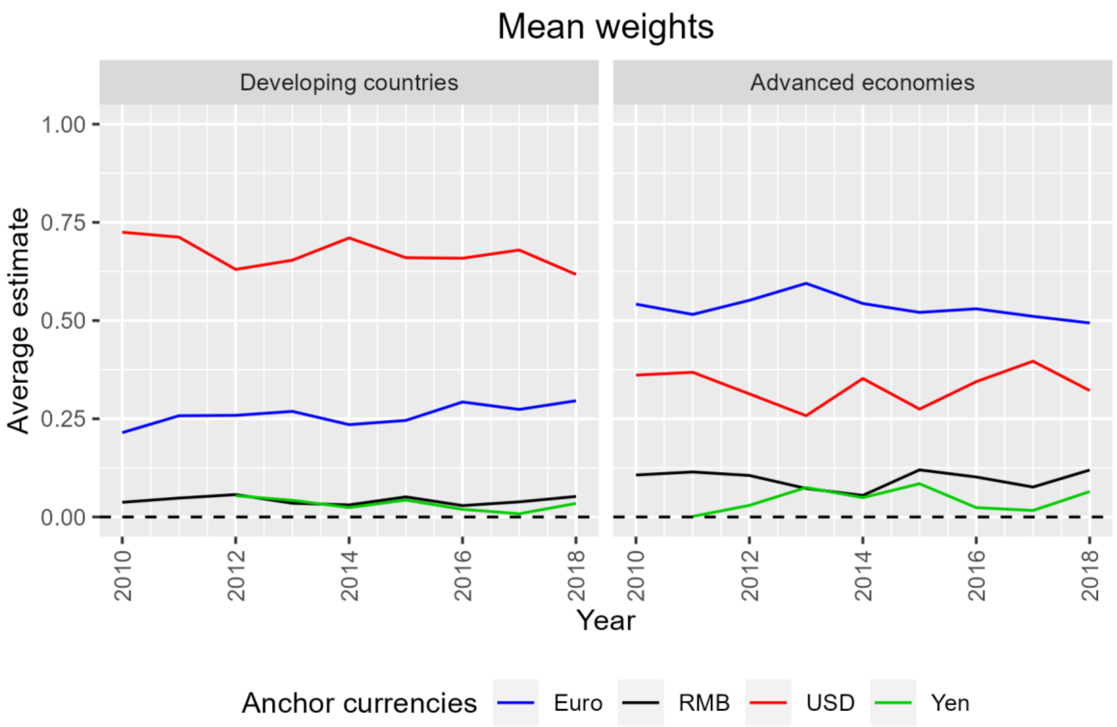


Figure D8. Aggregate weight estimates for developing and developed countries from a model that includes British pound as an anchor currency.

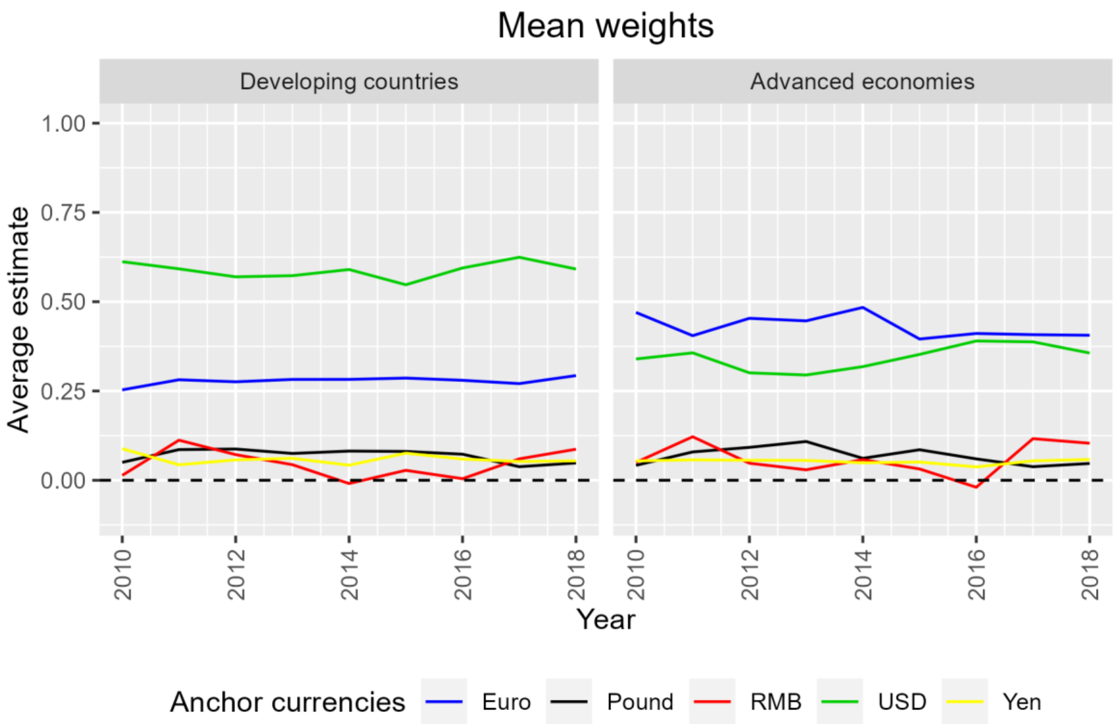


Figure D9. Aggregate weight estimates for developing and developed countries from a model that includes EMP reserves instead of total EMP.

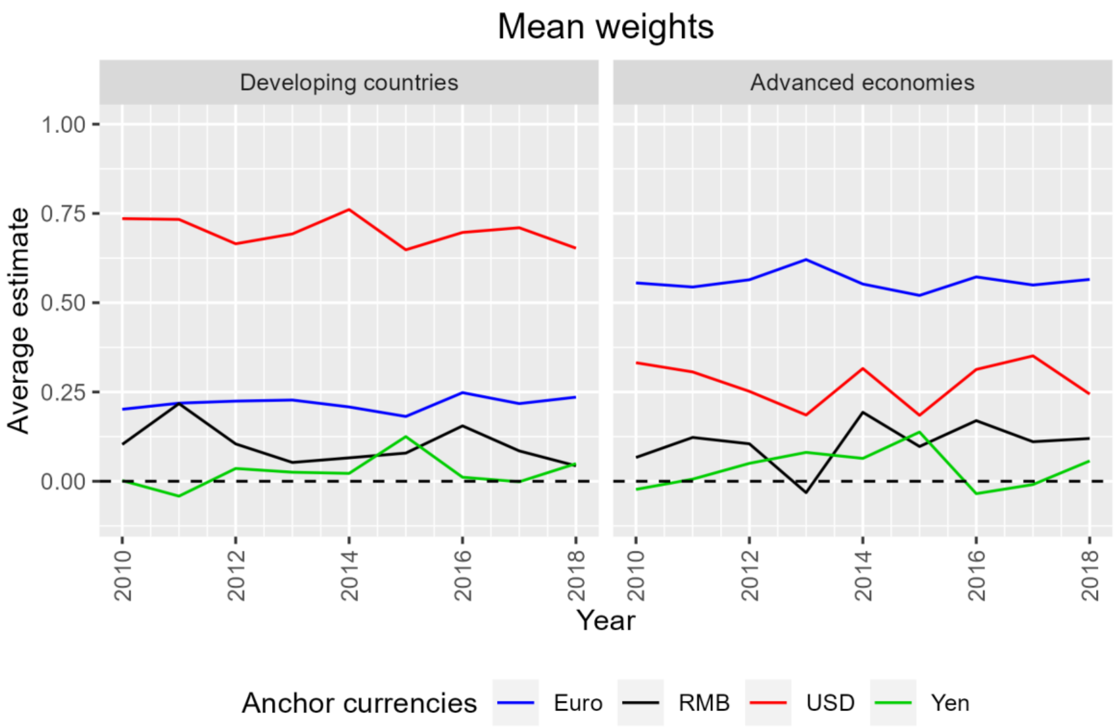
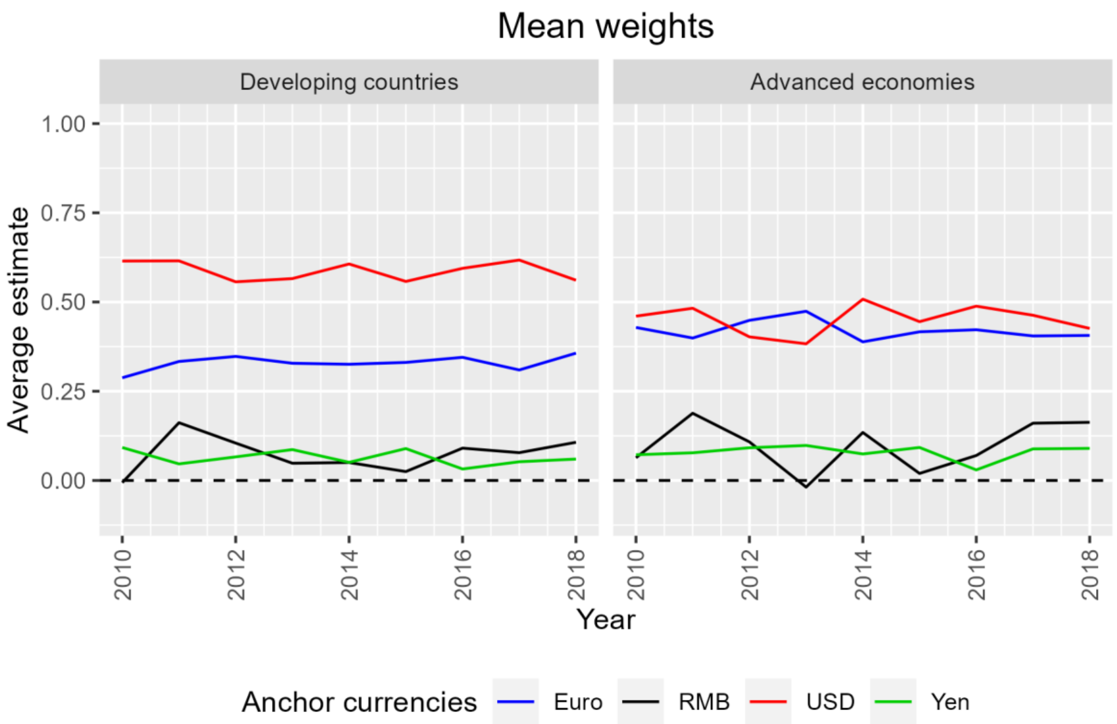


Figure D10. Aggregate weight estimates for developing and developed countries for non-peggers.



Appendix E. Determinants of the anchor weights for subsets of the full sample

Table E1. Estimation results for geographical regions. Columns from two to five show estimation results for the USD anchor choice across regions, and the rest of the columns for the euro anchor choice.

	USD weight				Euro weight			
	Asia	Africa	Americas	Europe	Asia	Africa	Americas	Europe
Real GDP	0.003	-0.014	-0.022	-0.003	0.001	-0.006	-0.011	-0.002
	(0.006)	(0.010)	(0.011)	(0.011)	(0.006)	(0.009)	(0.010)	(0.014)
Commodity exports per GDP	-4.475	40.048	9.218	16.271	-1.127	10.907	84.093	19.995
	(5.477)	(26.251)	(51.607)	(35.430)	(5.746)	(19.718)	(44.803)	(35.777)
VIX	0.245 **	0.396 *	0.229	0.142	0.166	0.006	-0.060	0.174
	(0.086)	(0.171)	(0.244)	(0.152)	(0.093)	(0.135)	(0.223)	(0.164)
Geopolitical uncertainty	0.257 **	0.211	-0.107	0.145	0.019	0.042	-0.010	0.051
	(0.081)	(0.154)	(0.189)	(0.140)	(0.034)	(0.059)	(0.087)	(0.062)
Anchor EPU	0.014	-0.058	-0.010	-0.029	0.011	-0.038 **	0.012	-0.009
	(0.017)	(0.029)	(0.040)	(0.028)	(0.009)	(0.014)	(0.020)	(0.016)
Trade concentration	7.688	-71.049	37.446	-91.591	-43.030	-26.530	-111.568	26.676
	(27.855)	(40.789)	(42.216)	(85.692)	(28.297)	(16.563)	(88.811)	(18.040)
Anchor appreciation	-9.446	-12.899	-20.884	-25.849	9.740	-3.614	-10.159	11.248
	(7.257)	(11.139)	(18.805)	(15.937)	(11.421)	(11.756)	(16.289)	(12.457)
Anchor volatility	-3.568 **	-3.275	2.409	-0.618	0.570	-0.153	-0.962	0.758
	(1.058)	(2.090)	(2.704)	(1.809)	(0.514)	(0.771)	(1.199)	(0.880)
Bilateral appreciation	8.160	-4.691	-3.281	-3.080	0.465	-6.637	-13.862 *	-8.930
	(6.333)	(4.436)	(5.986)	(5.656)	(6.164)	(3.921)	(5.379)	(6.671)
Euro weight	-0.940 ***	-1.100 ***	-0.784 ***	-0.918 ***				
	(0.040)	(0.059)	(0.120)	(0.047)				
Yen weight	-0.873 ***	-0.955 ***	-0.879 ***	-0.831 ***	-0.707 ***	-0.998 ***	-0.589 **	-0.941 ***
	(0.065)	(0.132)	(0.172)	(0.094)	(0.083)	(0.126)	(0.196)	(0.099)
RMB weight	0.004	-0.128 **	-0.148 *	-0.060	0.025	-0.093 *	-0.140 *	-0.033
	(0.029)	(0.039)	(0.061)	(0.042)	(0.030)	(0.037)	(0.063)	(0.042)
USD weight					-0.895 ***	-0.863 ***	-0.665 ***	-0.933 ***
					(0.039)	(0.047)	(0.103)	(0.048)
R^2	0.922	0.929	0.761	0.885	0.870	0.926	0.750	0.898
Adj. R^2	0.901	0.894	0.645	0.846	0.836	0.890	0.628	0.862
Number of observations	142	59	56	87	143	59	56	87
Number of countries	18	8	7	11	18	8	7	11

Table E1 continued. Columns two to five show estimation results for the euro anchor choice, and the rest for the RMB.

	Yen weight				RMB weight			
	Asia	Africa	Americas	Europe	Asia	Africa	Americas	Europe
Real GDP	0.003	-0.003	-0.027 **	-0.010	0.008	-0.028	-0.077 **	0.000
	(0.005)	(0.007)	(0.008)	(0.010)	(0.019)	(0.039)	(0.024)	(0.036)
Commodity exports per GDP	-11.073 *	1.000	15.944	11.075	-3.693	-71.921	54.461	108.280
	(5.122)	(14.342)	(38.880)	(33.815)	(17.812)	(85.447)	(109.744)	(111.041)
VIX	0.197 *	0.232	0.309	0.142	0.441	-0.217	0.312	0.245
	(0.082)	(0.124)	(0.194)	(0.154)	(0.253)	(0.510)	(0.499)	(0.419)
Geopolitical uncertainty	0.079	0.052	-0.133	0.057	-0.113	-0.004	-0.222	0.034
	(0.044)	(0.063)	(0.082)	(0.075)	(0.118)	(0.233)	(0.231)	(0.194)
Anchor EPU	0.094 *	-0.080	-0.083	-0.061	0.038 *	-0.022	0.027	0.036
	(0.047)	(0.066)	(0.087)	(0.082)	(0.019)	(0.044)	(0.033)	(0.026)
Trade concentration	36.158	242.469	-216.984	505.417	-53.054	-62.445	-73.614	-60.563
	(30.853)	(273.491)	(462.889)	(544.611)	(45.897)	(108.965)	(103.151)	(205.346)
Anchor appreciation	-17.172	-5.691	11.851	-1.768	14.867	13.433	-24.357	-43.005
	(9.598)	(10.898)	(15.004)	(13.730)	(23.613)	(41.851)	(41.806)	(41.299)
Anchor volatility	-0.324	0.612	0.240	0.605	1.628	0.544	1.925	2.578
	(0.433)	(0.584)	(0.793)	(0.731)	(1.306)	(2.770)	(2.318)	(2.201)
Bilateral appreciation	2.338	-2.577	3.371	-1.953	-2.828	-9.848	-3.242	-23.314
	(5.458)	(3.328)	(4.143)	(4.748)	(19.730)	(17.415)	(15.432)	(17.159)
Euro weight	-0.596 ***	-0.568 ***	-0.333 **	-0.674 ***	0.458	-1.670 *	-0.793	-0.254
	(0.067)	(0.088)	(0.117)	(0.072)	(0.303)	(0.627)	(0.417)	(0.378)
Yen weight					0.200	-0.775	-1.688 **	0.135
					(0.341)	(0.792)	(0.473)	(0.420)
RMB weight	-0.008	-0.046	-0.126 *	0.015				
	(0.026)	(0.032)	(0.047)	(0.036)				
USD weight	-0.697 ***	-0.535 ***	-0.447 ***	-0.639 ***	0.328	-1.277 *	-1.049 **	-0.407
	(0.052)	(0.073)	(0.093)	(0.078)	(0.295)	(0.562)	(0.367)	(0.382)
R^2	0.708	0.731	0.595	0.628	0.157	0.267	0.420	0.139
Adj. R^2	0.634	0.601	0.398	0.500	-0.061	-0.110	0.138	-0.157
Number of observations	143	59	56	87	142	57	56	87
Number of countries	18	8	7	11	18	8	7	11

Table E2. Estimation results for developing and developed countries.

	USD weight		Euro weight		Yen weight		RMB weight	
	Developing	Developed	Developing	Developed	Developing	Developed	Developing	Developed
Real GDP	-0.002	-0.018 **	-0.001	-0.010	-0.000	-0.011	-0.010	0.014
	(0.002)	(0.007)	(0.002)	(0.008)	(0.001)	(0.007)	(0.005)	(0.020)
Commodity exports per GDP	-2.112	-8.697	-0.219	-7.014	-8.379 *	-9.547	9.042	51.618
	(5.129)	(18.348)	(5.119)	(20.257)	(4.150)	(21.933)	(15.860)	(52.597)
VIX	0.176 **	0.236	0.210 **	-0.100	0.215 ***	0.114	0.342	-0.151
	(0.064)	(0.134)	(0.066)	(0.180)	(0.055)	(0.144)	(0.183)	(0.395)
Geopolitical uncertainty	0.103	0.362 **	0.068 **	-0.064	0.028	0.060	-0.035	0.086
	(0.061)	(0.131)	(0.024)	(0.061)	(0.029)	(0.078)	(0.080)	(0.165)
Anchor EPU	-0.008	-0.021	0.000	-0.010	-0.017	0.041	0.026 *	0.054 *
	(0.012)	(0.025)	(0.006)	(0.016)	(0.032)	(0.079)	(0.012)	(0.023)
Trade concentration	2.779	54.284	-24.690 *	24.181	28.926	-85.415	-13.598	-314.700
	(17.454)	(66.421)	(10.484)	(16.358)	(23.982)	(90.869)	(32.788)	(157.129)
Anchor appreciation	-16.387 **	-47.439 *	9.240	-7.378	-5.001	-24.910	-13.731	-122.796 *
	(5.444)	(18.101)	(5.645)	(12.788)	(5.205)	(14.444)	(15.367)	(50.493)
Anchor volatility	-0.624	-5.539 **	0.374	0.505	0.078	0.634	1.490	1.826
	(0.779)	(1.649)	(0.370)	(0.914)	(0.283)	(0.738)	(0.948)	(1.839)
Bilateral appreciation	-1.553	-18.225 *	-5.700 **	-12.747	-1.272	-5.325	-9.538	-78.721 *
	(2.077)	(9.022)	(2.111)	(10.995)	(1.685)	(7.881)	(6.513)	(30.582)
Euro weight	-0.915 ***	-0.917 ***			-0.528 ***	-0.741 ***	-0.586 **	0.046
	(0.023)	(0.058)			(0.034)	(0.087)	(0.179)	(0.411)
Yen weight	-0.905 ***	-0.766 ***	-0.810 ***	-0.914 ***			-0.493 *	0.392
	(0.049)	(0.096)	(0.055)	(0.102)			(0.223)	(0.395)
RMB weight	-0.069 ***	0.029	-0.060 **	0.004	-0.034 *	0.063		
	(0.018)	(0.048)	(0.018)	(0.051)	(0.015)	(0.044)		
USD weight			-0.919 ***	-0.876 ***	-0.585 ***	-0.652 ***	-0.661 ***	0.131
			(0.023)	(0.064)	(0.031)	(0.099)	(0.178)	(0.411)
R^2	0.884	0.871	0.863	0.866	0.591	0.668	0.096	0.282
Adj. R^2	0.863	0.821	0.837	0.814	0.513	0.540	-0.077	0.006
Number of observations	352	73	353	73	353	73	350	73
Number of countries	45	9	45	9	45	9	45	9

BOFIT Discussion Papers

A series devoted to academic studies by BOFIT economists and guest researchers. The focus is on works relevant for economic policy and economic developments in transition / emerging economies.

2021	No 1	Eeva Kerola and Benoît Mojon: What 31 provinces reveal about growth in China
	No 2	Ekaterina Paustyan: Politically motivated intergovernmental transfers in Russia: The case of the 2018 FIFA World Cup
	No 3	Zuzana Fungáčová, Eeva Kerola and Laurent Weill: Does bank efficiency affect the bank lending channel in China?
	No 4	Shulong Kang, Jianfeng Dong, Haiyue Yu, Jin Cao and Valeriya Dinger: City commercial banks and credit allocation: Firm-level evidence
	No 5	Denis Davydov, Jukka Sihvonen and Laura Solanko: Who cares about sanctions? Observations from annual reports of European firms
	No 6	Ralph De Haas, Ralf Martin, Mirabelle Muûls and Helena Schweiger: Managerial and financial barriers to the net-zero transition
	No 7	Haiyue Yu, Jin Cao and Shulong Kang: Who cares: Deciphering China’s female employment paradox
	No 8	Mikko Mäkinen: Does a financial crisis change a bank's exposure to risk? A difference-in-differences approach
	No 9	Ekaterina Borisova and Denis Ivanov: Covid-19 vaccine efficacy and Russian public support for anti-pandemic measures
	No 10	Orkun Saka, Yuemei Ji and Paul De Grauwe: Financial policymaking after crises: Public vs. private interests
	No 11	Joscha Beckmann and Mariarosaria Comunale: Exchange rate fluctuations and the financial channel in emerging economies
	No 12	Heli Simola: Trade collapse during the covid-19 crisis and the role of demand composition
	No 13	Orkun Saka, Barry Eichengreen and Cevat Giray Aksoy: Epidemic exposure, financial technology, and the digital divide
	No 14	Claire Yurong Hong, Xiaomeng Lu and Jun Pan: FinTech adoption and household risk-taking
	No 15	Xiaoming Li, Zheng Liu, Yuchao Peng and Zhiwei Xu: Bank risk-taking and monetary policy transmission: Evidence from China
2022	No 1	Michael Funke and Adrian Wende: The US–China phase one trade deal: An economic analysis of the managed trade agreement
	No 2	Michael Alexeev and Nikita Zakharov: Who profits from windfalls in oil tax revenue? Inequality, protests, and the role of corruption
	No 3	Florian Léon and Laurent Weill: Elections hinder firms’ access to credit
	No 4	Alistair Dieppe and Hideaki Matsuoka: Sectoral decomposition of convergence in labor productivity: A re-examination from a new dataset
	No 5	David P. Newton, Steven Ongena, Ru Xie and Binru Zhao: Banks vs. markets: Are banks more effective in facilitating sustainability?
	No 6	Tat-kei Lai and Luhang Wang: Spatial disparity of skill premium in China: The role of financial intermediation development
	No 7	Zuzana Fungáčová, Alexei Karas, Laura Solanko and Laurent Weill: The politics of bank failures in Russia
	No 8	Jin Cao, Valeriya Dinger, Ragnar E. Juelsrud and Karolis Liaudinskas: Trade conflicts and credit supply spillovers: Evidence from the Nobel Peace Prize trade shock
	No 9	Nils Steiner, Ruxanda Berlinschi, Etienne Farvaque, Jan Fidrmuc, Philipp Harms, Alexander Mihailov, Michael Neugart and Piotr Stanek: Rallying around the EU flag: Russia’s invasion of Ukraine and attitudes toward European integration
	No 10	Andrey Tkachenko: State-business relations and access to external financing
	No 11	Denis Davydov, Tatiana Garanina and Laurent Weill: Managing bank liquidity hoarding during uncertain times: The role of board gender diversity
	No 12	Timur Natkhov and William Pyle: Revealed in transition: The political effect of planning’s legacy
	No 13	Michael Funke and Adrian Wende: Modeling semiconductor export restrictions and the US-China trade conflict
	No 14	David Finck and Peter Tillmann: The macroeconomic effects of global supply chain disruptions
2023	No 1	Francis Osei and Laurent Weill: Regional favoritism in access to credit: just believe it
	No 2	Yiping Huang, Xiang Li, Han Qiu and Changhua Yu: BigTech Credit and Monetary Policy Transmission: Micro-Level Evidence from China
	No 3	Günther G. Schulze and Nikita Zakharov: Political cycles of media repression
	No 4	Anna Di Gong, Jin Wu and Jigao Zhu: When banks’ shadow fades and shadow banking rises: Securitization and loan performance in China
	No 5	Julia Niemeläinen: China’s macroeconomic policies and spillover effects
	No 6	Loren Brandt, Johannes Van Biesebroeck, Luhang Wang and Yifan Zhang: Where has all the dynamism gone? Productivity growth in China’s manufacturing sector, 1998-2013
	No 7	Xiaoshan Hu, Guanghua Wan and Congmin Zuo: Education expansion and income inequality:Empirical evidence from China
	No 8	Tuuli McCully: Drivers of portfolio flows into Chinese debt securities amidst China’s bond market development
	No 9	Iftekhar Hasan, Xiang Li and Tuomas Takalo: Technological innovation and the bank lending channel of monetary policy transmission
2024	No 1	David Lodge, Ana-Simona Manu and Ine Van Robays: China’s footprint in global financial markets
	No 2	Mustafa Özer, Jan Fidrmuc, Emmanouil Mentzakis and Özcan Özkan: Does education affect religiosity? Causal evidence from a conservative emerging economy
	No 3	Iikka Korhonen and Heli Simola: High-priority battlefield items and television sets – How sanctions reduced Russians’ access to goods
	No 4	Zuzana Fungáčová, Eeva Kerola and Laurent Weill: European banks are not immune to national elections
	No 5	Kari Heimonen and Risto Rönkkö: The RMB’s global role as an anchor currency: no evidence

BOFIT Discussion Papers
http://www.bofit.fi/en • email: bofit@bof.fi
ISSN 1456-5889 (online)