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# STRUCTURED FINANCE FOR FINANCED STRUCTURES

## *American Economic Power Before and After the Global Financial Crisis*

Herman Schwartz

Global financial flows, like power, seem abstract, delocalized and fluid. Housing, by contrast, is reassuringly concrete, local and rooted. Yet, during the past two decades (1991–2010), American power, finance and housing have been tightly connected. Put simply, America's ability to securitize large quantities of mortgage debt and sell it into global markets enabled the US economy to temporarily escape the normal economic constraints, to grow faster than its peer competitors, and to expand its firms' control over global production chains. These three conditions restored US global economic power after the troubling 1970s and 1980s. Yet the financial deregulation and innovation that permitted securitization also created the conditions for the subsequent Financial Crash. Like all economic processes, the economic bust emerged endogenously from the exhaustion of the very factors that initially fueled the boom, throwing the long-term renewal of US economic power into question by undercutting the current basis for above-average rates of growth in the United States.

This chapter thus has four parts. Part One defines power and establishes that US economic power grew during the past two decades when judged by the three criteria noted above. Part Two shows that the structure of the American housing-finance system was the source of the growth differential between the United States and its peer competitors during the long 1990s. Part Three shows how the current Crisis emerged endogenously

from the 1990s boom. Part Four looks forward in order to offer some conclusions. It considers how the current Crisis may change relations between the United States and its largest creditor, China, and the United States and its rich-country peer competitors.

## American Global Economic Power Over Four Decades

Power is difficult to observe. At best we have proxy measures. Thus I will define US global economic power as differential growth: growth rates of GDP per capita and employment above the average rate for its peer competitors. Like the tracks made by subatomic particles in a cloud chamber, the sources for differential growth reveal the otherwise invisible contours of US economic power. Differential growth is both a cause for and a consequence of US economic power. Related but lesser sources of power are the ability to escape the normal economic constraints because the US dollar is used as an international reserve currency, and increased control over global production as US firms remain relatively more innovative and relatively better at assimilating information technologies than firms from peer competitors. Differential growth both generated large volumes of profit that could be used to take control of critical nodes in production chains, and encouraged and validated investment in new production processes related to those critical nodes. Control assured continued profitability. Differential growth also attracted foreign capital, reinforcing the dollar's international role and removing constraints on the US economy, while making other economies more reliant on US growth for their own growth. Yet these processes were not fully independent, as capital inflows also helped activate US differential growth in a temporarily self-sustaining dynamic. It is impossible and pointless to try to assign causal priority here, particularly because, as we will see, deliberate policy decisions mattered less than the automatic operation of several pre-existing institutional structures. While US state officials sought and acted to revive American power, much of the action occurred behind their backs and not as a consequence of their policy decisions. In addition, the international role of the US dollar is a mixed blessing, as it contributes to the US trade deficit.

Politics is ultimately about power, and, as Jonathan Nitzan argues, economic power ultimately is about *differential rates*

*of growth* and not just absolute growth.[1] In political economy, power flows from differential accumulation, that is, above-average growth rates for output, profitability and capitalization. All other things being equal, relatively faster growth will enable an economy or firm to command more resources of all kinds from a market economy. Faster growth generates a larger mass of profits that can be deployed in the struggle for control over the economy and the struggle to set prices. Control, particularly control over production chains, matters because control affects the distribution of profits and value across actors, and thus their ability to consolidate or expand their control in the future.[2] Any analysis of US power thus has to look first at the sources of differential growth and control rather than specific strategies, like financialization, aimed at attaining differential growth and control.

Over the past two decades, the United States outgrew its peer rivals—Japan and Germany—with respect to GDP per capita and employment growth, reversing the dynamics of the 1970s and 1980s. Table 7.1 presents population-adjusted data on the change in per capita GDP and job creation from 1991 to 2005. We start in 1991, because the collapse of the Soviet Union established economic competition as the primary strategic problem faced by the US state. At the end of the 1980s many feared that the United States was in an irreversible economic decline. Though now a dim memory, 1989 saw serious speculation that the yen or European currencies might replace the dollar.[3] While the dollar comprised nearly 75 percent of official reserves in 1978, by 1989 it had fallen below 50 percent as central banks diversified into deutschmarks

1 On differential accumulation as a concept, Jonathan Nitzan, "Differential Accumulation: Towards a New Political Economy of Capital," *Review of International Political Economy*, 1998, 5(2), and Jonathan Nitzan and Shimshon Bichler, "New Imperialism or New Capitalism?" unpublished paper, http://bnarchives.yorku.ca; on the importance of relative gains, see Joseph M. Grieco, "Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism," *International Organization*, 1988, 42(3).

2 Robert Gilpin, *US Power and the Multinational Corporation*, New York: Basic Books, 1975; Christian Palloix, "Self-expansion of Capital on a World Scale," *Review of Radical Political Economy*, 1977, 9(2); Nicos Poulantzas, "Internationalisation of Capitalist Relations and the Nation-State," *Economy and Society*, 1974, 3(2).

3 Fred C. Bergsten, ed., *International Adjustment and Financing: The Lessons of 1985–1991*, Washington, DC: Institute for International Economics, 1991.

and yen.[4] Various Euro currencies peaked at 40 percent of reserve holdings in 1990, and the yen at 10 percent. Similarly, Japan's apparent ability to generate new assets made many in the United States fear Japanese firms would embark on a buying spree that would give them control of the commanding heights of the US economy.[5]

Table 7.1: Relative Economic Performance in the United States, Germany, Japan, and the OECD, 1991–2005

| Population-adjusted percentage change: | USA | OECD–19 Average | FRG | Japan |
|---|---|---|---|---|
| GDP (real, local currency) | 33.5 | 28.1 | 17.3 | 13.3 |
| Change in the number of employed | 1.8 | 3.0 | –2.9 | –2.7 |
| Change in the number of unemployed | –24.8 | 6.8 | 91.5 | 109.7 |
| Gross Fixed Capital Formation | 79.9 | 48.2 | 2.7 | –13.5 |
| GFCF, Metals and Machinery | 159.8 | 100.1 | 19.0 | 22.8 |
| GFCF, Housing | 90.4 | 62.9 | 1.9 | –28.0 |
| GFCF, Non-residential Construction | –3.2 | 6.7 | –24.8 | –34.6 |
| Gross value added | 33.5 | 28.1 | 19.5 | 14.4 |
| GVA, Manufacturing | 52.0 | 28.3 | 6.5 | 16.1 |

Source: Author's calculations based on data from OECD, "Main Economic Indicators, volume 2008," http://www.sourceoecd.org, accessed June 18, 2008.

Yet, by 2005, all these conditions were reversed. From 1991 to 2005 US per capita GDP, employment, and fixed capital formation

4 Philip Wooldridge, "The Changing Composition of Official Reserves," *Bank for International Settlements Quarterly Review*, 2006, September.

5 See, for example, the overheated Daniel Burstein, *Yen!: Japan's New Financial Empire and Its Threat to America*, New York: Fawcett Columbine, 1990. Burstein has written similar books about Europe and China.

grew well above OECD averages and thus much faster than below-average Germany or Japan.[6] While housing investment clearly contributed to above-average US growth, especially after 2000, US growth was not only about housing, as manufacturing fixed capital formation and gross value added also increased strongly above the OECD-average level. The United States also generated nearly half the OECD's net new jobs despite having only one third of the OECD's population.[7]

Above-average growth increased US economic power relative to its rich-country peers while preserving its position relative to developing-country challengers. The United States grew so much faster than its rich-country competitors that between 1991 and 2005 its "market share" in the global economy relative to those countries increased by an astonishing 4.2 percentage points to 42.7 percent.[8] Despite rapid Chinese and Indian growth, the US share of global GDP remained stable at about 21 percent on a purchasing-power parity basis (which biases China's share upwards). Put aside quibbles about outsized American consumption; GDP measures output net of imports. US differential growth in the long 1990s reversed trends in the 1980s, when both Germany and particularly Japan had grown faster than the US. After 1990 and 1992 respectively, each lost ground relative to the US on an aggregate and per capita basis; they also lost ground to the faster growing developing countries. Meanwhile, faster US growth became a self-reinforcing process that sucked capital out of Europe, Japan and China. Faster US growth produced rising tax receipts and enabled the US federal budget to move into surplus by the end of the 1990s, ameliorating fears of an ever expanding US budget deficit. Faster growth and a falling deficit also restored faith in the US dollar, inducing foreign investors to bid up US-dollar-denominated assets. By 2001 the dollar was back to 70 percent of official holdings, and the euro down to 25 percent; yen

6 OECD here refers to the old, rich-country OECD-19: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, United Kingdom, and the United States.

7 Uwe Becker and Herman Schwartz, eds., *Employment Miracles: A Critical Comparison of the Dutch, Scandinavian, Swiss, Australian and Irish Cases versus Germany and the US*, Amsterdam: University of Amsterdam Press, 2005.

8 Calculated from the EU–KLEMS database at http://www.euklems.net, using purchasing-power parity GDP in constant 1990 Geary–Khamis dollars, which controls for fluctuations in exchange rates and inflation.

holdings were below 5 percent. These trends removed the normal constraints on the US economy, reinforcing differential growth and providing a second indicator of renewed power.

The American economist Benjamin Cohen sees this absence of constraint as the essence of monetary power.[9] The United States was able to operate without constraint and to delay any adjustment to its rising current-account deficit. The US economy avoided the normal trade-offs across domestic consumption, domestic investment, and overseas investment. US consumption and on- and off-shore investment all expanded faster than its GDP. Consumption rose from its average level of 65 percent of GDP to 71 percent in 2004. Despite rising consumption, gross fixed capital formation also grew relative to GDP, from 14 percent to 19 percent. American investors also sent nearly $7 trillion back out into the world from 1997 to 2007. What made this possible? Massive foreign inflows to the US relieved the usual constraints, providing between 10 and 20 percent of total lending in US credit markets annually after 1994. By 2005, US foreign borrowing accounted for 26 percent of total lending in the US economy.[10]

Wily foreigners lent against collateral, or so they thought, by buying, among other things, $1.5 trillion of mortgage-backed securities issued by Fannie Mae and Freddie Mac. With the nominal market value of US houses rising by about $14 trillion, and mortgage debt rising by nearly $7 trillion from 1991 to 2006, there was plenty of new collateral to go around. The connection between the new $7 trillion of mortgage debt and the $7 trillion in US outward capital flows is more than just an accounting identity. In essence, Americans borrowed against their houses and their state, at low interest rates, both to consume more and to invest more in domestic and overseas vehicles they hoped would yield higher returns.

The recycling of US trade deficits into foreign lending to the United States enabled a recycling of that foreign lending into US purchases of foreign assets, just as in the original Bretton Woods arrangement. Back then, European sterilization of US current-account deficits removed constraints on the US economy

9 Benjamin Cohen, "The Macrofoundations of Monetary Power," in David Andrews, ed., *International Monetary Power*, Ithaca NY: Cornell University Press, 2006.

10 Jane D'Arista and Stephany Griffith-Jones, "The Dilemmas and Dangers of the Build-up of US Debt," in Jan Joost Teunissen and Age Akerman, eds., *Global Imbalances and the US Debt Problem*, The Hague: Fondad, 2006, p. 64.

and helped fund US MNCs' investments in Europe as well as US security interests.[11] In the long 1990s, foreign lending and differential growth funded US passive and active acquisitions abroad, expanding the share of global production controlled by US firms and individuals relative to firms from rich-country competitors. From 1994 to 2006, the US-owned share of the Morgan–Stanley MSCI All Country World ex-US Market Index rose from 10 percent to 24 percent of total market capitalization. By contrast, foreign holdings of US equities rose more slowly from 5.1 percent to 9.7 percent of market capitalization.[12] US firms also grew faster overseas than foreign firms grew in the US market, 1995–2004. Despite a 10 percent increase in the dollar's exchange rate (which diminishes measures of overseas activity), their overseas value added increased by 40 percent, while turnover nearly doubled to 7.8 percent of gross world product.[13] Moreover, despite slower growth in other rich countries, the ratio of US MNCs' overseas sales to sales in the United States by firms engaged in FDI into the United States also rose from 1.3 to 1.5, 1995–2004. This indicates that US firms increased their control over foreign markets faster than foreigners increased their control in US markets. There is no one-for-one correspondence between the interests of firms and the interests of the US state. Nevertheless, most research on MNCs suggests that they remain firmly rooted in their national economies and political cultures.[14] This is particularly true for high-technology firms, as they rely more on defense contracting

11 Ernest Mandel, *Europe versus America*, London: Verso, 1970; Jean-Jacques Servan-Schreiber, *The American Challenge*, New York: Avon, 1969; Hubert Zimmermann, *Money and Security: Troops, Monetary Policy and West Germany's Relations with the United States and Britain, 1950–1971*, Cambridge: Cambridge University Press, 2002.

12 Leila Heckman, "Insight: Refuge May be Found via New Frontiers," *Financial Times*, February 13, 2008, http://www.ft.com; note that the weight of US equities in the global stock of equities is generally not large enough for the smaller foreign share of US equities to overshadow the US share of foreign equities.

13 United Nations Conference on Trade and Development, *World Investment Report, 2006*, New York: UN, 2006, pp. 332–333; Bureau of Economic Analysis, "An Ownership Based Framework of the US Current Account, 1995-2005," *Survey of Current Business*, January 2007, p. 45; OECD, *Measuring Globalization: Activities of Multinationals, II, 2008*, Paris: OECD, 2008, pp. 378, 382.

14 P. Doremus, W. Keller, L. Pauly, and S. Reich, *Myth of the Global Corporation*, Princeton, N.J.: Princeton University Press, 1998.

and require government enforcement of intellectual property rights.

There also was no one-for-one correspondence between capital inflows and outflows; these were macro-economic, not micro-economic flows. Yet in the aggregate, the mismatch between the kinds of inflows into the United States and the kinds of outflows from the United States had huge consequences. These flows constituted a huge system of financial arbitrage, in which the United States (as a macro-economic entity) exchanged disproportionately low-yielding, short-term and passive assets for higher yielding, longer-term, active assets. Net, the United States sold Treasury bonds and mortgage backed securities (MBS) to finance purchases of equities and to fund foreign direct investment.

The corresponding flows of international investment income reflect these different investment patterns. America's overseas investments have consistently yielded more income than did foreign investments in the US, even though the United States has been a net foreign debtor for nearly two decades. In 2007, removing six zeros, this was rather like a private investor, who owed $20,082 while holding investments worth only $17,640, somehow managing to pay out only $726 on her debts while earning $818 from her own investments, and thus receiving net income of $92. It is perfectly plausible that a savvy individual investor might be able to borrow money, invest only part, and still net a positive return. But it is implausible that on average every US investor is smarter than every foreign investor. It is even less plausible that every US investor suddenly became even smarter after the US became a net debtor, as data from Pierre-Oliver Gourinchas and Hélène Rey suggest. They calculate that from 1960 to 2001, US overseas assets earned an annualized rate of return 2 percentage points higher than US liabilities to foreigners, at 5.6 percent versus 3.6 percent.[15] Furthermore, the gap expanded after 1973, as US assets yielded 6.8 percent while liabilities cost only 3.5 percent. This is one reason why, despite 5 years of cumulating trade deficits, US net foreign debt was the

15 Pierre-Olivier Gourinchas and Hélène Rey, "From World Banker to World Venture Capitalist: US External Adjustment and the Exorbitant Privilege," NBER Working Paper 11563, August 2005, Chicago: NBER, 2005; see also Ricardo Caballero, Emmanuel Farhi, Pierre-Olivier Gourinchas, "An Equilibrium Model of Global Imbalances and Low Interest Rates," NBER Working Paper 11996, Chicago: NBER, 2006.

same 20 percent of GDP in 2007 as it had been in 2002. The mismatch in maturity and control between the US and foreign investment positions generates these different returns. Table 7.2 shows that about three fifths of US outward investment is composed of high yielding equities and direct investment (columns 1 and 2), while over three fifths of foreign investment in the United States is composed of bonds and loans (columns 3 and 4), which yield less income.

Table 7.2: International Investment into and out of the United States, 2007, US$ Billions and Percentage

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| *$ Billion* | FDI [a] | Portfolio Equities | Portfolio Debt [b] | Loans | Total |
| US to World | 5,148 | 5,171 | 1,478 | 5,002 | 16,799 |
| Rest of World to US | 3,524 | 2,833 | 6,965 | 4,982 | 18,304 |
| Of which, Central Banks | | | 2,931 | 406 | 3,337 |
| | | | | | |
| % shares | | | | | |
| US to World | 30.6 | 30.8 | 8.8 | 29.8 | 100 |
| Rest of World to US | 19.3 | 15.5 | 38.1 | 27.2 | 100 |
| Of which, Central Banks | | | 16.0 | 2.2 | 18.2 |

Notes: [a] Market Valuation
[b] omits trivial US holdings of currency and foreign holdings of US currency totaling $279 billion.

Source: Data from BEA, International Investment Position, http://www.bea.gov, accessed August 1, 2008.

The structure of US housing markets helped make this kind of US arbitrage possible. Possessing an international reserve currency was a necessary condition for US financial arbitrage, because otherwise the risks of buying dollar-denominated debt—and hence also the interest rates on that debt—would have been considerably higher. Leo Panitch and Sam Gindin are precisely

correct on this point.[16] But a supply of sellable assets is also a necessary condition. Treasury bonds alone could not supply enough assets on the scale observed in the 1990s, because the underlying fiscal deficit corresponding to that outflow of Treasury bonds would have spooked international investors, just as US fiscal deficits scared foreign (and domestic) investors in the late 1980s and early 1990s. In other words, massive sales of Treasury debt would have undermined the conditions permitting massive sales of Treasury debt, by driving investors away from the dollar. Massive sales of corporate equities to foreigners would also have provoked a political backlash, as in the late 1980s when Japanese investment into the United States surged. Instead housing-related debt filled the gap. Sales of government-agency (i.e. Fannie Mae and Freddie Mac) MBS and privately generated asset-backed securities filled the gap. Foreign holdings of Agency mortgage-backed securities amounted to about $260 billion (or 7 percent of the outstanding amount) by 2000, and about $1.5 trillion (or 21 percent) by 2008. The foreign share of corporate bonds was similar at $2.8 trillion and 22.6 percent.[17]

As noted above, total US mortgage debt increased by about $7 trillion from 1991 to 2006. This debt corresponded to both an upward valuation of existing housing and a wave of new construction. The United States built 17.7 million units of housing between 1990 and 2000, and an additional 10 million units through mid-2006, which helped the US create half of the OECD's new jobs in the period 1991–2005. What was it about the structure of US housing finance that permitted housing to drive above OECD-average US growth?

## Housing Finance Markets and Global Capital Flows

US housing finance structures turned US global financial arbitrage into above-OECD-average US economic growth. Two cautions are in order, however. First, it is important to note that the argument here is *not* that housing finance structures alone explain

16 Leo Panitch and Sam Gindin, "Finance and American Empire," *Socialist Register 2005*.

17 United States Treasury, *Report on Foreign Portfolio Holdings of U.S. Securities, June 2008*, Washington D.C.: 2009, p. 5. Note that much corporate bond debt to "foreigners" is actually holdings by US firms operating through subsidiaries chartered in tax havens.

all growth. The rich OECD countries all experienced many of the same general growth impulses of the 1990s and 2000s: the supply-chain revolution, the internet, mobile telecommunications and deregulation. Differences in housing finance structures explain the difference in GDP growth rates, not the absolute rate of growth. Second, the argument here is *not* that the United States alone possessed the "right" kind of growth promoting housing finance structures. Rather, many countries possessed elements of the "right" structure. What allows me to claim that housing finance structures mattered is precisely the correlation between above-average growth and what I will call US-style housing finance structures in some but not all countries.[18] How did foreign capital inflows and US-housing finance structures interact to create above-average growth?

Four key features characterize US housing finance markets:

1 relatively high levels of private homeownership
2 relatively high levels of mortgage debt in relation to GDP
3 easy and relatively cheap refinance of mortgages as well as "cash out" of home equity
4 securitization of mortgage loans

These four features enabled a relatively straightforward process of Keynesian demand stimulus to operate in the US economy when disinflation and large-scale foreign capital inflows began in the 1990s. After 1979 monetary policy everywhere became less accommodative, reversing three decades of steadily rising inflation. By 1990, policy credibility and the off-shoring of manufacturing to low-wage economies produced a period of profound disinflation (a decline in the rate of inflation). Disinflation in turn permitted a steady decline in long-term nominal interest rates. Euro-area long-term interest rates fell from 11.2 percent in 1990 to 4.7 percent in 1999. US long-term rates similarly fell from 8.7 percent to 4.0 percent in the period 1990–2003, almost halving the average new mortgage interest rate.[19]

Disinflation in the long 1990s could have released additional

18 See Herman Schwartz, *Subprime Nation: American Power, Global Capital and the Housing Bubble*, Ithaca, NY: Cornell University Press, 2009, Chapter 4 for an extended analysis.

19 Organisation for Economic Co-operation and Development, *OECD Factbook*, Paris: OECD, 2005, at http://www.sourceOECD.org; Harvard University Joint Center for Housing Studies, *The State of the Nation's Housing*, Cambridge, MA: Harvard University JCHS, 2008, p. 36.

purchasing power as debtors' interest payments fell with falling nominal interest rates, and as consumers' dollars went farther in goods markets. Yet housing represents most consumers' single biggest debt (and asset). As disinflation filtered through different housing-market finance systems it might produce increased aggregate demand and thus employment gains. But different housing finance systems translated disinflation into increased aggregate demand differently. Countries with housing finance markets most like those in the United States received the greatest increment to purchasing power, causing rising employment through normal Keynesian multiplier mechanisms. The first two items on the list above affect the potential for a fall in mortgage interest rates to free up consumer cash-flow. The more people who have mortgages and the larger those mortgages are in relation to GDP, the more money can be freed up by declining interest rates. Conversely, the more housing is socialized and the more impediments there are to consumer access to housing-related credit, the smaller the aggregate demand "bang" a given economy can get from a "buck" of disinflation. Thus Italy, which had widespread homeownership but very low levels of mortgage debt relative to GDP, did not get a housing related fillip to growth. Similarly, low levels of homeownership in Germany precluded a housing-related bump despite its high levels of mortgage debt relative to GDP.

While the first two items determine the potential size of the housing-related bump, the second two items determine whether both sides of the mortgage contract will permit that bump to occur. If it is difficult and expensive to refinance a mortgage (to retire the mortgage early by borrowing new money at lower interest rates) then consumers will not do so. In Germany, for example, borrowers are required to compensate their bank for lost interest income if the borrower retires the mortgage early. These pre-payment penalties are largely absent in the United States. One major reason pre-payment penalties are absent is the high level of securitization of mortgages. When banks keep mortgage loans on their books, they are exposed to interest-rate risk. Banks borrow funds on a short-term basis, but commit some of those funds to long-term loans like mortgages. If interest rates on deposits rise, older, lower-interest mortgages may fail to cover the cost of the new-deposit interest rates. The reverse is also true—if deposit rates fall, older higher-interest-rate mortgages are more profitable to banks. But in the absence of pre-payment penalties, consumers

will rationally choose to retire those high-interest mortgages (in effect taking their call option), and leaving the bank with only the losing side of bets on interest-rate volatility. Banks can avoid this dilemma by selling mortgages to longer-term investors. This is the essence of securitization, which occurs when banks bundle a set of similar assets—in this case mortgages—into one larger bond and sell it to institutional investors. Securitization makes banks willing to countenance easy refinance.[20]

In the United States, two large government agencies created and facilitated widespread securitization of mortgages.[21] "Fannie Mae"—the Federal National Mortgage Association—essentially invented the mortgage-backed security (MBS) in 1981. "Freddie Mac"—the Federal Home Loan Mortgage Corporation—invented the collateralized mortgage obligation (CMO), a derivative that slices up principal and interest payments so that investors can buy bonds of varying maturities. CMOs and MBSs are thus different, if simpler, flavors of the larger category of CDOs, or collateralized debt obligations, which includes receivables from car loans, student loans, credit cards and other forms of debt. Altogether, Fannie and Freddie (collectively called "the Frannies") owned or guaranteed $5 trillion in MBSs as of 2008. The Frannies were the pipe connecting international credit markets to the domestic US housing market via the sale of securitized mortgages to foreign investors.[22]

Securitization and easy refinance in the United States and similar housing-finance systems abetted a normal process of Keynesian demand stimulus and growth. As nominal interest rates fell, US homeowners refinanced mortgages, shifting considerable purchasing power away from rentier interests and towards individuals with a higher propensity to consume goods, services and more (if not better) housing. This consumption in turn generated new employment through standard Keynesian multiplier effects, sustaining the expansion by helping shift the

20 Note that the German *Pfandebrief* —"covered bond"—does not remove interest-rate risk because banks retain them on their books.

21 Both agencies began life as fully government-owned entities (Fannie Mae, 1938; Freddie Mac, 1970), were privatized in 1968 (Fannie Mae) and 1979 (Freddie Mac), and de facto returned to public ownership when the US government took a 79.9 percent ownership stake during the Financial Crisis in fall 2008.

22 See also Kevin Gotham, "The Secondary Circuit of Capital Reconsidered: Globalization and the U.S. Real Estate Sector," *American Journal of Sociology*, 2006, 112(1).

US federal budget into surplus and thus enabling the Federal Reserve to continue lowering interest rates. Falling interest rates also ramified through liquid housing markets to create fictitious capital that boosted employment and growth.

Nominal interest rates matter for asset valuation. Falling nominal interest rates meant that the same nominal dollar income could be used to service a larger and larger mortgage. People entering the housing market thus bid up housing prices because they could enjoy more "housing" at the same monthly mortgage price. Much the same happened in equity markets. But retrospective analyses confirm that the release of home equity mattered much more than rising share markets for the net increase in real personal consumption in the OECD from 1996 to 2001, both because the propensity to consume new home equity is much higher than for rising capital gains, and because home equity bulks larger in the average person's portfolio.[23]

Foreign capital inflows accelerated this process by depressing US mortgage interest rates. Fifty-nine percent of foreign investment in US bonds as of December 2005 occurred as purchases of US government and government-guaranteed agency debt. At that time, foreign investors held 51.7 percent of outstanding marketable US Treasury securities and 14.1 percent of outstanding "agency" mortgage-backed securities.[24] Agency debt refers to MBS originated by the Frannies as well as their direct borrowing. Current estimates suggest that these outsized foreign holdings of Treasury and agency debt during the late 1990s and early 2000s depressed yields on ten-year US Treasury debt by about 90 basis points, or almost 1 percentage point, and as much as 150 basis points in 2005.[25] The interest rate on the ten-year Treasury bond serves as the reference rate or benchmark for nearly all US

23 Anton Ludwig and Torsten Slok, "Impact of Changes in Stock Prices and House Prices on Consumption in OECD Countries," IMF Working Paper 02/01, Washington DC: International Monetary Fund, 2002; Claudio Borio, "The Structure of Credit to the Non-Government Sector and the Transmission Mechanism of Monetary Policy: A Cross-Country Comparison," *BIS Working Papers*, 1995, p. 24; K. Case, J. Quigley, and Robert Shiller, "Comparing Wealth Effects: The Stock Market Versus the Housing Market," National Bureau of Economic Research Working Paper 8606, http://www.nber.org, 2001.

24 US Department of the Treasury, *Report on Foreign Holdings of US Portfolio Securities*, Washington DC, 2005, p. 13; US Department of the Treasury, *Report on Foreign Holdings of US Portfolio Securities*, Washington DC, 2007, pp. 3, 5.

25 F. E. Warnock and V. C. Warnock, "International Capital Flows and U.S. Interest Rates," *FRB International Finance Discussion Paper*, 2006, 840.

mortgages. Falling interest rates for T-bonds thus immediately affect interest rates on new mortgages and on adjustable (variable, floating) rate mortgages that are resetting.

While the total foreign share of securitized agency debt is *relatively* lower than their share of Treasury debt, the *absolute* amounts are nearly identical because there was usually about twice as much agency debt in circulation as Treasury debt until the vast expansion of the Federal Government deficit after 2008. Indeed, agency debt typically represented a full third of all marketable US debt securities, public and private, until 2008. This reflected an increase in the aggregate value of US personal-mortgage debt from roughly $2.5 trillion in 1990 to about $9.5 trillion in mid-2006.[26] Foreign purchases directly depressed yields on US mortgages by lowering the reference rate for mortgages and by absorbing mortgages in the form of MBSs. US arbitrage in global capital markets thus stimulated its domestic housing market by providing relatively low interest rates to existing homeowners wishing to refinance their mortgages and to new homebuyers. This is why the US system of global financial arbitrage largely benefited the United States and those economies with similar housing-market institutions. Housing-market financial systems more like those in the United States were better at translating 1990s disinflation into increased demand, and thus employment and GDP growth.

## From Boom to Bust

Like all booms, the housing-bubble burst when the boom used up its fuel. Global disinflation, US financial arbitrage via the recycling of US trade deficits, and a ready supply of new buyers at the bottom of the US housing ladder powered the housing-market bubble in the United States and US differential growth. When these gave out, so did the boom. The boom ultimately was built on three related sets of debt: from the Unites States to its foreign creditors; from homebuyers to their mortgagees; and from the highly leveraged buyers of MBSs and CDOs to the funders of asset-backed commercial paper. These debts could not be validated unless

26 US Department of the Treasury, *Report on Foreign Holdings of US Portfolio Securities*, Washington DC, 2007, pp. 3, 5; Alan Greenspan and James Kennedy, "Sources and Uses of Equity Extracted from Homes," Finance and Economics Discussion Series, 2007 (20), Board of Governors of the Federal Reserve System, 2007.

incomes in the bottom 60 percent of the population continued to rise, because these incomes funded the majority of subprime mortgages inside highly leveraged holdings of MBSs and CDOs. Until roughly 2000 disinflation had income-enhancing effects at the bottom. Yet the same forces that produced income-enhancing disinflation ultimately generated income-sapping inflation, which in turn called into question leveraged strategies for buying MBSs and CDOs built on subprime mortgages. It remains to be seen whether the United States can make good on its promises to foreign creditors. As of summer 2009, the dollar remained the central international reserve currency and US financial arbitrage continued to yield positive returns for the US economy. The United States continued to enjoy differential growth over its peer competitors, albeit by virtue of having a relatively smaller fall in GDP (but not employment). How did the underlying causes for disinflation eventually generate inflation?

One powerful force causing disinflation was the steady increase in cheap imports from low-wage countries. During the 1990s, US multinational and retail firms off-shored increasing volumes of labor-intense production to low-cost Asia, producing a flood of ever cheaper non-durable goods imports. Disinflationary imports from low-wage China and Hong Kong rose from 5.7 percent to 15 percent of total US imports, between 1990 and 2005. By contrast, the share of US imports from high-wage Japan shrank by almost the same 10 percentage points, while imports from medium-income Korea, Taiwan and Singapore fell by 4.5 percentage points.[27] Prices for consumer non-durables fell by 10 percentage points relative to prices for services.[28] This shift initially benefited the bottom 60 percent of the US population by income, as they spend relatively more on consumer non-durables than services, compared to the better paid. Second, cheap imports lowered official inflation rates and thus the corresponding interest rates for mortgages. So at the bottom people had more income and potentially lower housing costs. Unsurprisingly, during the 1990s the real cost of buying a house decreased for most Americans. Housing costs fell from 21 percent of pre-tax

27 Calculated from Bureau of Economic Analysis data at http://www.bea.gov, "Table 2b: US Trade in Goods."

28 C. Broda and J. Romalis, "Inequality and Prices: Does China Benefit the Poor in America?" unpublished paper, University of Chicago, March 2008; C. Broda and D. Weinstein, "Exporting Deflation? Chinese Exports and Japanese Prices," unpublished paper, University of Chicago, 2008.

income and 19.2 percent of post-tax income to 16.9 percent and 15.9 percent respectively, from 1991 to 1998, largely reflecting a steep fall in mortgage interest rates. Housing costs as a share of income did not return to the 1990 level until 2004.[29] Equally unsurprisingly, the homeownership rate rose, from 64 percent to 69 percent from 1994 to 2004, with most of the gains occurring in the 1990s.

Third, just as with disinflationary imports, the shift of millions of aspiring US homebuyers from rentals onto the bottom rungs of the housing ladder initially had beneficial consequences. Incumbent homeowners generally cannot move up the housing ladder unless someone below them buys their house, validating the incumbent's equity in the house and providing them with a down payment (purchase money) on their new one. The combination of millions of new housing-market entrants, falling interest rates and securitization provided this validation and more. New housing-market entrants generated trillions of dollars of fictitious capital gains for incumbent homeowners by driving up housing prices. The structure of the US housing-finance system meant that houses behaved like any other asset; falling interest rates cause the market value of any existing asset value to rise, even if that asset is not for sale at that moment.[30] Because US banks could securitize mortgage debt, they allowed homeowners to tap into this fictitious capital through "home equity lines of credit." These home equity loans increased from roughly $325 billion in 1994 to nearly $1 trillion annually in 2005–7, helping to expand aggregate demand in, and thus differential growth for, the United States.[31]

The constant inflow of foreign capital connected disinflationary imports to cheap mortgage credit. Just as with these forces, this inflow initially had positive effects. Foreign debt grew only marginally in relation to US GDP, despite its marked absolute increase. Foreign investors willingly paid ever increasing prices

29 Harvard University Joint Center for Housing Studies, *The State of the Nation's Housing*, Cambridge, MA: Harvard University JCHS, 2008, p. 33.

30 By contrast it is difficult for the occupants of social housing —co-ops, public housing, union-owned housing—to cash out their equity. For one example of the politics of social housing cash-out, see Bent Sofus Tranøy, "Bubble, Bust and More Boom: The Political Economy of Housing in Norway," *Comparative European Politics*, 2008, 6(3).

31 Harvard University Joint Center for Housing Studies, *The State of the Nation's Housing*, Cambridge, MA: Harvard University JCHS, 2008, p. 37.

for US equities and bonds, reinforcing the international role of the dollar and thus US global financial arbitrage.

Why could this cycle not run infinitely? The very success of US differential growth threw the housing growth machine from top gear into reverse gear. The exhaustion of growth was an endogenous feature of growth itself. Net, new homebuyers by definition tended to be lower-income, lower-skilled workers. The more that labor-intense production moved off-shore, the fewer potential housing-market entrants there could be as incomes stagnated at the bottom. Second, the very success of Asian industrialization created inflationary pressures and thus rising interest rates on mortgages. Eventually the two blades of the scissors of falling wages and the rising cost of mortgage debt had to meet, cutting the fuel line to the housing-boom machine.

The subprime mortgage market was nothing new, but until the 2000s was a marginal part of the mortgage market. Total subprime lending in 1995 was a trivial $65 billion (about 10 percent of the total $639 billion total market), and only 28 percent of this was securitized. The lack of securitization meant that banks were cautious about extending subprime credit, as they retained the credit risk on these mortgages. Even as late as 2003, subprime lending only amounted to 9 percent of total lending. But what had changed was the degree of securitization, which had risen to 59 percent.[32] More securitization meant that subprime lending changed from a specialized product originated by regulated depository institutions (i.e. "banks") to a more generally available product largely originated by unregulated finance companies drawing capital from banks and the capital market. These finance companies had nothing to lose from extending credit to marginal borrowers because they did not face credit risk. And stagnant nominal wages at the bottom of the market meant that more and more potential homebuyers had to resort to subprime loans to qualify for increasingly expensive houses. Debt–to-income ratios for prime mortgages—the kind that the Frannies securitize—are capped at 28 percent for housing-related debt and 34 percent for all debt. As house-price-to-income ratios rose 60 percent above the average levels in the 1990s, fewer and fewer people qualified for a prime loan.

32 Souphala Chomsisengphet and Anthony Pennington-Cross, "Evolution of the Subprime Market," *Federal Reserve Bank of St. Louis Review*, 88(1), 2006, pp. 37–8.

The very nature of housing and credit markets meant that the last entrants into the market would be the least creditworthy, making loans to them a risky proposition. From 1995 to 2005, the US homeownership rate rose by roughly 5 percentage points, pushing the homeownership frontier out into the terra incognita of the uncreditworthy. Indeed, homeownership peaked in 2004, just as subprime loans shot up from about 7 percent of new mortgages to nearly 20 percent, indicating that nearly all creditworthy buyers had been "housed." A near majority of loans made during 2004–2006 were of the subprime or "Alt-A" variety, indicating that borrowers were not creditworthy, lacked a down payment (purchase money) or were buying a wildly overpriced house relative to their income.[33] These loans were generally at high and variable interest rates, making debtors vulnerable to any up-tick in the reference rate for mortgages. Everyone understood that these buyers could not survive an increase in their mortgage interest rate. Thus these subprime loans were designed to be refinanced into lower, fixed-rate loans after a few years of house-price appreciation. Yet rising interest rates meant price appreciation would surely slow or reverse. Why did interest rates begin to rise?

Successful off-shoring of low-wage manufacturing to China and other developing countries eventually generated inflation rather than disinflation. Successful industrialization produced multiplier effects in Asia, powering their economic growth but also creating new inflationary pressures. Given Asia's initial low level of development, economic growth necessarily involved greater and greater calls on global raw-material supplies, including, most importantly, oil. Development meant creating an entirely new infrastructure—roads, buildings, power generation, telecommunications—and thus huge energy-intensive inputs of cement, steel, and copper. All told, Chinese imports of oil, soybeans, and copper were about thirty times higher in 2008 than they were in 1995.[34] Developing nations' calls on global resources

33 Harvard University Joint Center for Housing Studies, *The State of the Nation's Housing, 2008*. Cambridge MA: Harvard University, 2008. Alt-A mortgages involve borrowers with a good credit score but with excessive debt, while subprime borrowers have bad credit and typically did not document their income.

34 Stephen Jen and Luca Bindelli, "AXJ as a Source of Global Disinflation and Inflation," Morgan Stanley Global Economic Forum November 30, 2007 at http://www.morganstanley.com.

reversed the 1990s disinflation, forcing developed-country central banks to raise interest rates in 2005.

China's export surge was particularly problematic, as it caused the US current-account deficit to soar. China's exports rose from around $270 billion in 2001 to over $1400 billion in 2008, and its surplus with the United States increased from $84 billion to over $200 billion by 2005.[35] The rising deficit in turn caused the US dollar to weaken in world markets, driving up US import prices, particularly for oil, and deterring private investors for accumulating US-dollar-denominated assets. By 2005–2007 almost all net inflows of capital to the United States were from official sources such as central banks and sovereign wealth funds. The weakening dollar and rising inflation cut a second fuel line for the housing boom, as the US foreign debt appeared increasingly unsustainable.

In short, by 2006 the housing boom had exhausted its inputs of new homebuyers, disinflation, and low interest rates. The housing-led differential growth machine then began to run backward, slowing the US economy. Why did this produce a Global Financial Crisis? The macro-economic phenomena above were not disembodied, abstract flows. Instead they were channeled through a relatively small set of financial intermediaries which transformed global capital flows into mortgages and then back out into global financial markets as MBSs and CDOs, derivatives largely based on MBS. This is the third form of debt that proved unsustainable.

Global financial firms had devised what they thought was a relatively simple system for profiting from the trillion-dollar flows into mortgages.[36] Put as simply as possible, banks used structured investment vehicles (SIVs) to borrow billions of dollars on a short-term (90–180 days), low-interest-rate basis in the form of asset-backed commercial paper (ABCP). Financial firms and banks used SIVs to shift these investments off their books, and thus increase their profits by evading regulation. Foreign capital inflows permitted the Federal Reserve to depress interest rates after the

35 Brad Setser, "Not Just Emerging Markets," at http://blogs.cfr.org on June 3, 2009; Bureau of Economic Analysis data at http://www.bea.gov, "Table 2b: US Trade in Goods."

36 See Herman Schwartz, "Origins and Global Consequences of the US Subprime Crisis," Chapter 9 in Herman Schwartz and Leonard Seabrooke, eds., *The Politics of Housing Booms and Busts*, Basingstoke: Palgrave, 2009, for a more detailed analysis.

2000 recession. While these low interest rates sparked the final spasm of the housing boom, they also drove financial firms to take greater and greater risks to eke out as much return as possible. So financial firms created a carry trade in which they borrowed billions in short-term money to buy their own apparently long-term CDOs, profiting from the difference in long-term and short-term interest rates. Their SIVs borrowed short-term to invest in long-term CDOs nominally based on thirty-year mortgages and paying higher interest rates. The raw material for most of these CDOs was the $1.6 trillion in subprime and Alt-A mortgages securitized from 2004 to 2007. Issues of ABCP increased $600 billion over those same years.[37]

Though simple, the combination of SIVs, ABCP leverage, and CDOs proved lethal. Borrowing short-term to invest long-term is very risky. Banks thought that they could avoid such risks as they believed that the maturity mismatch was more apparent than real. They thought that most of the adjustable-rate mortgages behind the MBSs and MBS-based CDOs their SIVs were buying would be refinanced (i.e. retired) after two years as housing prices continued to rise. This would allow banks' SIVs to repay their borrowed short-term money before the macro-economic environment turned against them. Financial firms did not believe that defaults would occur across the board rather than being contained to a few localities. But when Chinese growth turned disinflation to inflation and the housing boom absorbed all the creditworthy buyers, housing prices turned down and began a self-sustaining fall mirroring the earlier self-sustaining rise. To banks' surprise, housing prices began falling in 2006, making it impossible for subprime and Alt-A borrowers to refinance their loans. Delinquency on all US mortgages made in 2007 ran at three times the level for 2005 vintage mortgages, with 15 percent of 2007 subprime mortgages and 7 percent of Alt-A mortgages delinquent.[38] Defaults on mortgages then caused the market value of CDOs to plummet. This triggered the financial crisis when the funders of ABCP refused to roll over the debt of financial firms' SIVs. With $1.6 trillion outstanding in MBSs built on subprime and Alt-A mortgages, and 56 percent of the global total of $1.3

37 Gillian Tett and Paul Davies, "Out of the Shadows: How Banking's Secret System Broke Down," *Financial Times,* December 16, 2007 at http://www.ft.com.
38 Ruth Simon, "Mortgages Made in 2007 go Bad at a Rapid Clip," *Wall Street Journal,* August 9, 2008.

trillion CDOs backed by US residential mortgages, this threw highly leveraged financial firms into a crisis of their own making.[39] Financial firms' unregulated sales of credit default swaps—a kind of insurance—insuring SIVs against mortgage defaults propagated the Crisis to the entire financial sector. The near collapse of the financial sector threw the rich OECD economies into a deep recession.

## Looking Forward: American Power and Global Capital

America's economic power revived after 1991 as the US economy experienced differential growth relative to its rich OECD peer competitors. Above average US economic growth emerged from the interaction of disinflation and foreign capital inflows with the specific structure of the US housing-finance system. That system translated disinflation and foreign capital inflows into extra aggregate demand, stimulating the US economy. Roughly one third of US growth in the 1990s and virtually all growth in the mid-2000s can be attributed to the translation of increased housing wealth into extra demand. American differential growth attracted foreign investment into US-dollar-denominated assets in a temporarily self-sustaining and self-amplifying cycle. This investment re-established the dollar as the international reserve currency and allowed US investors to consolidate their own outward investment and control over foreign economies.

The Financial Collapse and economic bust after 2007 has destroyed this particular mechanism for growth. American global financial arbitrage remains robust, but mostly because Treasury debt remains a haven during such panics. But the rest is gone. Housing finance is now largely the preserve of the Federal Government through the newly nationalized Frannies and the Federal Home Loan Banks. Banks' willingness to extend credit against home equity and to borrowers with limited documentation or weak credit histories will never return to the levels of 2006. Much hope is pinned on the possibility of a green economy but there is little to show for this as yet. Can the United States retain its global "market share" versus China or again outgrow its peer OECD rivals?

39 Felix Salomon, "What's a CDO?" at http://www.portfolio.com.

Nothing here is certain, but two issues stand out. The first is the degree to which America's peer rivals and China are capable of domestically driven growth. This question is as much political as it is economic. Put aside the debate over whether the "unregulated" Anglo model is superior to the "regulated" Rhenish model. This debate largely missed the point, as it focused on labor markets and corporate finance to the exclusion of the housing-finance systems that clearly accounted for most of the growth differentials after 1991. The relevant issue is whether export powerhouses like Japan, Germany and China can shift investment out of manufactured export production and into something else in the face of the worst peacetime drop in global trade since the Great Depression. The first two seem trapped between a reliance on external demand for growth and a slow-moving demographic squeeze on domestic demand. If Japan and Germany cannot export directly or indirectly (via an export-oriented China) to a faster-growing America, then it seems unlikely that they can outgrow the United States. In the medium run, productivity gains will continue to erode manufacturing's share of employment, creating an ever larger group of underemployed people, especially in manufacturing-dominated economies. Shifting resources to more domestically oriented services is politically difficult given the hegemony of export manufacturing firms and unions. Finally, neither Japan nor Euroland is politically willing to accept the trade deficits that necessarily accompany turning their currencies into an effective global reserve currency.[40]

What about China, which (including Hong Kong) increased its share of global GDP from 8.7 percent to 15.2 percent on a purchasing-power basis from 1991 to 2004, and from 2.3 percent to 5.6 percent on an exchange-rate basis from 1991 to 2005? China's growth obviously had domestic roots, particularly in the 1990s.[41] But exports equaled 40 percent of GDP by 2007 and the trade surplus equaled 7 percent of GDP; neither suggests robust expansion of domestic demand given that much of China's investment was directed towards either export production or infrastructure for export production. Furthermore the profitability of the state-owned sector rested on access to cheap credit, which

40 However, countries on the European Union's periphery are likely to continue to join the eurozone when they attain the macro-economic qualifications.

41 Yasheng Huang, *Capitalism with Chinese Characteristics*, Cambridge: Cambridge University Press, 2008.

in turn required ferocious domestic financial repression and the continued provision of non-renminbi assets to banks by the central bank.[42] Coupled with the political power of China's export elites—largely Party members and their relatives—a massive shift towards domestically led growth seems unlikely.[43] Yet the gap between China's share of global GDP based on nominal exchange rates and the purchasing-power parity rate indicates the degree to which the renminbi is undervalued. China would have to narrow this gap through revaluation to be able to express its global economic power, but such a move would price many Chinese exports out of world markets.

The foreign-invested firms that generate most of China's exports have plenty of other places to find cheap labor, and many are closer to the United States and Europe. Transport costs from China are low but non-trivial. While a stronger renminbi would make energy costs cheaper for China, they would also increase Chinese demand for oil, driving up transport costs from China to end markets. This would add to the revaluation-driven increase in China's export prices. Transport costs are already greater than wage costs for many Chinese manufactured exports. Given these constraints, it's no surprise that the Chinese state responded to the Global Slowdown in 2009 with *increased* subsidies for exports rather than measures to boost domestic demand. China's reliance on external markets, and particularly the US market, for growth binds the Chinese to continued support for the dollar. Chinese protests about the US fiscal deficit in 2009 seemed mostly to be pleas not to abruptly devalue their holdings of dollar-denominated assets. In short, in the medium term, China could have continued export surpluses and export-driven growth through an undervalued renminbi, or global financial and economic power through a stronger renminbi, but not both.

Where does that leave the United States? Recall that global economic power is built on differential growth, the absence of constraint, and control over production. US MNCs' share of global output remains robust, particularly in the dynamic service sector and high technology. While automobile production will continue its inexorable shift to China, India and other developing

42 Michael Pettis, "Distortions in the Chinese Lending Environment," at http://mpettis.com.

43 Carsten Holz, "Have China Scholars All been Bought?" *Far Eastern Economic Review*, 2007, 170(3).

countries, even a bankrupt General Motors was careful to preserve its ownership of factories there, while partially shedding factories in slow-growth Europe.

The US dollar's role as an international reserve currency continues, although the bulk of foreign capital inflows to the United States now come from official sources, especially from China. Validation of these claims on the United States could come through a struggle for control—purchase of US corporate equities—or through an expansion of US exports. The former course remains politically charged, particularly for Chinese purchases. These politics involve not only US sensitivities to denationalization of productive assets, but also to foreigners' sensitivities to the inevitable losses that sovereign wealth funds or other official investors might incur. Huge losses on investments into US financial firms in 2007–08 made that clear. The latter course of action would be positive for the US economy. Precisely this dynamic helped set off the 1970s and 1990s recoveries after dollar depreciation both cheapened US exports and imposed huge capital losses on holders of US-dollar-denominated assets.

An export-led revival of the US economy would of course reinforce the demographic trends giving the United States differential growth relative to its rich-country peer competitors. While the United States will most likely experience very slow growth over the next few years, its relative lack of reliance on external demand for growth means it will probably grow faster than the more export-reliant Japan and Germany. Similarly, the United States has a backlog of possible reforms, most notably in health care, that might free up cash for consumption. The problem in the long term for both the United States and its rivals is to find a more stable growth path that does not rely on excessive and speculative finance. Hyman Minsky argued that such a path was impossible, and the record of the 2000s suggests he is right. Still, the severity of this crisis will concentrate minds on the issue. Responses to it will necessarily reduce the potency of housing-driven growth in the US economy. But this does not mean an end to differential growth favoring the United States.