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American hegemony: intellectual property rights, dollar centrality, and infrastructural power

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ABSTRACT

How does dollar centrality persist in the face of continuous US current account deficits and a steadily worsening net international investment position? Two mechanisms create a structural basis for dollar centrality, explaining how dollars enter global credit markets and why surplus countries continue to hold dollar-denominated assets. First, institutional structures deriving from late development suppress domestic demand in major current account surplus countries, making them reliant on external demand for growth. Local banks recycle those dollars into the global economy, creating huge dollar liabilities and assets on their balance sheets. This locks them into continued use of the dollar and reliance on the US Federal Reserve during crises. Second, US firms participating in the global unbundling of production have constructed commodity chains in which they capture disproportionate shares of global profits through their control over Intellectual property. These profits sustain valuations and thus the attractiveness of dollar-denominated assets. Routinization in use of the dollar and compliance with Trade-Related Aspects of Intellectual Property Rights (TRIPS) and US controlled commodity chains creates infrastructural power in Michael Mann's sense. This routinization sustains US geo-economic power in the face of persistent current account deficits and growing net international debt relative to US gross domestic product.

KEYWORDS

Infrastructural power; USA; intellectual property rights; money; reserve currency; international monetary system

A fundamental reform of the international monetary system has long been overdue. Its necessity and urgency are further highlighted today by the imminent threat to the once mighty U.S. dollar.

Robert Triffin, November 1960

Unlike other aspects of American hegemony, the dollar has grown more important as the world has globalised, not less.

The Economist, 9 February 2017¹

Dollar centrality in the global monetary system is a crucial pillar of US global power. What is the structural basis for US dollar centrality and does that basis contain endogenous dynamics leading to decay? Specifically, how does dollar centrality

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persist in the face of continuous US current account deficits and a steadily worsening net international investment position? As Hyman Minsky (1986, p. 255) noted, 'Everyone can create money; the problem is to get it accepted.'

Recent network analytic research (Bauerle Danzman, Winecoff, & Oatley, 2017; Fichtner, 2017; Oatley, Winecoff, Pennock, & Bauerle Danzman, 2013) has highlighted the centrality of US and allied financial firms in global monetary flows, and of the US as a source of and site for investment flows, confirming the similar qualitative assessment Despres, Kindleberger and Salant (1966) made in response to Triffin's famous dilemma. Yet the mechanisms generating persistent centrality remain relatively unexplored beyond invocation of network effects – essentially transaction costs – and reference to generic US hegemony in the global economy. The connections between dollar centrality in the international monetary system (IMS) and other aspects of US global power in the production, knowledge, and military spheres – the other three pillars of US structural power in Strange's (1989) formulation – remain similarly opaque, although Norrlof (2014) and Cohen (2013) have attempted to link these spheres. This opacity can be seen in the paired epigraphs: from Triffin forward, people have argued that US current account deficits would inevitably lead to a day of reckoning for the dollar (Bergsten, 1975, 1987, 1997, 2009, 2015; Bergsten & Williamson, 2004; Triffin, 1960).² The dollar's durability in the face of persistent US current account deficits and a negative net international investment position suggests looking at those deficits as part of the structural basis for US power: a feature not a bug.

Here I suggest two related though not exhaustive mechanisms generating durability, centrality, and 'feature-ness' for the dollar. These dynamics have organic connections to all four of Strange's (1989) forms of global power: productive, military, knowledge and financial. Nonetheless, the analysis focusses on the two largely economic mechanisms, to the extent that these are distinct, not because the economic dynamics are logically prior to the others, but rather because of limited space. Mechanisms have stronger explanatory power than simply invoking 'network effects', because they identify the actual forces that maintain a network in the face of exogenous shocks and dynamics potentially generating endogenous decay. They also complement Norrlof's (2014) 'three faces of power' version of Strange's (1989) structural argument.

Mechanism one relates to Strange's (1989) financial power: US current account deficits generate the dollar centrality that network analyses reveal through self-reinforcing dynamics prior to the network. US current account deficits result from deep seated domestic institutional arrangements in current account surplus economies that produce chronic domestic demand shortfalls. The more those export-led economies run surpluses with the United States, the more dollars they accumulate; the more dollars they accumulate, the more dollars flow through their banking systems back into dollar assets and liabilities; the more dollar assets and liabilities those banks hold on their balance sheets, the more those banks both rely on the Federal Reserve Bank (FED) as a lender of last resort or a supplier of outside money during (the inevitable) crises, and the more their staff develop habitus (Bourdieu, 1977) or the routinized behaviors at the heart of infrastructural power (Mann, 1986) that support continued use of the dollar in non-crisis times; the more those banks lend in dollars, the more counterparty debtor economies are drawn into use of the dollar; a parallel habitus emerges among export firms that

reinforces use of the dollar in a Hirschman (1945)-like dynamic. If suppliers (or debtors) are borrowing those recycled dollars, they will demand payment in dollars to meet their liabilities. Contemporary late developers similarly need export markets to grow, and the United States constitutes both the biggest import market and biggest net importer in the global economy (netting intra-EU trade). This mechanism originates from institutional responses to the problem of late development and not, via lower transaction costs, the emergent network of dollar claims and liabilities itself.

That said, surely dollar acceptability faces limits set by persistent US current account deficits? Prudent actors might well balk at accepting more assets denominated in a currency at risk of sustained depreciation (Bergsten & Williamson, 2004). Indeed, the 1960s Triffin dilemma pitted declining confidence about the dollar as a store of value given rising US inflation rates and a declining productivity gap between the United States and its main competitors against the need for global liquidity supplied by a US current account deficit. Today, as Eichengreen (2010) has argued, centrality for the dollar faces a similar collective action problem among holders of dollar-denominated assets – why do US current account deficits not motivate individual countries with relatively smaller dollar holdings to defect for fear of depreciation or capital losses? In today's flexible exchange rate world, only above average US economic growth and/or profits for the firms constituting the bulk of equity market capitalization validates confidence in dollar assets. Because economic activity is organized through capitalist markets, the critical issue for differential growth (Nitzan, 1998) and asset validation is always: 'who gets the profits and in what proportion'?

Mechanism two is thus about profits, which corresponds to Strange's (1989) productive power. US firms capture a disproportionate share of global profits, and within this firms with robust intellectual property rights (IPRs – patent, copyright brand and trademark) capture a disproportionate share of US and global profits. Here compliance with international trade treaties protecting IPRs is the focal point or center of gravity for this disproportionality. IPRs give some US firms monopoly or near monopoly power in the global (and local) commodity chains they construct. The extension of US IPR law through various trade treaties (Draho & Braithwaite, 2003; Sell, 2003; Sell & Prakash, 2004) allows US IPR firms to capture a disproportionate share of global profits via that monopoly power. This shifts claims on value added towards those firms, concentrating profits into a small number of US firms. Though we explore this below in more depth, US firms account for a disproportionate 33.9% of cumulative profits generated by any firm appearing on the Forbes Global 2000 list from 2006 to 2018 and firms in sectors characterized by robust IPRs account for a disproportionate 26.6% of those profits. Profitability thus also rests on infrastructural power, via compliance with trade treaties and enmeshment in global value chains orchestrated by US firms. As with bank behavior, this compliance is not purely voluntary (Gruber, 2000), but rather reflects a gradient in which mutually beneficial cooperation shades into coercion as the proportion of local firms benefiting from those treaties declines. US firms are not the only ones that possess marketable intellectual property. Non-US firms that also benefit from robust global IPRs broaden the global political coalition for creating and expanding those IPRs. Yet US firms tend to control the commodity chains in which those foreign firms participate.

These two mechanisms are connected: the first explains why non-US actors receive dollars (more precisely, dollar-denominated assets) and the second explains why they opt to hold those assets; put differently, the supply of and demand for dollars. The two mechanisms transform the exorbitant burden – current account deficits associated with use of the dollar as the international reserve currency – back into an exorbitant privilege. They represent a transfer of real resources back to the US economy in exchange for promises to pay back something in the future. Finally, though we will not explore this in depth, these two mechanisms are also linked to the military side of US power, where a similar logic of dominance over potential peer rivals has driven science policy and technological innovation. Put bluntly, a military-innovation complex (c.f. Eisenhower’s military-industrial complex (Hozic, 1999; Hurt, 2010; Mazzucato, 2015; Weiss, 2014)) is the research foundation for the high profit US IPR firms that in turn feed a substantial portion of cash back into the IMS.

As with all such systems of power, these structural strengths contain endogenously generated weaknesses and face on-going challenges from the less powerful. Financialization and profit strategies built on IPRs endogenously produce income inequality among firms and people, which erodes compliance, potentially slows growth and destabilizes the global financial system. Domestically, the current account deficits necessary for a dollar-centric IMS (Germain & Schwartz, 2014) generated part of the anger motivating the populist voting bloc that elected Trump. In turn, the Trump Administration’s erratic trade policy, its assaults on parts of the military-innovation complex, and, most significantly, its efforts to eviscerate financial regulation simultaneously threaten the dollar’s role in the IMS and US firms’ ability to capture global profits.³ The Trump administration is one logical consequence of current account deficits that have hollowed out manufacturing employment and limited upward mobility to a narrow slice of the US population.

The paper thus has four sections corresponding to the issues: Why does infrastructural power matter? Why the IMS? Why IPRs? The conclusion considers critical endogenous sources of decay.

1. Deficits, dollar centrality and infrastructural power

The international relations literature disagrees deeply about how to understand the relationship among various states in the global economy. Are they ontologically primitive and fundamentally similar units pursuing the same survival goals under conditions of anarchy (Waltz, 1979; see Wendt, 1987 for a critique)? Somewhat more pacific states maximizing consumption via efforts to cooperate (Keohane, 2005; Keohane & Nye, 1977)? Autonomous, freely contracting entities nonetheless locked into hierarchal structures by virtue of differing capabilities (Lake, 2009)? Or components of a hierarchical system akin to a global empire (Cooley & Nexon, 2013; Darwin, 2009; Nexon & Wright, 2007; Halperin & Palan, 2015; Strange, 1989)? Although I am inclined to favor the last interpretation, we don’t need to adjudicate this debate here, because all these disparate views should find the continued centrality of the dollar troubling. From 1992 to 2017 the United States ran a cumulative current account deficit of \$10.2 trillion (\$11.8 trillion in 2017 dollars or 63% of 2017 US gross domestic product (GDP)). It paid for the goods and services thus received with promises to return goods and services in the future, that is, by

borrowing against future production. And it denominated those promises almost exclusively in its own currency. Yet the dollar remained the global central currency despite this growing debt. By contrast, what troubled Triffin and others in 1960s was the relatively gradual shift from a 0.5% of US GDP current account surplus in 1960 to a 0.5% of GDP deficit in 1972, absolutely and relatively much smaller than the last three decades of deficits.

Realists would find it difficult to understand why countries might freely ship massive volumes of resources to a dominant power and accept, in return, pieces of paper promising some future return shipment. Moreover, states that behaved as realist analyses predict should be willing to sacrifice the transaction cost reductions generated by network effects if that network favored a rival. Neo-institutionalists – even if they did not hedge their bets as Keohane and Nye (1977) did – likewise might wonder not only about the increased military power that might flow from exchanging current resources for future promises but also about whether they would ever get anything back for their exports. Historically creditors wielded great power versus debtors, but that was because creditors loaned in their own currencies. Here the reverse is true, as the United States borrows in US dollars. Moreover, lending (and borrowing) in dollars creates interest rate risks beyond the control of non-US central banks. Dollar-denominated liabilities of non-financial firms outside the United States amounted to \$10.5 trillion or 15.4% of 2016 global GDP x-US, versus \$2.3 trillion and \$311 billion in euro- and yen-denominated liabilities (Aldasoro, Ehlers, Eren, & McCauley, 2017). The additional risk this creates (beyond the usual credit, interest rate and maturity risks) suggests that lending in dollars must represent some second or third best option, and thus that something forecloses the first best option of lending in one's own currency.⁴ Indeed, most creditor countries lend to third parties in dollars rather than their own currency, as we will see later. Why have rational, Bayesian updating actors not shifted out of dollars?

When we move to the more hierarchical views, the question expands from why centrality happens to include how this happens. The hierarchical views are more comfortable with a power-based explanation about continued dollar centrality – this partly answers the why – but raise additional questions about why and also require an explanation about how – what mechanisms maintain this power? Maintaining dominance requires an expenditure of resources. In conventional (economists and much political economy) understanding, persistent current account deficits might signal several things inconsistent with dominance by the deficit economy.

Current account deficits by accounting definition subtract from GDP growth. Assessing whether they subtract from GDP growth in real life rests on an evaluation of capacity utilization and how close a country is to the technology and productivity frontier. The three situations where current account deficits are not a subtraction do not apply to the United States. First, developing economies by definition might attract enormous transfers of capital to supplement limited domestic resources, as is the case for seven of 12 deficit countries in Table 1. But part of what makes dominant economies dominant is that they define the technological frontier. This is largely the case for the United States. As a mature economy the United States should be exporting capital rather than importing it. Second, an economy might be uncompetitive. Yet, this returns us to the puzzle noted two

Table 1. Cumulative current account deficits (surpluses) 1992 – 2017, \$bil^a and % of total.^b

Deficit countries			Surplus countries		
	\$ bil	%		\$ bil	%
United States	–10228.3	50.6%	Japan	3381.7	15.1%
United Kingdom	–1798.0	8.9%	China	3300.8	14.7%
Australia	–868.8	4.3%	Germany	3023.9	13.5%
Spain	–834.2	4.1%	Gulf Oil exporters ^c	2437.4	10.9%
Brazil	–699.5	3.5%	Switzerland	1117.5	5.0%
Turkey	–566.1	2.8%	Russia	1115.0	5.0%
India	–478.5	2.4%	Netherlands	1084.8	4.8%
Mexico	–422.2	2.1%	Singapore	799.2	3.6%
Canada	–416.1	2.1%	Norway	796.1	3.6%
Greece	–369.0	1.8%	Taiwan	745.9	3.3%
Poland	–273.7	1.4%	Korea	684.7	3.1%
Portugal	–259.4	1.3%	Sweden	489.8	2.2%
Sum, these 12	–17213.7	85.2%	Sum, these 12	18976.9	84.7%
Global deficits, total	–20207.2		Global surpluses total	22398.2	
Average share of household final consumption in GDP, these 12 ^d		62.9			48.0

^aCurrent dollars. Inflation adjusted data are essentially similar.

^bJapan, China and Germany as a % of US deficit: 94.9% on a USD basis. Deficits and surpluses do not equal because of errors, omissions, capital flight, tax avoidance.

^cSaudi Arabia, Kuwait, Qatar, and UAE.

^dUnweighted average, 1992 – 2017.

Source: Author's calculations from IMF, World Economic Outlook database, April 2018 release.

paragraphs above: why lend to a potentially bad debtor at low interest rates and in its own currency? And reversing the questions raised about the first two approaches, we might ask why a dominant power would allow imports to erode its economic base and possibly slow economic growth? Moreover, the disproportionate share of global profits major US firms capture is hard to reconcile with across the board uncompetitiveness. So is the data from productivity studies, which generally show that most manufacturing and service sectors in most countries lag output per hour relative to the United States.⁵

A third possibility is that the US economy is persistently running 'hot' and a deficit helps GDP growth by removing bottlenecks or supplying additional resources. In that case, we would expect to see capacity utilization at record highs and we would expect to see zero or positive output gaps (the gap between realized and potential GDP). This is not what we see. The output gap is almost always imperfectly measured because it involves comparing a counterfactual against an actual outcome. Nonetheless, it gives us some sense of whether an economy is running at full capacity and thus pulling in imports to sustain above normal rates of growth. This is simply not the case for the United States. In 23 of the past 38 years (1980 to 2017 and 11 of the past 18 @ 0.6%), the United States has had a negative output gap averaging 0.5% of GDP (OECD-iLibrary.org). While peak current account deficits for the United States are associated with positive output gaps, the United States has run consistent current account deficits over the entire period. Equally so, capacity utilization has drifted downward in each business cycle (trough to trough) from the one ending in 1975q1 (which averaged 84.8% capacity utilization) to the one ending in 2009q4 (77.6%); indeed as of 2018q4 capacity utilization was still only at 78.7%, implying an even lower average when the inevitable cycle-ending recession gets factored in (<https://fred.stlouisfed.org/series/TCU#0>).

A US current account deficit paired with low capacity utilization and persistent output gaps unambiguously signals that current account deficits are a subtraction from growth in more than simply an accounting sense. Chinn, Eichengreen, and Ito (2014) report that the US current account deficit is larger than the underlying fundamentals would predict.

Pettis (2011) labels the growth cost of current account deficits as the ‘exorbitant burden’, paralleling the ‘exorbitant privilege’ label of the 1960s (see also Gilpin, 1975). Yet suppose we see these deficits and US firms global expansion as features rather than bugs. To what extent can the case be made that they support US geo-economic hegemony or dominance, i.e. that they are a feature not a bug? Power requires resources and as Mann (1986) has argued, resources are most efficiently extracted invisibly, that is, via routine compliance not coercion. Routinized extraction is the essence of infrastructural power. This routinized extraction need not be confined within one nation-state ‘container’. Mann (1986, p. 1; 2008, p. 358) problematizes his own definition by noting that ‘we can never find a single bounded society in geographical or social space’ and that ‘there are overlapping, intersecting networks of interaction that have different boundaries. Of [Mann’s] four principal power sources, only political power has formal territorial closure’. Thus, extraterritorial extensions of laws and routine behaviors can be coded as infrastructural power.

How do these routine practices shift resources in the absence of formal territorial control? The larger part of routine extraction is done via politically structured markets that obscure the nature of revenue flows and that rely on internalization of norms and routines producing day-to-day compliance with underlying structures favoring the United States. The major resource flows come indirectly from the central position of the US dollar in the IMS and directly from trade agreements securing IPRs possessed by US firms. The dollar’s centrality allows the United States to import foreign capital (and by accounting definitions this means foreign goods) on a net basis, paying back relatively low rates of return, while exporting US-controlled capital back to the rest of the world at higher rates of return (Schwartz, 2009). A global banking and financial system centered on US and more generally Anglo-economy firms is the physical counterpart to dollar centrality (Fichtner, 2017; Oatley et al., 2013). Simultaneously, the extension of US patent and IPR law through various trade deals has secured the lion’s share of global profits for a narrow slice of US firms, as shown in Sections 2 and 3.

Gramscian arguments about hegemony and Bourdieu’s (1977, 2012) arguments about habitus run on rails parallel to Mann’s (1986) neo-Weberian arguments. Though they differentially weight ‘common sense’ as opposed to material and organizational structures – software as opposed to hardware – none would dismiss either. All agree that routinized compliance, to use Mann’s language, has material aspects. Indeed, Foucault (1977) starts ‘Discipline and Punish’ by contrasting the materiality of pre-modern punishment with a subsequent, equally material discussion of the architecture of prisons. Common sense does not float freely but rather is anchored in practices supported by, organized by and flowing through organizations. Thus, both in the IMS and in trade involving IPRs we should expect to see material structures and ideas congealing into practices that shift resources to the United States and maintain centrality for the dollar.

With respect to ‘software’, the United States, like all other dominant powers, consciously exported its policy paradigms to and consciously cultivated a culturally

cohesive set of elites in other states in the global economy (Ban, 2016; Costigliola, 1984; De Grazia, 2009; Pijl, 1984; Slobodian, 2018). These efforts to create a 'cohesive ruling class culture' (Mann, 1986, p. 167) were never perfect, as Zeitlin and Herrigel (2000) and Maier (1987) show for the export of US production practices in the 1950s and 1960s and as Ban (2016) shows for the export of 'neo-liberal' ideology in the 2000s. Nonetheless, the broader financial community, encompassing banks, finance ministries and central banks, constitute overlapping epistemic communities. While Ban (2016) takes pains to show the limits to US ideological influence and the localization of economic knowledge, his analysis highlights the way that US economics PhD programs and post-docs nonetheless produced a 'software' devoid of heterodox approaches to policy problems. The development of investment bank habitus is even stronger given the huge material rewards and the fact that most investment banking operations are physically located in the Anglo-economies. Both the recruitment of personnel and social practices (including lifestyle) thus are imbued with the sensibility of the Anglo-dominated financial community.

Centrality and compliance in the IMS and with IPR law are forms of infrastructural power that go beyond what Mann called 'compulsory cooperation'. Compulsory cooperation enabled relatively efficient resource extraction as compared with pure despotic power, but still relied on military rule. It comports with what Marx called extra-economic surplus extraction. A core-periphery structure and intermediated rule could and, in this case, do imply a divide and rule strategy for empires rather than the balance of power politics mainstream IR posits. But intermediation, network centrality and the cultural cooptation and cohesion of global elites also highlight the importance of infrastructural power above and beyond simply playing somewhat hostile, if dependent, elites off one another, and keeping all of them in check with the threat of obliteration.

Instead, infrastructural power enables highly efficient and largely invisible resource extraction. This invisibility extends into academic understandings of the world. Consider the disparity between the many articles discussing the relatively trivial benefits of seigniorage from use of the US dollar and the few discussing the much larger macro-economic benefits flowing from centrality of the dollar. Though the discussion below mostly concentrates on relatively material manifestations of infrastructural power (the denomination of liabilities and the distribution of profitability), ideological and symbolic manifestations are essential to routinized cooperation.⁶ Moreover, as Mann (2008) has argued, infrastructural power is a two-way street, enabling civil society to influence the state. Thus, we would expect that the FED and other US state organs would be responsive to the needs of non-US firms, particularly banks, precisely because these firms were compliant and willing to lobby their own states as well as the US state. Clients get rewards.

The next two sections thus take up the question of how the IMS and IPRs operate to create infrastructural power around revenue extraction and differential growth. Both sections will draw out the degree to which the IMS and IPR phenomena reflect continuing infrastructural power.

2. The dollar, the IMS and the crucial role of outside money

Why does the IMS matter? Where is the infrastructural power? What accounts for the fact that the US dollar, and thus the FED and key US firms, still sit at the

center of global financial markets (Bauerle Danzman et al., 2017; Fichtner, 2017; Oatley et al., 2013)? Why is the bulk of global cross border lending, even when neither party is legally a US entity or resident, still in dollars?

Put too simply, for historical reasons the bulk of current account surplus countries have domestic political economies that suppress domestic demand. Domestic demand suppression forces a reliance on export surpluses for growth. Those exports largely go to the Anglo-economies and within them the United States.⁷ From 1992 to 2017 US current account deficits averaged a non-trivial 0.8% of global GDP or about \$380 billion per year, contributing significantly to global demand (the Obama stimulus 2009-2010 averaged \$400 billion per year).⁸ If the dollars these deficits channeled into export surplus countries returned to the United States as purchases of goods, export surpluses would naturally disappear; if they returned as purchases of the exporter's currency, then that currency would appreciate, again extinguishing export surpluses. Instead surplus economies recycle those dollars as dollar-denominated lending to third parties and thus ultimately as purchases of dollar-denominated assets (which does not affect exchange rates). Banks in export surplus economies thus accumulate large dollar liabilities (as export firms deposit their earnings) and dollar assets (as banks on-lend funds globally). Moreover, this additional lending in dollars induces third party banks operating offshore to also generate new credit in dollars rather than their own currency; here network effects begin to have some causal force. These mechanisms generate the network, as the depth and liquidity of global dollar markets would perforce be lower if there were fewer dollars to recycle.

This dynamic generates dollar centrality and US global monetary power. The more non-US banks deal in dollars, the more they depend on the FED in times of crisis. The more non-US banks deal in dollars, the more this social fact affects the routine practices and 'common sense' of their personnel, producing infrastructural power in normal times. The geographic concentration of dollar lending (the location of actual loan production, not its notional legal location) in London and New York reinforces this common sense through continual interaction with US and British bankers, society, and conventional wisdom. In some cases, non-Anglo banks have simply bought Anglo banks in an effort to expand globally, as with Deutsche Bank's purchase of British merchant bank Morgan Grenfell in 1989 and US investment bank Bankers Trust in 1999.

This section walks through each point above. Table 1 orients with some data about who accounted for cumulative current account surpluses and deficits from 1992 to 2017 and the average share of household final consumption in GDP.

The major surplus countries fall into two distinct groups that are demand deficient for structural and political reasons. The first is oil exporters. We would expect oil exporters – if rational – to treat oil as an illiquid asset and seek to transform oil profits into more liquid assets rather than expending oil revenue on current consumption (Schwartz, 2012). As oil is mostly priced in dollars, they will thus accumulate dollars and possibly dollar-denominated assets. Oil pricing in dollars in turn forces net-oil importing countries to earn or buy dollars in global export markets. In the aggregate, this implies that the world must earn an export surplus versus the United States to buy oil or to borrow in dollars from successful exporters. Dollar pricing for oil was and continues to be a major a

foreign policy goal for the United States (El-Gamal & Jaffe, 2010; Otero-Iglesias & Steinberg, 2013; Spiro, 1999).

The other major surplus countries in Table 1 are all late developers. As Gerschenkron (1962), as well as Johnson, Tyson and Zysman (1989), Streeck and Yamamura (2001) and the subsequent developmental state literature argued, successful late developers generally suppress domestic demand in order to mobilize capital for development. The capital thus mobilized is channeled into successively 'heavier' industries, which in different countries in varying proportions tends to starve agriculture, light industry, small and medium sized enterprises, and the service sector of investment capital. While policy-driven mobilization of domestic resources creates viable, globally competitive firms at the technology frontier, it also leaves behind permanently deficient domestic demand. Constrained domestic demand causes output to flow overseas. States also try to undervalue their currency to promote exports and growth (McKinnon, 2005; Prasad, 2015). Indeed, Höpner (2018) argues that even Germany, the most advanced of the surplus economies and one with a relatively robust welfare state, has operated a pro-export undervaluation regime since 1950. Low shares of household consumption – see Table 1 – enable and force firms to look outward for markets, which they find in the Anglo economies, and, of course, some developing economies. As an outcome of late development this is a structural, systemic factor more so than an expression of independent local choices. Political choices that weakened pensions systems also motivated additional precautionary savings by aging German and Japanese households.

This institutional lock-in around reduced consumption also extends to financial systems. The need for patient capital to finance late development also tends to make financial systems in late developers relatively more bank oriented rather than capital market oriented. Although financial systems everywhere have been shifting away from traditional lend and hold models (Deeg & Hardie, 2016; Hardie, Howarth, Maxfield, & Verdun, 2013), a huge disparity in the degree to which securities market as opposed to bank lending dominates persists between the United States and other economies. In 2013 (the most recent data) the ratio between securitized debt plus bond debt versus un-securitized bank loans was roughly 2.2:1 for the US market, while the ratio for Japan was 1:1 and the eurozone and EU was only 0.62:1 (IMF, 2015). This is a political outcome, given that roughly 80% of US securitized debt carries a government guarantee, and that securitization markets in much of the EU shrank after the 2010 crisis rendered mortgage backed securities politically toxic. Similarly, a 12 percentage point gap persisted between US non-financial corporate bonds relative to US GDP as compared to EU non-financial corporate bonds relative to EU GDP from 2000 to 2014; the 2014 figures were 26.2 and 14.2% of GDP respectively. An even larger 20 percentage point gap existed relative to emerging markets, where over two-thirds of dollar-denominated debt was bank lending (OECD, 2015). BIS data⁹ similarly show that bank lending to the non-financial sector has been 20 to 30 percentage points higher relative to GDP in the eurozone than in the United States from 1980 to 2017. Consequently most foreign financial systems continue to be bank dominated, with banks providing 80 to 90% of corporate funding in Europe versus 30 to 40% in the United States (Detzer et al., 2014; Standard & Poor's Rating Service, 2015).

Relying on exports for growth and banks for intermediation pushes surplus economies into generating and thus supporting dollar centrality. Rational exporters

of course demand payment in hard currencies. But even eurozone firms only price about 60% of external exports in euro (ECB, 2017). So current account surpluses put a large pool of dollars into exporters hands. Exporters then channel their dollars through the local banking system. Local banks thus have growing dollar denominated liabilities (i.e. deposits), which in turn compels those banks to relend those dollars in global markets in order to have a corresponding asset. The dollar share of liabilities (deposits) and assets (loans) on bank balance sheets thus grows. [Figure 1](#), which does not net out intra-EU lending, shows the relative currency share for banks' cross-border liabilities from 1992 to 2017. Liabilities matter more here, because they determine how much of a bank's capital or reserves are at risk. US dollar denominated liabilities have never accounted for less than 49% of all cross-border liabilities and accounted for 57% in 2017. By contrast, if intra-EU lending in euros is netted out, euro denominated lending has never exceeded 8% of cross border lending and has averaged 3.5%. Indeed, non-US banks are the major source of dollar denominated lending in global markets. Non-US banks generated 80–85% of offshore dollar lending, with virtually all of that funded from dollars supplied by non-US entities; US dollar lending by non-US banks rose from roughly \$4 trillion in 2000 to \$14.1 trillion in 2017, of which roughly \$10.5 trillion went to non-banks; lending plateaued after the financial crisis (Aldasoro et al., [2017](#); IMF, [2018](#), figures 1–23; McCauley, McGuire, & Shushko, [2015](#)). This lending, channeled via repo operations, rehypothecation, and derivatives, is the foundation for the much larger notional amounts of debt in global financial markets (Gabor, [2016](#)).

[Figure 2](#) breaks down the aggregate data to show the degree to which European, Canadian and Japanese banks had cross border liabilities denominated in US dollars and the share of those positions relative to their total local liabilities for the same time period (and the most recent available quarter, 2017q3, to show it is not much different from the average). Canadian banks unsurprisingly have large cross-border activity and dollar exposure given Canada's deep integration with the US economy. Japanese banks also largely deal in US dollars for their off-shore positions. The relatively large size of the Japanese economy makes their dollar positions small relative to local lending. However, the size of the Japanese market means that this relatively small position still amounts to nearly \$1 T in dollar denominated liabilities (Borio, McCauley, McGuire, & Sushko, [2016](#), p. 57). European banks, including, importantly, German banks, also carry large US dollar denominated liabilities (note that the Europe-8 weighted aggregate excludes Swiss banks' relatively large US dollar liabilities). By contrast, US banks carry relatively small euro risk and even smaller yen risk. The data for claims does not differ significantly.

Competitive dynamics around global market share, dollar liabilities and the use of the dollar as a vehicle currency in foreign exchange trading all force non-US banks, particularly European banks, into maintaining these large US dollar positions on their balance sheets. If everyone else in world markets is trying to loan out their excess dollars and if roughly half of foreign exchange transactions involve dollars on one side of the deal, then any bank seeking global market share must deal in dollars. Recycled surpluses create the network of liabilities and claims.

Developing country debtors currently account for about 30% of all international borrowing, most of which is in dollars (ECB, 2017). Their soft currencies usually force them to borrow in harder currencies, which in turn means they must earn hard currency to service their debt. In the aggregate this means they will earn

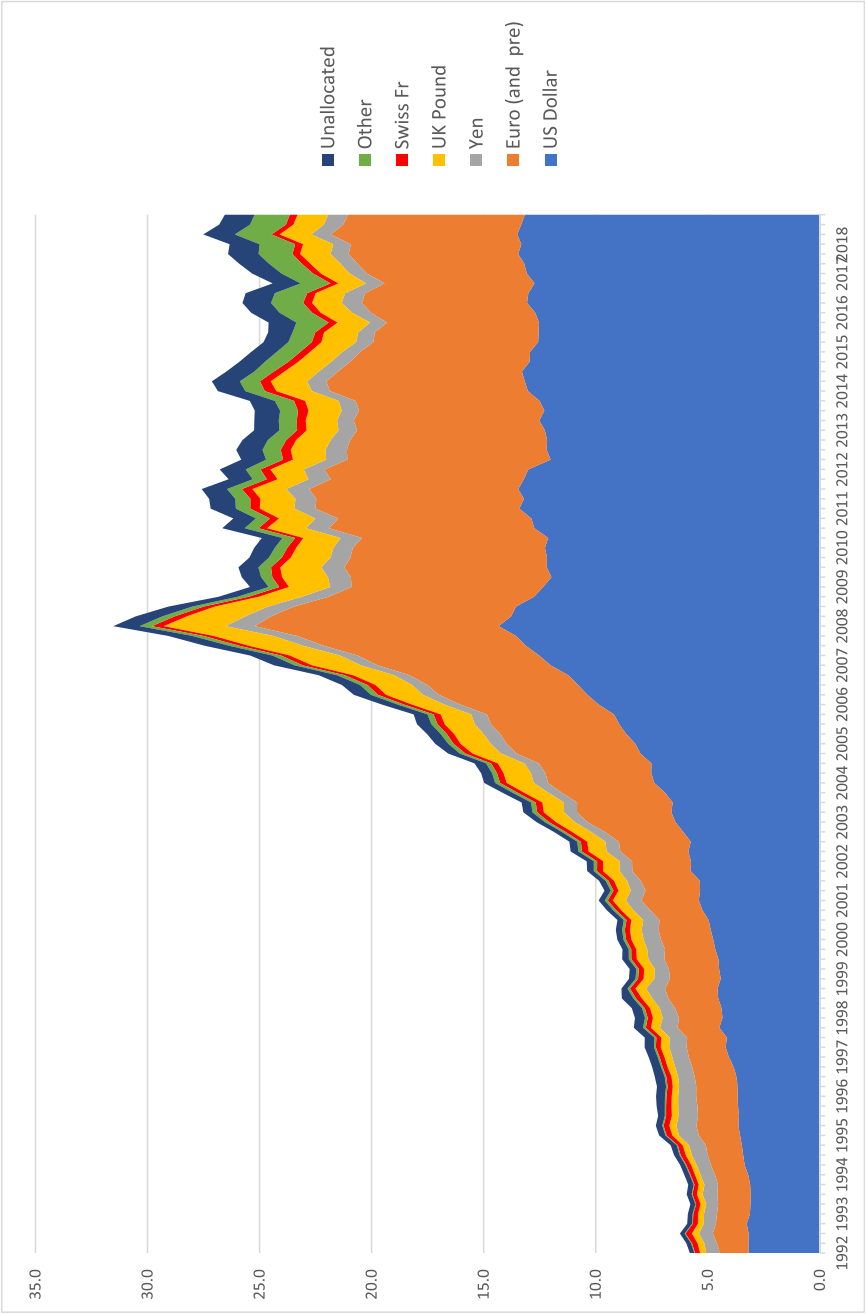


Figure 1. Currency denomination of all cross-border lending, 1992 – 2018q3, US\$ trillions.

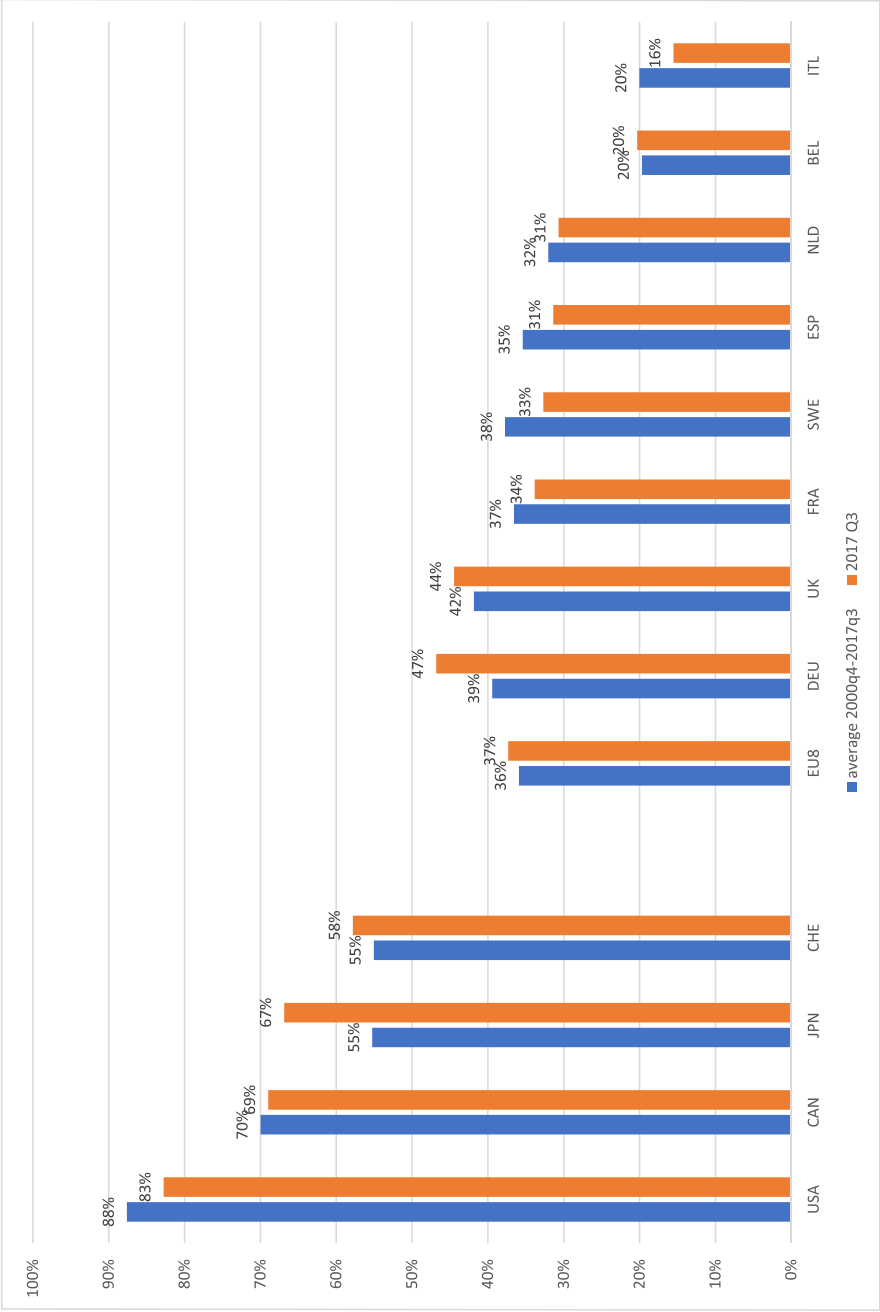


Figure 2. Share of cross-border liabilities denominated in US\$, %, average 2000q4 through 2017q3 and 2017q3.

dollars to service those dollar denominated debts. Indeed, more than half of all Eurodollar positions have no US counterparty, partly because the absence of reserve requirements encouraged European banks to leverage up their balance sheets with Eurodollar lending (He & McCauley, 2012). And even in Europe, just over 50% of all international loans are US dollar denominated, which helps explain the consistent 50 to 60% share of outstanding international loans denominated in dollars over the past 15 years. The money must go somewhere if it is not buying US exports.

Meanwhile, of course, US banks and investors natively borrow and lend in dollars. Twenty percent of US cross-border bond lending is dollar denominated (TIC, 2017), again forcing debtors in the aggregate to earn dollars when they export. Finally, if – and this is a big if, as the next section notes – the United States is growing relatively faster than other rich countries, foreign banks will also be tempted to invest in US dollar assets in order to retain global market share and profits.

Large dollar liabilities create structural power for the United States by creating dollar centrality and reliance on the FED both specifically and more generally on what Gowan (1999) labeled the Dollar-Wall Street institutional complex of Treasury, FED and global investment banks. Unlike US banks, the core deposit base for non-US banks' substantial external lending is not natively in dollars. This exposes them to currency mismatch risks, as the 1997-1998 Asian Financial Crisis (Prasad, 2015) and the 2008 Global Financial Crisis show (McGuire & von Peter, 2012). Moreover, non-US banks seem to rely on volatile swaps and interbank lending for roughly 60% of their dollar deposits.¹⁰ Dependence on the FED as the both the supplier of liquidity in repo markets in normal times (Gabor, 2016) and as lender of last resort in crises enmeshes foreign banks in US regulatory and banking routines above and beyond their participation in the US market. Understanding why the accumulation of large dollar positions makes non-US banks dependent on the FED requires understanding how banks operate and why this generates endogenous financial crises.

Put as simply as possible, monetary systems generally are composed of both 'inside' and 'outside' money. Banks endogenously create inside money, that is, credit to other private actors (see e.g. McLeay, Radia & Thomas, 2014, but also Wray, 1998, 2004). In doing so, banks simultaneously create both assets and liabilities. The extension of credit creates a loan which shows up as an asset for the bank; the deposit of loan funds into the borrower's account creates a liability for the bank. New loans simultaneously create assets and liabilities, and thus in principle balance sheets that net out across the whole economy. But this private credit creation is inherently unstable. First, absent some mechanism for imposing collective discipline, private financial firms have an incentive to expand their balance sheets by creating excessive amounts of inside money (Minsky, 1977; Polillo, 2013). In principle, this behavior nets out, but in practice an asymmetry plagues this accounting balance. While asset values can – and do – change in response to behavior by market actors, liabilities in the form of debt have values that remain stable in nominal terms until a formal bankruptcy. If asset values fall (as they do when a panic or crisis starts), then banks can fail as their liabilities (deposits) remain unchanged while the collateral behind their assets (loans) collapses, producing an excess of liabilities on their balance sheet.

If private actors were self-disciplining, the asymmetry in terms of relative nominal stability between assets and liabilities on bank's balance sheets would matter less. But inter-bank competition creates a complicated collective action dilemma around credit creation. As Minsky (1977) as well as Pettis (2001) and Polillo (2013) have argued, credit creation has a public good aspect in that net new loans stimulate the economy by increasing aggregate demand. By increasing aggregate demand, they validate earlier credit creation and raise the value of the collateral backing lending for all banks, not just the one issuing new credit. Each new extension of credit thus encourages more lending by other banks by seemingly validating prior credit creation.

Banks' greater tolerance for risk in an expanding economy, and the inevitable exhaustion of reasonable investment opportunities, means that lending shifts from what Minsky (1977) called 'hedge finance', in which prudent borrowers create new productive assets whose cash flow can cover their principal and interest payments, to 'Ponzi finance', in which borrowers buy existing assets at prices too high for cash flow to cover either principal or interest payments. Ponzi borrowers inevitably must capitalize their interest payments into their loans, which means they need large capital gains in order to emerge with a profit. Yet anyone buying an asset at a price sufficient to award profits to the first Ponzi buyer by definition finds themselves in an even worse position. With no new borrowers to validate asset prices, forced sales ensue as banks perceive the abyss and begin limiting credit to the weakest borrowers. At that point the collateral value behind banks' assets (loans) collapses, and with it the market value of those loans. In this 'Minsky moment' – an endogenous economic shock that reduces the value of assets across the economic system – only an authoritative, legitimate actor can rescue them from the overhang of liabilities: the state. Similarly, in the non-crisis, quotidian routine, only the state can (try to) constrain private actors from this excess credit creation.

The state creates outside money, which central banks then dispense by exchanging cash for bonds. Unlike inside money, state created outside money does not simultaneously create an explicit financial liability and thus outside money can be used to absorb the overhang of private liabilities revealed in a financial crash. The state's ability to create outside credit money, and thus create assets unburdened by formal liabilities aside from the money itself, rests on its ability to tax the territorial economy it controls. The ability to tax in turn rests on a state's internal infrastructural power (Mann, 1986). The greater a state's infrastructural power, the greater its ability to efficiently tax its economy and thus validate new money. Money as a unit of account and a store of value is ultimately an enumerated claim on the future behavior of individuals located inside a legally defined territory within which a given state currency circulates. Absent sufficient social power, absent sufficient 'caging,' to compel or induce those future behaviors, state promises to redeem its own currency tokens and its ability to compel tax payments are weak (Bourdieu, 1977; Foucault, 1977; Mann, 1986; Nitzan & Bichler, 2009). 'Bankrupt' states are failed states, that is, states with no social power and thus no ability to tax. Internationally, the currency hierarchy Cohen (1998) identifies essentially maps infrastructural power.

The great housing finance bubble of the 2000s illustrates the dynamics linking inside/outside money to reliance on dollar funding. European banks' difficulties during that crises were merely an exaggerated version of their day-to-day,

routinized enmeshment with the dollar, and thus their ultimate reliance on the FED. By 2008, European banks had purchased roughly \$1.1 trillion in US dollar denominated assets, creating both a maturity and a currency mismatch (Borio & Disyatat, 2011; McGuire & von Peter, 2012). Dollar centrality facilitated this global expansion of credit through rising exports of US dollar-denominated and often US sourced financial assets. These assets naturally were matched by liabilities: for US investment banks, to the commercial money market in the form of asset backed commercial paper (ABCP); for northern European banks the same, but with liabilities denominated in dollars; for southern European banks, to northern European banks; for Chinese firms, to the giant state-owned banks and the new wealth management trusts that constitute the Chinese shadow banking system.

When the Minsky moment came, only the US FED could step in and orchestrate the creation of outside money to bail out banks with dollar-denominated liabilities. The FED used its outside money to buy up devalued assets at par and thus re-establish balance in the financial system. Obviously, this had a domestic component. But the FED also created global outside money to rescue European and other banks in 2009. The FED provided roughly \$600 billion in dollars to the European Central Bank (ECB), Bank of England and Bank of Switzerland for distribution to beleaguered European banks between March and October 2008 (McDowell, 2012; McGuire & von Peter, 2012). Altogether roughly \$10 trillion in gross claims flowed through the swap channels from 2007 to 2010 (Tooze, 2016). In this instance, the ECB was not only legally unable to bail out member banks, but also was practically unable, given that banks' liabilities were US dollar denominated. Eventually the ECB also created outside money for eurozone banks caught up in the euro crisis. But the purely regional reach of this intervention shows the difference in scale between the ambit of the FED's power and that of the ECB.

The legitimacy of the FED's intervention went unquestioned for three pragmatic and epistemic reasons. First, the US and European, and particularly the US and British banking systems were inextricably intertwined (Fichtner, 2017). It was impossible to rescue one without also saving the other. Second, the ECB, the only plausible challenger to the FED's central role, had no wish to see the European financial system collapse along with the US financial system. Third, many of the public and private actors had cycled through the same New York or London investment banks and shared a common mindset and habitus. But the asymmetry here is clear: the US FED could bail out Europe, but Europe could not bail out the United States.

Hardie and Maxfield (2016) have argued that the FED bailout during the global financial crisis evidences constraints or limits on US power precisely because it was impossible to save the US financial system without also saving European banks. Quite aside from the \$600 billion in swaps, the bulk of the bailouts went to foreign banks. For Hardie and Maxfield (2016), then, the FED had no choice but to bail out all banks without discrimination and thus they see the United States as lacking autonomy. But this 'most favored creditor' status¹¹ that gives foreign banks access to the FED is part of what induces non-US banks to bulk up their dollar positions, and thus, in turn, stay within a global financial system centered on the dollar. The essential asymmetry in who can rescue that global banking system remains a source of power.

The structure and operation of the IMS thus creates and reflects US infrastructural power. Internationalized banks are unable or unwilling to upset domestic

political and economic relationships that suppress local demand in favor of export surpluses. These banks are staffed by like-minded people following similar routines in normal times. They routinely deal in dollars generated by their export-surplus economies. They are thus relatively dependent on the FED to back them up in the event of a crisis. All these things keep the dollar central, which in turn allows actors in the US economy, including and especially the US state, to borrow money cheaply in global markets and recycle it at higher returns. Yet all this ultimately relies on the contemporary version of Triffin's confidence, that is, a belief that dollar-denominated assets will hold their value. Thus, the dollar's status in many way proxies for the second issue, which is *relative growth – differential growth* versus other rich country monetary rivals – not absolute growth of the US economy, and the profitability of the firms constituting the bulk of the US equity and bond markets. What are those sources of the growth and differential accumulation of profits that inhibit panic about the dollar? What is the source of Strange's (1989) productive power?

3. IPRs and relative growth

The dollar's central position in the IMS reflects and produces infrastructural power. But it also generates what Pettis (2011) as well as Germain and Schwartz (2014) has called an exorbitant burden – chronic trade deficits. By definition these current account deficits subtract from economic growth, even though they transfer real resources – goods and services – to the deficit economy. Gilpin (1975) already noticed in the mid-1970s that the expansion of US multinational firms was shrinking the economic gap between the United States and its European allies; he later elevated this re-working of Lenin's combined and uneven development into a general principle of hegemonic decline. Continual current account deficits should imply either or both of an erosion of the tradable sector or slower growth in the United States. Thus, rational actors of the sort found in realist and neo-institutionalist models might wonder whether they would ever be able to cash in promises of future goods from an economy with persistent current account deficits.

Although Linsi and Mügge (2017; see also the entire OECD TiVA project¹²) have questioned the accuracy and conceptual validity of both GDP and current account statistics, private actors like investment banks and politicians base decisions on them. They are thus 'social facts' of immense importance. Surplus economies necessarily accept some asset corresponding to their net sales. Their aggregate willingness to accept those assets rests on a belief in their future credibility, which in turn rests on differential growth in the overall economy (which supports the credibility of public debt, mortgage backed securities and real estate) and differential profitability (which supports the credibility of private bonds and equities). Despite current account deficits the US economy has enjoyed aggregate and per capita growth rates in real local currency terms exceeding all the G7 except Canada from 1992 to 2017¹³ and the US firms that make up the bulk of equity market capitalization enjoy relatively high profitability. By and large those firms possess robust IPRs (patents, trademarks, brands and copyright). These firms are crucial for differential growth, given that the expected value of other major tradable assets ultimately depends on growth in and revenues from the corporate sector.

US government policy supports differential growth and profitability through the export of US IPR law via the WTO and through industrial policy aiming at the

dual goal of generating differential growth relative to economic rivals and maintaining military superiority over geo-political rivals (Hurt, 2010; Mazzucato, 2015; Weiss, 2014). This has helped generate both the supply side of that the ‘information economy’ and the domestic and international legal infrastructure to make it profitable. The combination of new technologies and robust IPR protection allows predominantly US firms to capture a disproportionate part of the value created in global commodity chains. As Gilpin (1975) predicted, the ability to capture profits from simple manufactures – Strange’s (1989) structural power in production – had eroded by the end of the 1970s in the face of German and Japanese economic recovery. Through active industrial and trade policy the US government was able to restructure the global economic playing field in favor of intellectual property. Simple manufacturing became a low profit segment of a rapidly expanding set of global commodity chains dominated by US firms with robust IPRs. US firms account for 33.9% of cumulative profits generated by the 3795 firms ever appearing on the Forbes Global 2000 list from 2006 to 2018 and firms in sectors characterized by robust IPRs account for a disproportionate 26.6% of those profits. This disproportionate share of global profits ensures that US firms – though not necessarily average US incomes or even less so worker incomes – have differential growth relative to foreign competitors. Capitalism is ultimately about profits and the power created by the capitalization of expected (future) profit streams into share market value. Below, in order, motives, technology development, profits and law.

3.1. Motives

The fear of peer military and economic rivals motivates US state actors to continually engineer new disruptive technology and disperse it among commercially viable US firms (Hurt, 2010; Smith, 2011; Weiss, 2014). Military and economic pre-eminence requires both abundant revenues and the ability to maintain a technological edge versus a broad range of potential enemies. Revenues and a technological edge intersect in policies that develop a robust civilian economy. This strategic orientation emerged around the time of World War II, but its tactical implementation has shifted over the years from large federally funded labs to smaller seed grants, venture capital, and support for emerging firms.

The US national security state deliberately generates new technologies as a way to ‘offset’ disadvantages in available manpower, numbers of weapons, sensitivity to casualties and distance, with speed, precision, technical surprise and faster operational tempo (Weiss, 2014; see Perry, 2015 for a participant account; Possony & Pournelle, 1970 for a doctrinal statement). The Department of Defense is now officially pursuing Offset Strategy generation four. The basic idea is to use advances in electronics, communications technology, software and new materials to enable a limited number of US troops or weapons platforms to ‘fire and forget’ against more numerous targets, as well as to disrupt the organization of those forces. Thus, for example, Perry (2015) intended that precision guided munitions would enable North Atlantic Treaty Organisation (NATO) to deter or defeat a Warsaw Pact offensive capable of deploying roughly three times as many tanks in the 1980s.

3.2. Technology development

Defense oriented support for technology goes far beyond the justly famous Defense Advanced Projects Research Agency (DARPA). The archetypical material manifestations of this policy today are the dozens of venture capital funds run by various US government agencies. For example, the CIA runs the venture capital firm In-Q-Tel (www.iqt.org) to create simultaneously both the new technologies the CIA desires and a commercially viable base for producing those technologies (Weiss, 2014). This continues a parallel federal policy shift starting in the late 1970s that aimed to create new, commercially viable firms rather than just new technologies. On the consumption side, the Federal government alone accounts for 5% of global tech spending.¹⁴ The US state thus reinforces its infrastructural power by acting as a demiurge and not just handmaiden in the growth and transformation of the US economy. Building new technologies and new firms around those technologies builds new actors in civil society; these new actors are the constituency supporting continuation of those policies, thus carrying their routinization into society, as well as into key allies via foreign subcontractors.

Mazzucato (2015) provides a comprehensive list of the military derived technologies that comprise the bulk of value in, e.g. a cell phone or tablet, including touchscreens, chips, GPS, flash memory, digital assistants, voice recognition, etc. But the technologies funded by the US state also extend into the areas of social network analytics, biomedical and biotechnologies, new materials, alternative fuels and batteries. As noted above, this is where Strange’s (1989) military structural power overlaps with financial and productive structural power, because the firms engendered by this policy are disproportionately profitable.

3.3. Profits

US firms’ profits are disproportionately large relative to the US share of the global economy, German and Chinese firms’ profits disproportionately small. The annual Forbes Global 2000 (FG2k hereafter) lists the 2000 largest firms in the world based on an index combining sales, profits, market capitalization and assets.¹⁵ Table 2 shows the relative share of cumulative profits for all US, Chinese, German and Japanese firms in the FG2k as a share of all profits by the 3795 firms in the FG2k, 2006 to 2018. Out of roughly 28,000 global firms with annual revenues over \$200 million tabulated by McKinsey, roughly one-third of total profit accrued to the 2000 firms in the FG2k in 2014, although these amount to only 7.1% of those

Table 2. Relative share of total profits by the Forbes Global 2000, 2005 – 2017.

	Share of FG2k profits, 2005–2017, %	Share of global GDP, 2016 ^a (%)	Ratio of profit share to global GDP share
Germany	3.6	4.4	0.82
Japan	6.7	6.2	1.08
China (ex-Hong Kong)	10.6	14.1	0.76
China plus Hong Kong ^b	12.7	14.5	0.88
United States	33.9	23.3	1.45

^aMost recent non-estimated data.

^bNot all HK domiciled firms are Chinese owned, so this row may overestimate share shown in column 1.

Source: Author calculation from FG2k data and International Monetary Fund, *World Economic Outlook* Database, April 2018 @ <http://www.imf.org/external/datamapper/datasets/WEO>

28,000 firms (Dobbs et al., 2015; Forbes [vd]). Per Bessembinder (2017), who finds that few firms return profits that exceed their cost of capital, we can assume that the profits of the firms outside these 28,000 firms represent a small share of global profit, and that the bulk of the S&P500 also generates little excess profit. All the currently active firms with excess returns in Bessembinder's (2017) study are in the FG2k.

In a corroborating analysis, McKinsey (Manyika et al., 2018) examined 33,000 publicly and privately held firms with revenues over \$200 million per year that capture the bulk of global profits. Of these, 5750 firms with revenues exceeding \$1 billion accounted for two-thirds of total profits, 1994 to 2016, measured as EBITDA (earnings before interest, tax, depreciation and amortization). The top 10% of those 5750 firms captured 80% of total profits for those firms, the bottom 10% lost money, and the middle 80% captured the remaining 20%. From 2014 to 2016, top 10% firms in the bio-pharmaceutical, computer and electronics, internet and branded consumer goods sectors accounted for 38% of profits generated by the top 5750 firms. The top 1% of firms – 58 entities – captured 36% of total profits, with 53% of that accruing to IPR-based firms.

Unsurprisingly, given that equity market capitalization generally reflects current and expected profits, firms that primarily rely on IPRs for their profitability – those same bio-pharmaceutical, software, technology and branded consumer goods firms – constituted 32% of the S&P500 market capitalization in February 2019; of this, the top 20 firms constituted 25% of market capitalization (author calculation). By contrast the broad US automobile sector – car and truck assemblers and suppliers – accounted for less than 2% of market capitalization. *Mathematically, foreign investors into US equities necessarily cannot avoid acquiring shares of IPR-based firms.* From an investor point of view, it is hard to see why they would want to avoid doing so, given that this is where the profits are located. Put simply, given a choice between Microsoft or General Motors equities and bonds, they will more likely choose the former.

Table 3 breaks down the aggregate data in Table 2 to show the share of total sectoral profits captured by German, Japanese, and US firms in different sectors (see also Starrs, 2013). Table 3 assumes that we can reliably assign profits to firms that have diverse and multinational share ownership for three reasons. First, if Doremus, Pauly, Keller, and Reich (1998) are still correct, most MNCs are anchored in their home economy. Second, generally, on a net basis US entities own more foreign equities than foreign entities own US equities, so beneficial ownership is skewed towards US-owned entities. Third, with specific reference to the FG2k data, as Starrs (2013, 2018) shows, passive US ownership of foreign firms in the FG2k generally exceeds foreign ownership of US firms in the FG2k, so the data below are biased against the US share and thus conservative.

Table 3 thus shows the degree to which high profit volumes and high rates of profit as a percentage of sales characterize US firms that rely on IPRs for profitability (primarily the firms in the tech categories). Non-US firms have robust shares of profits in autos and other declining sectors. But in both the hard (physical) and soft (intangible, including brands) parts of the new economy, US firms capture large shares of sectoral profits. Moreover, in older sectors like the auto industry, the share of electronics and software in value added is now approximately 20% – much higher in luxury and hybrid vehicles – and much of it bought in from

Table 3. Share (%) of cumulative total profits in the FG2k, 2005–2017, by select countries and sectors.^{ab}

'Old economy'					
Autos/trucks		Oil		Chemicals ^c	
China	6.6	China	10.2	China	0.6
Germany	30.7	Japan	0.9	Germany	18.6
Japan	34.5	Russia	18.3	Japan	8.6
Korea	8.9	UK	5.8	Netherlands	5.2
USA	4.7	USA	27.4	USA	26.9
<i>Sector share of all FG2k profits</i>	<i>3.6</i>		<i>12.0</i>		<i>2.7</i>
'New economy' – branded goods					
Beverages		Hotels		Branded consumer	
Belgium	14.1	China	14.9	France	10.8
Germany	0	Germany	2.2	Germany	7.8
Japan	3.7	Japan	5.1	Japan	4.8
UK	14.0	UK	11.6	UK	8.5
USA	42.7	USA	60.0	USA	61.1
<i>Sector share of all FG2k profits</i>	<i>1.6</i>		<i>0.3</i>		<i>1.4</i>
'New economy' – Tech hardware/software, biotech and pharmaceuticals					
Bio-pharma		Tech-hardware		Tech-software	
Germany	2.0	China	0.4	China	7.2
Japan	5.8	Germany	0.6	Germany	5.3
Switzerland	18.1	Japan	4.0	India	8.1
UK	12.0	Korea	10.6	Japan	0.4
USA	48.3	USA	73.8	USA	70.5
<i>Sector share of all FG2k profits</i>	<i>4.3</i>		<i>7.2</i>		<i>2.7</i>

^aSectors based on Forbes characterizations.^bEach cell represents the country share of profits for that sector; italicized numbers are the sector share of total FG2k profits.^cSectors included: Specialized chemicals and diversified chemicals.

Source: Author calculations from Forbes, vd.

specialist tech suppliers like NXP (US), Infineon (EU) and Renesas (Japan) (Manyika et al., 2018). Put differently, Apple, with fewer than one-tenth the number of employees as Volkswagen-Audi, Daimler, BMW and Continental, combined, captured 20% more profit (\$347 billion versus \$295 billion) from 2005 to 2017.

New economy firms drive disproportionate US growth as compared to peer competitors. Though space prevents a full consideration, Schumpeter's (1934) arguments about the circular flow economy – in which profits merely cover capital costs, depreciation, and a managerial salary for owners – clearly apply to the bulk of firms in both the US and other economies. A mere 4% of firms account for all gains in the US stock market since 1926 and barely half of all stocks returned more than the one-month Treasury bill rate, implying that most firms simply cover depreciation (Bessembinder, 2017). The same is likely true for other economies. IPR firms are disproportionately represented among the winning 4% and 15 US tech and pharmaceutical firms accounted for 23% of the market capitalization of the 558 total US firms in the FG2k in 2018.

3.4. Law

Yet profitability and its related market capitalization do not flow automatically from new technologies or clever design. None of the new economy sectors noted

above would be profitable in the absence of domestic legislation and global treaties establishing robust IPRs. Without patents, copyright and other forms of IPR protection, information rich goods would be public goods: non-rival in consumption and non-excludable in ownership and thus impossible to sell. Profitability requires a domestic and international legal foundation to secure profits via routinized compliance with the extraction of profits. The US state has undertaken a concerted, 40-year campaign to create and extend US IPR law globally in order to secure revenue streams for the US firms that dominate the production of information-rich goods (Boldrin & Levine, 2008; Drahos and Braithwaite, 2003; Sell, 2003; Hurt, 2010).

US trade deals thus typically emphasize two sets of interests. The first is financial firms' access to other countries' financial markets, which helps maintain dollar centrality as well as access to value created in those economies. The second is legal protection for IPRs. The proposed, now defunct, Trans-Pacific Partnership (TPP) and Transatlantic Trade and Investment Partnership (TTIP) were the most recent versions of trade deals strengthening investor protection mechanisms and patents and other IPRs. But as early as the Tokyo Round of GATT talks (1973–1979) the US was trying to export its stronger IPR rules to the rest of the world (Hurt, 2010; Sell, 2003). Since then, the United States has systematically tried to export its internal IPR regime to the rest of the world, strengthening IPRs in each successive trade round. IPRs are essential for firms profitability, the ability of US firms to construct and control global commodity chains and for the plausibility that the US state controls a tax base that can validate its deficits. Law is a primary tool for constructing infrastructural power and compliance with law is a primary indicator of the existence of infrastructural power.

Granted, legal rights are never perfectly enforced and there is considerable global violation of IPRs. The law has its own logic and is somewhat autonomous, so the United States sometimes loses WTO cases and moreover faces opposition to comprehensively strong IPRs (Sell & Prakash, 2004). The United States nonetheless has won about 90% of its WTO cases (WTO.org). IPR based firms also exhibit extremely high profitability despite piracy, which suggests first, that the major economies do play by the rules, and second, that to the extent that enforcement increased, so would profitability. Moreover, at the margin, some piracy helps IPR firms by locking out competitors; someone running an illegal copy of Microsoft Office is probably not buying an alternative productivity suite.

This legal infrastructure makes it possible for US firms to construct global commodity chains in which they operate the high profit, human capital-intensive parts of the production chain, while delegating physical capital-intensive production to mostly non-US rich country firms (which in turn absorb considerable capital into that immobile, asset specific and thus vulnerable physical base) and delegating labor-intensive assembly steps to developing economies. This has two consequences. First, net direct investment income flows now constitute roughly 1% of US GDP, constituting a second transfer of resources to the United States (Avdjiev, Everett, Lane, & Shin, 2018). Second, this structure creates overseas domestic constituencies for continued cooperation with the United States (Hirschman, 1945). Foreign firms' large fixed capital investments can only be validated through continued participation in those commodity chains and often by helping to maintain or extend IPR law. Indeed, many non-US firms seek to challenge US firms in the IPR arena by adopting precisely the same organizational profile and thus support robust

IPRs. The Israeli generic drug firm Teva (c. \$20 b in revenues and 43,000 employees in 2017), for example or the Indian generic firm Sun Pharmaceutical (c. \$4 b in revenue, 52,000 employees), both aim to move up-market into patented pharmaceuticals through internal R&D efforts. And European luxury brands similarly rely on IPR protection. Yet this strategy is pointless in the absence of the global protection for IPRs that differentially favors US firms.

On the other hand, concentrating on transforming ideas into IPRS also creates some risk of the loss of actual manufacturing capacity and it also drives rising income inequality in the US domestic economy. This is the production side of the quasi-Triffin dilemma the United States faces with respect to maintaining geo-economic dominance. While an expanded global division of labor with US firms in dominant positions assures high profitability for US firms, it also undermines middle income US households as manufacturing and ancillary services move offshore. The conclusion will address that issue.

4. Conclusion

Accurately assessing the durability of US geo-economic power requires accurately assessing the mechanisms that produce and maintain that power. Strange (1989) identified four main structural sources of power but without much specificity as to their mechanisms. That said, by asking where credit came from, rather than simply focusing on the dollar as a pure mechanism for exchange and value storage, she did move towards identifying the mechanisms sustaining those structural sources. Here I have tried to show the mechanisms sustaining two key sources, credit and production, by focusing on dollar centrality and the slice of US firms that rely heavily on IPRs for their profitability. The structure of the international monetary system and the expansion of US global commodity chains and US law around IPRs through global trade treaties enable the United States to turn what would otherwise be a bug – persistent current account deficits – into a feature of US hegemony.

Dollar centrality in the IMS allows the US as an economy and more specifically US firms to escape constraints that the balance of payments would otherwise impose (Cohen, 1998). In a world of perfectly mobile capital and low asset specificity, US current account deficits would disappear through currency depreciation and capital flight anticipating and exacerbating depreciation. In our world, however, a set of successful late developers have institutionally rooted domestic demand deficiency that generates current account surpluses. Their accumulation of excess export revenues in turn locks their banking systems into continued use of the US dollar in global credit creation. Those foreign financial firms face competitive pressures that enmesh them in a web of relations centered on the FED and the New York-London group of banks and their associated legal infrastructure (law firms, courts, and practices). Balance sheets with dollar-denominated claims and liabilities make them dependent on the FED in the event of a crisis. Simultaneously, the transit of key personnel through the New York-London investment banks socializes the managerial strata into routines and world views, into habitus, that are the expression of US infrastructural power. Likewise, participation in global commodity chains organized by US firms makes non-financial participants' survival and profitability dependent on the survival and profitability of US IPR-based firms, and thus on maintenance or extension of IPR law.

In principle, if a major export surplus economy were to open its financial and product markets, then some other currency might displace the dollar. The only economies big enough to handle this at a world scale are China and the European Union (or eurozone). China's financial liberalization remains a decade long unfulfilled promise and its *Made in China 2025* policy aims at yet more import substitution. EU28 and EA19 unemployment in 2018 was 6.6 and 7.9%, respectively. Even with a current account surplus of 3.5% of GDP in 2017–2018 (half of which was with the United States), the EA19 still had an output gap of 0.5% of GDP and GDP growth of only 1.9%, versus US GDP growth of 3%. Neither potential supplier of global money is likely to cease relying on exports to the United States as a source of growth.

All that said, these mechanisms producing US structural power do contain significant internal contradictions. Constructing elaborate global commodity chains and allowing non-US firms to handle more of the capital-intensive parts of production risks losing the ability to generate new, patentable technologies. In this respect, the rapid development of new electronics and biological technologies in China is a major threat, even though or especially because those firms have trouble enforcing IPRs and thus generating profits. The relative ease of technology transfer and rising educational capacity in potential peer rivals makes it easier for them to adopt and adapt the physical and organizational technologies that give US firms their advantage in generating new technology. Historically, Gilpin's (1975) fears that US MNCs would enable the Japanese and German economies to master continuous flow production proved true. In response, the US government funded and orchestrated a Bourdieuvian shift away from manufacturing and towards information technology and revenue capture through control over IPRs. This offset Euro-Japanese mastery of physical production, as the profit data above show. And it is profits that matter in a capitalist economy. Still, like the Red Queen, US firms and state cannot stand pat.

Similarly, while dollar centrality does remove the balance of payments constraint, the consequent perpetual trade deficits imply lost jobs, particularly in the low-value added parts of the manufacturing sector (Autor, Dorn & Hanson, 2013; Autor, Dorn, Katz, Patterson, & Van Reenen, 2017 survey costs; Seabrooke, 2006 benefits). The centrality of IPRs for profits turns more of the manufacturing sector into low-value added firms than might otherwise be the case and shifts some capital-intensive and physical asset specific production offshore. Reliance on IPRs for profit thus tends to concentrate income into a small number of firms and employees (Autor et al., 2017; Schwartz, 2016). This has hollowed out manufacturing employment and the middle of the income distribution. Stagnant wages and diminished upward mobility have undermined the political consensus sustaining current account deficits and the ability to generate tax revenues enough to validate US public debt is breaking down. Although a majority of Americans think trade in the abstract is good, only a minority believes that trade does help wages and employment grow (Stokes, 2018). This was especially true for the non-college educated voters that tipped the 2016 Presidential election towards Donald Trump and thus towards more protectionist policies.

These policies (along with the erratic nature of the administration itself) affect external perceptions of the credibility of US public and private promises to validate future claims on US tax revenue, mortgages, and profits; put differently, they

undermine differential growth. These two contradictions drive the risk not so much of a sudden stop scenario but rather of a gradual increase in interest rates and decrease in the exchange rate. First, the income inequality consequent to the concentration of profits in the IPR economy both slows growth (higher income households have a lower marginal propensity to consume) and starves other firms of the resources they need for investment by concentrating profits in firms that have lower investment needs (Schwartz, 2016). This erodes the growth differential between the United States and Europe. Second, constraints on government spending from tax avoidance (which IPR firms find much easier) and an anti-tax politics starve the economy of infrastructure and public investment, which also erodes the growth differential.

The IMS and IPR mechanisms animating US structural power in two of Strange's (1989) four areas thus contain sources of endogenous decay. Good policy might enable the US state and economy to address these risks over the long run, producing the same kind of Bourdieuvian response that in the 1970s and 1980s redefined the source of profits away from physical assets and towards intangible assets. But good policy seemed to be in increasingly short supply in 2018. In the short run, however, the equally problematic institutional rigidities producing demand deficits in the export surplus economies assure continued dollar centrality. What Gowan (1999) called Washington's Global Gamble remains a Faustian bargain.

Notes

1. Free exchange: It's been a privilege. (2017, February 9). *The Economist*, 422(9027): 65.
2. The focus on C. Fred Bergsten here is deliberate: He is a voice of official Washington, having worked at and run (1981–2012) the (Peterson) Institute for International Economics as well as having worked at the Brookings Institution (1972–1976), the Council on Foreign Relations, the National Security Council (1969–1971), the Treasury Department (1977–1981) and on various quasi-public elite consultative councils (e.g. the President's Advisory Committee on Trade Policy and Negotiations).
3. That said, the 2018 trade dispute with China has aspects intended to protect US dominance in the technology sector and to reinforce protections for US IPRs in the face of China's *Made in China 2025* plan.
4. A longstanding stream of argument deriving from Despres, Kindleberger and Salant (1966) suggests that the United States offers risk intermediation services to the world, trading safe assets for riskier ones. While this is somewhat plausible in the context of the 1960s cold war and the limited deficits noted in the text, it is implausible if you fear dollar depreciation, deficits and financial crises in the post-cold war environment.
5. Conference Board Total Economy Database, March 2018 @ <https://www.conference-board.org/data/economydatabase/index.cfm?id=27762>.
6. Thus Bourdieu (2012, p. 65–83 and especially at p. 69) notes that most 'fiscalist' explanations of state-ness and state-building inevitably end up talking about the legitimacy of taxation and thus bringing in non-material, symbolic representations of power without which the material side of the state will founder.
7. The Canadian and Australian dollar also function as secondary global reserve currencies in proportions slightly above Canada's and Australia's share of global GDP. By contrast use of the Euro is proportional to the EU or eurozone share of global GDP. The Pound, Yen, Swiss franc and Renminbi (RMB) are underweight, the RMB grossly so. In foreign exchange transactions, all but the RMB are overweight.

8. IMF World Economic Outlook database at <https://www.imf.org/external/pubs/ft/weo/2018/02/weodata/WEOOct2018all.xls>
9. Bank for International Settlements at <https://stats.bis.org/statx/srs/table/f2.4>
10. Daily Shot. (2018, 4 May 2018). *Wall Street Journal*. Retrieved from <https://blogs.wsj.com/dailyshot/2018/05/04>
11. Thanks to Randall Germain for this lovely phrase.
12. <http://www.oecd.org/sti/ind/measuring-trade-in-value-added.htm>.
13. Data from IMF World Economic Outlook database at <https://www.imf.org/external/pubs/ft/weo/2018/02/weodata/WEOOct2018all.xls>. Real local currency is the appropriate metric for measuring growth as it eliminates exchange rate distortions and the assumptions built into PPP conversions and as most consumption in OECD economies is locally produced.
14. A Tale of two Washingtons. (2018, 8 March). *Economist*. <https://www.economist.com/united-states/2018/03/08/it-make-sense-for-amazon-to-build-its-second-hq-near-washington>.
15. All data from the Forbes Global 2000 are author calculations from 13 years of the FG2k list starting in 2006; the list is retrospective to the prior year. For the selection methodology see Scott DeCarlo, 'Methodology: How We Crunch the Numbers,' *Forbes*, 4/18/2012, p. 36. Using thirteen years of FG2k data reduces distortions from the business cycle – most notably the 2010 Great Recession – and from random variation in a given firm's annual profits.

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