

The Dollar and its Discontents

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The dollar fell by 10 per cent between its March 2020 high and the end of the calendar year, and many banks and forecasters expect it to fall further, by as much as 35 per cent in 2021. Dollar skeptics cite the end of safe-haven flows following the approval of COVID vaccines, the Federal Reserve's aggressive quantitative easing, America's twin deficits, and the rise of viable alternatives to the greenback. This article argues, in contrast, that this dollar pessimism is overdrawn.

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I. Introduction

Currently, dollar doom and gloom is thick in the air. Between its high in March 2020, immediately after the COVID-19 pandemic struck the global economy, and the end of the same calendar year, the broad dollar index fell by approximately 10 per cent. A wide variety of banks and forecasters expected – and expect – the trend to continue. As of late November 2020, ING forecast that the dollar would fall by an additional 10 per cent in calendar year 2021 (Davies 2020). Citigroup forecast that the greenback would likely fall by a further 20 per cent in the course of the year (Reagan 2020). Writing in September 2020, Stephen Roach, formerly of Morgan Stanley and now at Yale University, suggested that the broad dollar index would fall by as much as 35 per cent by the end

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of 2021 (Roach 2020). This pessimism was grounded in a confluence of factors: the advent of effective COVID-19 vaccines, which will reverse safe-haven flows into the dollar; aggressive monetary and financial easing by the Federal Reserve; and America's large budget and current account deficits.

Superimposed on these short-term issues is the long-held belief that the dollar is at risk of losing its preeminent international role. The greenback remains far-and-away the leading global currency. It still accounts for more than 60 per cent of total identified foreign exchange reserves, according to the IMF (2020). It accounts for more than 60 per cent of all debt securities marketed to international investors and more than 40 per cent of all foreign exchange turnover worldwide (ECB 2020).

Yet October 2020 was the first time that the share of payments through SWIFT (the Society for Worldwide Interbank Financial Telecommunication) denominated in a non-dollar currency (in this case the euro) exceeded the share denominated in dollars (SWIFT 2020). The Trump Administrations efforts to weaponize the dollar – threatening countries failing to comply with U.S. sanctions against Iran and failing more generally to support U.S. foreign policy with loss of access to U.S. banks and dollar credit – may have accelerated this move toward other currencies. More generally, countries tend to use and hold the currencies of their alliance partners (Eichengreen, Mehl and Chitu 2019), and the United States has come to be regarded, in some circles at least, as a less reliable alliance partner. This newfound skepticism about the utility of the greenback arises against the backdrop of not just a euro that is increasingly seen as here to stay but also a renminbi whose emergence as an international currency is actively promoted by the Chinese authorities. Together these developments augur the possibility of further dollar depreciation as foreign users recognize the existence of alternatives and contemplate their options.

Stephen Roach, in the piece cited above, summarizes the argument. "I continue to expect this broad dollar index to plunge by as much as 35 per cent by the end of 2021. This reflects three considerations: rapid deterioration in U.S. macroeconomic imbalances, the ascendancy of the euro and the renminbi a viable alternatives, and the end of that special aura of American exceptionalism that has given the dollar Teflon-like resilience for most of the post-World War II era."

In this article I will argue, to the contrary, that this dollar doom and gloom is overdone. To paraphrase Ms. Prism in Oscar Wilde's play

“The Importance of Being Ernest” (“Cecily, you will read your Political Economy in my absence. The chapter on the Fall of the Rupee you may omit. It is somewhat too sensational.”), these tales of the dollar’s imminent demise are rather too sensational.

II. Safe Haven Flows

A first argument for why the dollar is destined to fall is the reversal of safe-haven flows following the announcement of a set of effective COVID-19 vaccines (see *e.g.* Financial Times 2020). The dollar is widely viewed as the preeminent safe-haven currency, defined as a currency that appreciates when uncertainty spikes. Its safe-haven status was illustrated most dramatically in late 2008, when it strengthened in the midst of the Global Financial Crisis despite the fact that the United States itself, as home to Lehman Brothers, was the foremost source of that crisis. The same reaction was evident in March 2020, when the dollar strengthened in response to the spread of COVID-19.

Various rationales have been offered to explain this regularity (see the survey in Habib and Stracca 2011). The United States, as the world’s single largest economy, has extensive resources to deploy in response to whatever threat looms on the horizon, where those resources include a central bank able and willing to act as lender and liquidity provider of last resort. The U.S. treasury bond market is the single largest and most liquid financial market in the world, and there is nothing that investors value more in a crisis than liquidity. Relatedly, the U.S. is fully open financially, allowing investors around the world to take and close out positions at will.

It follows that with the announcement and regulatory approval of a set of COVID-19 vaccines, earlier safe-haven flows could reverse, leading to dollar depreciation. But while this effect might explain some of the dollar’s weakness in late 2020, when successful vaccine trials was announced, it does not obviously provide a rationale for predicting further greenback weakness in 2021. The information that there exist effective vaccines was already fully in the market; prices should have adjusted on the announcement, just as they adjust to other news (Eichengreen, Lafarguette and Mehl 2017), not on the subsequent rollout.

To be sure, there remains residual uncertainty about the manufacture, distribution and take-up of vaccines. The most recent poll

of U.S. residents at the time of writing indicates that only 61 per cent of Americans are “very likely” to take an FDA-approved coronavirus vaccine as soon as it is available, reflecting doubts about its efficacy and safety (Beard 2020). Research on the response to earlier outbreaks suggests that lack of trust in government, scientists, and the safety and efficacy of vaccination is heightened by epidemic exposure, especially when the respondent lives in a country with a relatively weak government that failed to competently manage the public health emergency (Aksoy, Eichengreen and Saka 2020, Eichengreen, Aksoy and Saka 2020).

If this pattern is repeated in the context of COVID-19, then the risk of further spread of the disease and additional destabilizing economic and financial consequences may not be eliminated simply by the announcement of successful trials. Rather, governments will have to mobilize publicity campaigns and demonstrate the capacity to administer the vaccine. Their success, if it proves such, will become evident over time, in turn creating additional risk appetite and prompting flows out of the dollar.

While there may be something to this point, the question is whether any residual uncertainty is sufficiently great to justify forecasts of a further 20 per cent fall of the dollar. This is, at the least, questionable.

III. Federal Reserve Balance-Sheet Expansion

A second popular basis for forecasting the dollar’s fall is the Federal Reserve’s rapid balance sheet expansion. The Fed was more aggressive than the European Central Bank, the Bank of Japan, or the People’s Bank of China in expanding its balance sheet immediately after the COVID-19 pandemic erupted in March 2020. Its total assets dearly doubled from roughly \$4 trillion in March to nearly \$7.5 trillion in a matter of months.

Other central banks similarly adopted asset purchase programs that caused their balance sheets to expand, but they moved more slowly and on a smaller scale. By the end of 2020, the PBOC’s balance sheet had increased in value by barely 10 per cent, the BOJ’s by a third, the ECB’s by two thirds (Yardini Research 2020). Monetarist theories of inflation suggest that relative inflation rates will reflect relative rates of credit creation by central banks. In turn, purchasing-power-parity theories of exchange rate determination suggest that the dollar exchange rate will

reflect relative inflation rates.

The problem, of course, being that neither of these two theories has an especially good track record. For more than a decade following the Global Financial Crisis, global inflation remained subdued in the face of what was regarded, by the standards of the time, as rapid credit expansion. Why the relationship between money and credit on the one hand and inflation on the other has broken down was and is contested. Some (*e.g.* Goodhart and Pradhan 2020) point to globalization and demography as together subduing wage inflation in particular. Others (*e.g.* Stansbury and Lawrence 2020) point to declining unionization and falling worker power. Whatever the explanation, however, there is no question that the anticipated inflation failed to materialize.

While the absence of inflation in an environment of rapid credit creation is a recent phenomenon, the failure of purchasing power parity to explain exchange rate movements is of long standing (see *e.g.* Frenkel 1981). The latter reflects the fact that the exchange rate is an asset price – it depends on the myriad factors affecting asset markets and in particular on expectations of how those same factors will evolve in the future – rather than moving to equate the cost of domestic and foreign goods. Exchange rates, in other words, do not move with relative rates of inflation.

In addition, although foreign central banks may have been slower initially than the Fed to respond to the COVID crisis, there is every reason to expect them to catch up. The ECB and BOJ are aware that the Fed's relatively rapid balance sheet expansion has led to appreciation of their currencies (Dedola, Georgiadis, Grab and Mehl 2020) – currency appreciation that they view as undesirable, given the weakness of their exports and economies (Rothko Research 2020). And if foreign central banks now catch up as expected, there will be no reason on these grounds to expect the dollar to weaken.

IV. Twin Deficits

Then there are America's budget and current account deficits. That the current account deficit is the difference between domestic investment and domestic saving, by definition, creates a presumption that government dissaving (a budget deficit) will result in a current account deficit. This current account deficit will then have to be financed by importing capital from abroad. But attracting that capital

requires making U.S. assets more attractive to foreign investors by making them more of a bargain – that is to say, by cheapening the dollar. To again quote Roach (2020), “With personal saving likely to recede sharply in the months ahead and the federal budget deficit exploding...the plunge in net domestic saving in the second quarter of 2020 is only a hint of what lies ahead...This will trigger a collapse in the U.S. current-account deficit. Lacking in saving and wanting to invest and grow, the U.S. must import surplus saving from abroad and run massive external deficits to attract foreign capital.” Since budget deficits and national dissaving will be ongoing, the argument concludes, so too will be the decline of the dollar.

This of course is the same “twin deficits hypothesis” widely invoked prior to the Global Financial Crisis by those predicting a dollar crash (see *e.g.* Roubini 2006). It is fair warning that the dollar didn’t crash then. There is similarly reason to doubt that it will crash now.

To be sure, the U.S. government will almost certainly continue running budget deficits for as far as the eye can see. There are some who argue that the U.S. should shift toward fiscal consolidation relatively soon in the interest of debt sustainability. Others (*e.g.* Furman and Summers 2020) point to the continued low level of interest rates as limiting debt servicing costs, and to expectations of low inflation going forward as reflecting weak private demand and indicative of the need for continued deficit spending in order to keep economic recovery on track. Either way, the historical record gives little reason to think that there will be an early return to budget balance in the United States.

But does this necessarily mean that the U.S. current account will move deep into deficit or that the dollar will depreciate? U.S. public saving may have fallen, but private saving has risen. Part of the increase in the latter is a temporary lockdown effect: people can’t spend on holidays and dining out while quarantined. In addition, in the summer of 2020 U.S. households had their incomes supplemented by stimulus checks. The U.S. monthly personal saving rate rose to an extraordinary 33.7 per cent in April 2020, after which it fell back to 13.6 per cent in October.

But 13.6 per cent is still high by the country’s historical standards: personal savings in the United States typically run in the range of 7 to 8 per cent. This suggests that at least part of the increase in personal savings rates may be permanent. U.S. households have been reminded by the COVID-19 crisis of the inadequacy of their precautionary saving.

Federal Reserve research from before the crisis showed that 4 in 10 Americans had too little savings to meet a hypothetical \$400 expense (Federal Reserve 2019). Not being able to pay the rent or put food on the table after only weeks out of work due to COVID-19 has been a wake-up call.

Past experience is consistent with this presumption that a searing experience, such as an economic crisis and a pandemic, can have a permanent impact on economic behavior. Malmandier and Nagel (2011) show that individuals who experienced the Great Depression behaved more conservatively financially for the balance of their lives. Giuliano and Spilimbergo (2013) show that growing up in a recession has analogous effects. Guiso, Sapienza and Zingales (2014) show that exposure to the Global Financial Crisis increased the risk aversion of Italian investors. Dohmen, Lehmann and Pignatti (2016) show that such exposure renders individuals less willing to assume the risks associated with self-employment. There is at least some evidence (i.e. Aksoy, Eichengreen and Saka 2020) that the COVID crisis could have analogous effects.

Nor will investment be unaffected. (This is relevant because, recall, the change in the current account depends on both the change in investment and the change in saving.) There is good reason to think that big investment projects will remain on hold until firms have a clearer sense of the shape of the post-pandemic landscape. It is unlikely that they will rush to invest in inner-city office space, business hotels or long-distance airliners until they know how much of the shift to remote work is permanent and what the future portends for business travel (Bloom, Bond and van Reenen 2007). This uncertainty raises the option value of waiting (Dixit and Pindyck 1994). At some point, of course, COVID-related uncertainty will be resolved, and investment will recover. But over the several-year horizon relevant for exchange-rate forecasting, there is unlikely to be an investment surge to blow a hole in the current account.

Subdued investment spending also appears to be what financial markets are anticipating. If market participants expected a sharp rise in investment, absolutely and relative to saving, then we would observe sharp increases in interest rates and treasury breakeven inflation rates. In fact, there have been only very modest movements in that direction.

Finally, even if the U.S. current account deficit does in fact widen, it does not automatically follow that the dollar must weaken to attract

foreign savings. The historical relationship between the current account and the dollar exchange rate is far from tight (Milesi-Ferretti 2008). In some periods, the dollar must depreciate to attract foreign investors, as posited by *inter alia* Roach. But in other periods, U.S. assets are regarded as sufficiently attractive even at their prevailing foreign currency price to attract foreign capital in the requisite amounts (Blanchard, Giavazzi and Sa 2005). Presumably, productive and remunerative investments are attractive to foreign investors. These may include even investments financed by government borrowing, in *inter alia* much needed physical infrastructure in the United States.

V. The Revenge of Geopolitics

Finally, there is the argument that the end of U.S. geopolitical dominance inevitably presages the dollar's fall. No question, American global hegemony since World War II has been an important foundation stone of the dollar's status as the leading global currency. Historically, investors have been confident about holding the currencies of countries able to secure their borders and repel foreign threats (Eichengreen 2020) – countries that have more friends than enemies. Central banks and governments are inclined to hold as reserves the currencies of their alliance partners (Eichengreen, Mehl and Chitu 2019). Arguably America's national security, but most certainly its alliances, have been diminished by President Donald Trump's aggressive unilateralism. Other countries increasingly view the United States as a damaged democracy and unreliable alliance partner.

Moreover, the Trump Administration's readiness to utilize the dollar as leverage for advancing its foreign policy goals has encouraged other countries to seek out alternatives, such as INSTEX (the Instrument in Support of trade Exchanges) in Europe (Didili 2019) and Russia and China's ongoing efforts to reduce the share of the dollar in their bilateral clearing transactions – a share that has dropped from more than 90 per cent in 2015 to less than 50 per cent in 2020 (Simes 2020). In this connection, it is widely argued, as in the Roach piece cited above, that there exist increasingly attractive alternatives to the dollar in the euro and the renminbi. It follows that traditional dollar users seeking to move away are free to do so.

Certainly, U.S. unilateralism, extending to reckless statements by members of the U.S. Congress that the country should consider

repudiating U.S. treasury debt held by the Chinese government (Kleefeld 2020), encourages the search for alternatives. The question is whether serious alternatives in fact exist on the requisite scale.

The Euro Area, for its part, has successfully dispatched investor fears about the survival of its currency. And the euro has gained considerable importance in cross-border payments, as noted in the reference to SWIFT above. It has made less progress, however, as a reserve currency and a substitute for the dollar as a source of safe assets. The constraint here, as shown by Eichengreen and Gros (2020), is the very limited supply of safe euro assets, both absolutely and compared to the stock of U.S. Treasury securities. In part this reflects that only a relatively small subset of European governments and multilaterals enjoy AAA ratings; the bonds of the remaining governments are not regarded as safe by central bank reserve managers. In part the problem is the traditionally bank-based nature of the European financial system, which makes for lots of bank loans and bank deposits but relatively few tradable securities. And in part it reflects the fact that many of the safe euro assets in question have been purchased by the European Central Bank in the course of quantitative easing or must be held by European banks and other financial institutions to meet their capital and other regulatory requirements. This of course means that they are not available to reserve managers and foreign investors outside the Euro Area.

The upshot is that total safe (AAA) euro assets, counting the bonds of both European governments and supranationals, came to just \$4.7 trillion at the end of 2019, compared to \$16.8 trillion of AAA-rated U.S. Treasury bonds. If one subtracts the AAA-rated Euro Area bonds held by domestic central and commercial banks, which are not available to foreign investors, the \$4.7 trillion falls to \$2.9 trillion.

One can imagine various ways of relaxing this constraint. Gros and I propose that the European Central Bank should issue its own negotiable asset-backed certificates of deposit, effectively securitizing its deposits. Although similar proposals have been mooted before (see *e.g.* Boonstra 2019), there has as yet been no movement in this direction.

Alternatively, in the summer of 2020 the European Union agreed to issue €850 billion of its own (presumably AAA-rated) bonds, backed by the full faith and credit of EU members jointly. Again, however, €850 billion of securities are a drop in the bucket compared to the outstanding \$16.8 trillion stock of negotiable U.S. Treasury bonds. And

whether this €850 billion represents Europe's "Hamiltonian moment" – whether it is the first step down the road toward significantly greater issuance – is uncertain.

China's efforts to internationalize the renminbi face a different set of constraints. The fact that China maintains a range of capital controls, and looks to retain them for the foreseeable future, limits the utility of the renminbi for financial transactions. China can encourage its Belt & Road partners to settle their bilateral commercial transactions using the renminbi, since those partners are anxious for funds. China has designated official clearing banks in financial centers around the world to smooth the settlement of renminbi-denominated transactions with local counterparties. The PBOC has established swap lines with scores of foreign central banks, in this case with the goal of encouraging foreign regulators, having now been rendered more confident about the ready availability of renminbi liquidity, to relax restrictions on position-taking in the currency by local financial institutions. These measures appear to have had some effect: Song and Xia (2019) find that signing a RMB swap line with the PBOC significantly increases the number, value and proportion of the RMB in cross-border trade settlements. In addition, China has selectively relaxed its restrictions on capital-account transactions by establishing so-called "stock connects" and "bond connects" and otherwise allowing onshore financial investment by designated foreign investors.

But, notwithstanding these financial measures, a more fundamental political constraint remains. Every leading international and reserve currency in history has been the currency of a political democracy or republic. This is true not just of the U.S. dollar and the British pound sterling before it but also of the guilder, the currency of the Dutch *Republic* with its representative Estates-General, and before that of the republican city states of Genoa, Venice and Florence with their city assemblies. This is not coincidental. Investors – private investors and also central bank reserve managers – expect reassurance that their assets will not be expropriated. More generally, they look to the existence of checks and balances on the arbitrary application of executive power in the reserve-currency country. Republics and democracies have representative assemblies in which the creditors, together with others, have political voice. They constitute a source of checks and balances. China, in practice, has been moving in the opposite direction, of course, concentrating additional authority in the

hands of its chief executive.

This last observation speaks to the question of whether a Chinese central bank digital currency, or CBDC, would be a game changer. Every indication points to the likelihood that China will be the first major country to roll out a CBDC. A fully digital renminbi would represent a modest but significant reduction in the cost of cross-border transactions, making the renminbi more attractive as a unit for payments, which in turn would help to make it more attractive in general. But with lower costs and greater convenience may come questions about security. Foreign firms and banks – especially central banks – will worry whether their transactions are anonymous and whether their data is secure.

The same may be true of commercial entities. A survey of Korean merchants by Yonhap cites just such privacy concerns. “If people from other countries make widespread use of the ‘digital yuan’, centrally managed by the People’s Bank of China,” it notes, “it is likely that the usage will be exposed to Chinese authorities” (Erazo 2020). Significant institutional reform in China may be required to change this perception and overcome the associated resistance. And it is not clear when, or even if, such fundamental change will be forthcoming.

VI. Conclusion

Forecasts of the dollar’s secular decline and loss of international currency status remind one of the quip popularly attributed to the American humorist Mark Twain: “Reports of my death are greatly exaggerated.” A safe and effective COVID-19 vaccine that is widely taken up may staunch safe-haven flows into the greenback, but this alone would be insufficient to generate a secular decline in the currency’s value or loss of its preeminent global status. Aggressive easing by the Federal Reserve might be thought to presage future depreciation, but foreign central banks are reluctant to see their own currencies rise significantly; in the current low-inflation environment, they are likely to match the Fed, open market purchase for open market purchase. The United States may continue to run large budget deficits for a considerable period into the future, but budget deficits are no guarantee of current account deficits. Moreover, current account deficits are no guarantee of dollar depreciation. Finally, while U.S. unilateralism may have encouraged the search for alternatives to the dollar, there are

significant constraints on the large-scale substitution of euros and renminbi, in the first case financial, in the second case political.

Forecasting exchange rates may be a fool's game, but for all these reasons it would be foolish to bet on the dollar's continued decline.

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References

- Aksoy, Cevat, Barry Eichengreen and Orkun Saka. The Political Scar of Epidemics. National Bureau of Economic Research Working Paper (No. w27401), 2020.
- Beard, David. Poll Shows 61 Percent of Americans Likely to Take COVID-19 Vaccine. National Geographic (December 3), 2020. (<https://www.nationalgeographic.com/science/2020/12/poll-shows-61-percent-americans-likely-to-take-coronavirus-vaccine/#close>)
- Blanchard, Olivier, Francesco Giavazzi and Filipa Sa. "International Investors, the U.S. Current Account, and the Dollar." *Brookings Papers on Economic Activity* (No. 1 2005): pp.1-49.
- Bloom, Nick, Stehen Bond and John Van Reenen. "Uncertainty and Investment Dynamics." *Review of Economic Studies* 74 (No. 2 2007): pp.391-415.
- Boonstra, Wim. "Should the ECB Consider Issuing its Own Securities?" Rabobank Economic Research (February 13), 2019. (<https://economics.rabobank.com/publications/2019/february/should-ecb-consider-issuing-own-securities/>)
- Davies, Paul. The Dollar is Weak: Investors Bet It Will Slide Even More. Wall Street Journal (November 25), 2020. (<https://www.wsj.com/articles/investors-bet-on-more-dollar-weakness-11606386601>)
- Dedola, Luca, Georgios Georgiadis, Johannes Grab and Arnaud Mehl. Does a Big Bazooka Matter? Quantitative Easing Policies and Exchange Rates. ECB Research Bulletin No.76, 2020. (<https://www.ecb.europa.eu/pub/economic-research/resbull/html/index.en.html>)
- Didili, Zoe. Six European Nations Join INSTEX Mechanism for Trade with Iran. New Europe (December 21), 2019. (<https://www.neweurope.eu/article/six-european-nations-join-instex->

- mechanism-for-trade-with-iran/)
- Dixit, Avinash and Robert Pindyck. *Investment under Uncertainty*, Princeton: Princeton University Press, 1994.
- Dohmen, Thomas, Hartmut Lehmann and Norberto Pignatti. "Time-Varying Individual Risk Attitudes over the Great Recession: A Comparison of Germany and Ukraine." *Journal of Comparative Economics* 44 (No. 1 2016): 182-200.
- Eichengreen, Barry. International Currencies in the Lens of History. in Stefano Battilossi, Youssef Cassis and Kazuhiko Yago eds, *Handbook of the History of Money and Currency* (pp. 335-351). Singapore: Springer, 2020.
- Eichengreen, Barry, Cevat Aksoy and Orkun Saka. "Revenge of the Experts: Will COVID-19 Renew or Diminish Public Trust in Science?" *Journal of Public Economics* 193 (2021).
- Eichengreen, Barry and Daniel Gros. Post-COVID-19 Currency Order: Risks and Opportunities for the Euro. Directorate-General for Internal Policies, European Commission, Document PE 652.751. 2020.
- Eichengreen, Barry, Romain Lafarguette and Arnaud Mehl. "Thick vs. Thin Skinned: Technology, News, and Financial Market Reaction." IMF Working Paper (No. 17/91), 2017.
- Eichengreen, Barry, Arnaud Mehl and Livia Chitu. "Mars or Mercury? The Geopolitics of International Currency Choice." *Economic Policy* 34 (No. 98 2019): 315-363.
- Erazo, Felipe. South Korean Merchants Open to Accepting Digital Yuan. *Cointelegraph* (June 10), 2020. (<https://cointelegraph.com/news/south-korean-merchants-open-to-accepting-digital-yuan>)
- European Central Bank. *The International Role of the Euro*. Frankfurt: ECB, 2020.
- Federal Reserve. Report on the Economic Well-Being of U.S. Households in 2018. Washington, D.C.: Board of Governors of the Federal Reserve System, 2019. (<https://www.federalreserve.gov/publications/2019-economic-well-being-of-us-households-in-2018-dealing-with-unexpected-expenses.htm>)
- Financial Times. Covid Jab Forecast to Trigger Dollar Plunge. Financial Times (November 18), 2020. (<https://www.ft.com/content/d2a226b8-574a-4d1c-9205-fa076ed97055>)
- Frenkel, Jacob. "Collapse of Purchasing Power Parities during the 1970s." *European Economic Review* 16 (1981): 145-165.

- Furman, Jason and Lawrence Summers. A Reconsideration of Fiscal Policy in the Era of Low Interest Rates. Unpublished manuscript, Harvard University and Peterson Institute for International Economics, 2020.
- Giuliano, Paola and Antonio Spilimbergo. "Growing Up in a Recession." *Review of Economic Studies* 81 (No. 2 2014): 787-817.
- Goodhart, Charles and Manoj Pradhan. *The Great Demographic Revival: Ageing Societies, Waning Inequality, and an Inflation Revival*. New York: Palgrave Macmillan, 2020.
- Guiso, Luigi, Paola Sapienza and Luigi Zingales. Time Varying Risk Aversion. Unpublished manuscript, University of Chicago, 2014.
- Habib, Maurizio and Livio Stracca. Getting Beyond Carry Trade: What Makes a Safe Haven Currency? ECB Working Paper (No.1288), 2011.
- International Monetary Fund. Currency Composition of Official Foreign Exchange Reserves (COFER). Washington, D.C.: IMF (September 30), 2020. (<https://data.imf.org/?sk=E6A5F467-C14B-4AA8-9F6D-5A09EC4E62A4>)
- Kleefeld, Eric. Lindsey Graham Echoes Tucker Carlson, Proposes Repudiating Treasury Debt Owed to China. Media Matters for America (April 10), 2020. (<https://www.mediamatters.org/coronavirus-covid-19/lindsey-graham-echoes-tucker-carlson-proposes-repudiating-treasury-debt-owed>)
- Malmandier, Ulrike and Stephan Nagel. "Depression Babies: Do Macroeconomic Experiences Affect Risk Taking?" *Quarterly Journal of Economics* 126 (No. 1 2011): 373-416.
- Milesi-Ferretti, Gian Maria. Fundamentals at Odds? The U.S. Current Deficit and the Dollar. IMF Working Paper (No.08/260), 2008.
- Reagan, Michelle. Citigroup: Dollar May Drop by 20%, Goldman Sachs Says Gold Bull Market to Continue into 2021. American Hartford Gold (November 10), 2020. (<https://www.americanhartfordgold.com/news-dollar-may-drop-20-says-gold-bull-market-continue-2021/>)
- Roach, Stephen. The Vise Tightens on the Dollar. Project Syndicate (September 25), 2020. (www.projectsyndicate.com)
- Rothko Research. Why the U.S. Dollar Cannot Depreciate Too Much from Here. Seeking Alpha (November 17), 2020. (<https://seekingalpha.com/article/4389799-why-u-s-dollar-cannot-depreciate-too-much-from>)

- Roubini, Nouriel. "The Unsustainability of the U.S. Twin Deficits." *Cato Journal* 26 (2006): 343-356.
- Simes, Dimitri. China and Russia Ditch Dollar in Move toward 'Financial Alliance'. *Nikkei Asia* (August 6), 2020. (<https://asia.nikkei.com/Politics/International-relations/China-and-Russia-ditch-dollar-in-move-toward-financial-alliance>)
- Song, Ke and Le Xia. Bilateral Swap Agreement and Renminbi Settlement in Cross-Border Trade. Bank of Finland Institute for Economies in Transition Discussion Paper (19-2019), 2019.
- Stansbury, Anna and Lawrence Summers. Declining Worker Power and American Economic Performance. *Brookings Papers on Economic Activity*, 2020.
- SWIFT. RMB Track: Monthly Reporting and Statistics on Renminbi (RMB) Progress Towards Becoming an International Currency. Brussels: SWIFT, 2020. (<https://www.swift.com/our-solutions/compliance-and-shared-services/business-intelligence/renminbi/rmb-tracker/rmb-tracker-document-centre>)
- Yardini Research. Central Banks: Monthly Balance Sheets. New York: Yardini Research (December 6), 2020. (www.yardini.com)