Financial Deepening and the Global Currency Usage

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There are many different determinants of global currency usage. This paper will focus on one: a demand for a country's financial liabilities due to financial deepening and liquidity. This focus does not to imply that financial market development is the only factor determining global currency usage, but as this paper will argue, it has been one of the most important determinants of demand for the dollar and will play an important role in determining the future of the euro. This topic is closely related to the financial crisis that is currently unwinding around the globe. What happens to European financial markets, and especially how European policymakers support and regulate their markets in response to the financial crisis, will be critical in determining the longer-term demand for European investments and the euro.

This chapter will cover three topics. First, I take a step back and describe the insatiable demand for U.S. liabilities over the past few years. Second, I talk about the determinants of foreign investment in the United States, drawing from theoretical and empirical studies. Finally, I draw lessons for demand for European liabilities and the euro and link this to the current financial crisis.

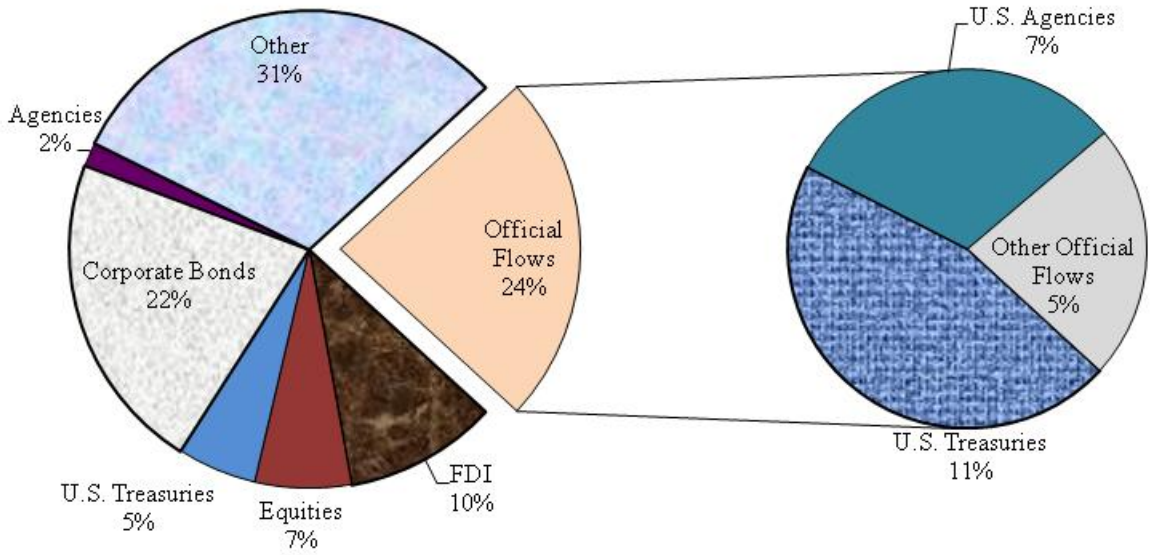
A. Insatiable Foreign Demand for U.S. Liabilities

It is well known that there has been an insatiable demand for U.S. liabilities over the last few years. The statistics are so astounding, however, they merit a quick review. In 2007, as the U.S. financial crisis was in its early stages, the United States attracted $2.1 trillion of new capital flows from abroad.[1] This $2.1 trillion doesn't include any new sales; that's $2.1 trillion of new money coming into the United States. These capital inflows funded the U.S. current account deficit plus U.S. capital outflows. Moreover, this was not a one-year event. From 2003 through 2007, $7.8 trillion of new foreign investment flowed into the United States. This is over $5 billion a day of foreign capital purchasing U.S. liabilities—including equities, government bonds, corporate bonds, foreign direct investment, and bank loans. Even after the subprime crisis started to unfold, the money still kept "rolling in" to the United States, albeit at a slower pace. For example, in the first quarter of 2008, the United States attracted $411 billion of new capital flows, as compared to $693 billion in the first quarter of 2007. Unfortunately, data for the last few months of 2008 as the financial crisis deepened is not yet available, but the recent strengthening of the dollar suggests that foreign demand for U.S. financial liabilities has remained strong. This large and sustained demand for U.S. financial liabilities has been a key support for the U.S. dollar.

Where is this $2.1 trillion of foreign capital flows into the United States going? Figure 1 graphs the use of the foreign capital inflows from 2003 to 2007. Some commentators incorrectly imply that most of these capital inflows are used to purchase U.S. Treasuries. In fact, only 16% of total capital inflows (including private and official sector flows) are used to purchase U.S. Treasuries. More important is the 22% of capital inflows used to purchase corporate bonds, and 17% for foreign direct investment (FDI) and equities. Therefore, foreign capital flows into the United States represent a diverse range of investments—not primarily U.S. Treasuries.

[1] All statistics in this paragraph are from the Bureau of Economic Analysis website, www.bea.gov, accessed on October 2008.

Figure 1
Composition of Gross Foreign Capital Inflows - 2003-07



Based on data from Bureau of Economic Analysis, *Survey of Current Business* (July 2008), U.S. International Transactions table.

Not surprisingly, these massive capital inflows of over $5 billion a day into the United States have given foreigners a substantial ownership share of major U.S. financial classes. As shown in Table 1, foreigners now own 11 percent of U.S. equities, 24 percent of U.S. corporate bonds, and 57 percent of marketable U.S. Treasuries. These ownership shares have increased rapidly over the past few years and further reflect the importance of foreign demand for U.S. liabilities in supporting the dollar.

Table 1
Share of Foreign Holdings of U.S. Liabilities (as of June 2007)

	Equity	U.S. Treasuries	Agencies	Corporate Debt	Total
Total Outstanding (bn)	$27,768	$3,454	$6,105	$11,391	$48,718
% Foreign Owned	11.3%	56.9%	21.4%	24.0%	18.8%

Source: U.S. Treasury Department, June 2008.
Note: U.S. Treasuries are marketable Treasuries and exclude Central Bank holdings.

B. The Evidence: Determinants of Foreign Demand for U.S. Liabilities

Why are foreigners willing to invest over $5 billion a day in the United States? There are several possible explanations, and this section briefly explores one at a time.[2]

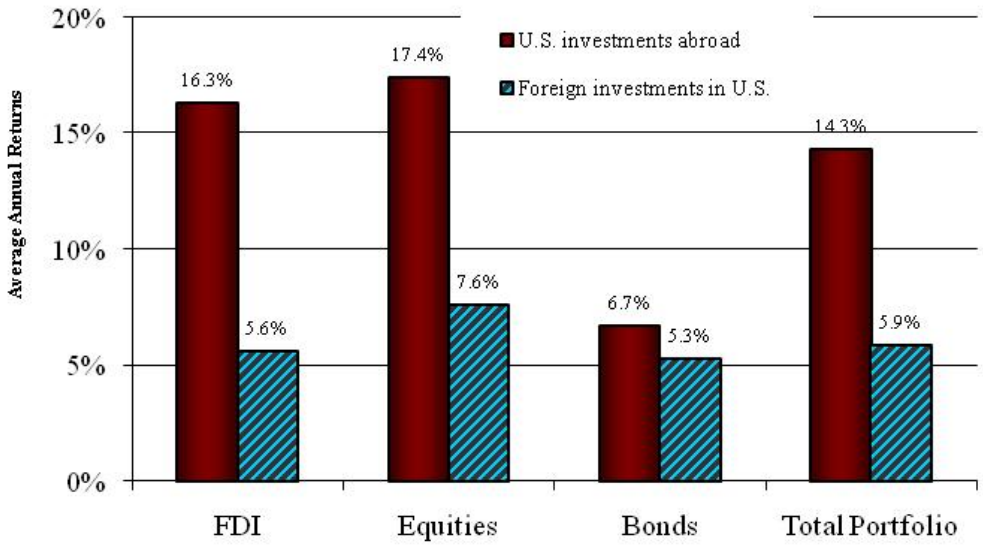
One potential reason is that foreigners earn high returns on their U.S. investments. This is one of the standard talking points of U.S. Treasury Secretaries. For example, the current Secretary, Henry Paulson, argued: "We have deep and liquid capital markets and a growing economy that provides opportunities for foreign investors to earn an attractive return on their capital."[3] His predecessor, Secretary John Snow, stated: "Today we are in a situation where sound, growth-enhancing policies in the United States have made it an extremely attractive place to invest."[4] These arguments are important because the academic literature provides evidence that investors chase returns (i.e., Bohn and Tesar 1996 and Sirri and Tufano 1998). If foreigners were investing in the United States and earning high returns, then when combined with the evidence that investors chase returns, this would suggest that foreigners would continue to invest in the United States.

So is this the case?[5] There are a number of different ways to calculate the returns on foreign investment in the United States, but no matter which statistics you calculate, the findings are similar to that in Figure 2. Figure 2 focuses only on private sector investment—excluding "official sector" investment (i.e., governments) as governments may place less emphasis on returns than the private sector when making investment decisions. For each asset class, the solid bars are the returns that Americans earned when investing abroad from 2002-2006 (the last five years for which data is available), and the striped bars are the returns that foreigners earned in the United States. The pattern is striking. For each asset class—FDI, equities, bonds, and portfolio investment (equities and bonds)—foreigners have earned less investing in the United States than Americans have earned abroad over the last five years. This pattern continues to hold if you adjust for currency movements and make rough adjustments for risk. No matter how you cut the data, foreigners investing in the United States have earned substantially lower returns versus

[2] See Forbes (2008) or Forbes (2007) for additional detail on these explanations.
[3] Prepared remarks before the Economic Club of Washington in Washington, DC on March 1, 2007. Available at: http://www.treas.gov/press/releases/hp285.htm.
[4] Prepared Remarks at Chatham House, The Royal Institute of International Affairs in London, England on November 17, 2004. Available at: http://www.treas.gov/press/releases/js2105.htm.
[5] For discussions of problems in measuring return differentials across countries and evidence for longer time periods, see Curcuru, Dvorak and Warnock (2008) and Lane and Milesi-Ferretti (2007).

what they would have earned if they kept their money abroad—even within the same asset classes. Therefore, foreigners are clearly not investing in the United States because they have earned high returns year after year and are chasing returns.

Figure 2
Returns on Private Sector Investment, 2002-6



Based on data from Bureau of Economic Analysis, *Survey of Current Business* (July 2008), U.S. International Transactions table.

A second reason why foreigners might be willing to invest over $5 billion a day in the United States is that this is a natural reduction of home bias that has been occurring around the world over the past decade. Individuals tend to be overweight domestic holdings, and as they seek to diversify their portfolios internationally, it is not surprising that they would increase their investments in the largest market in the world.

So is this the case? To test the validity of this theory, it is useful to look at whether countries are over- or under-invested in the United States versus what a simple portfolio allocation model would predict. More specifically, a simple portfolio allocation model predicts that countries hold U.S. liabilities so that the share of U.S. holdings in their portfolio equals the share of the U.S. market in the global portfolio.[6] Table 2 makes these comparisons.[7] The top line

[6] This simple framework assumes that: investors care only about the mean and variance of the real return of their invested wealth, markets are efficient, and cross-border barriers to investment are small.
[7] See Forbes (2008) for additional details on this calculation and specific country statistics.

shows that the U.S. share of the global equity market is about 36 percent, and the U.S. share of the global debt market (which includes corporate, agency and government debt) is about 38 percent. If investors held a well-diversified portfolio, then about 36 percent of their equity exposure should be to the U.S. equity market and about 38% of their debt exposure to the U.S. debt market. The 2nd line of the table, however, shows that the mean exposure to U.S. equity and debt markets for countries around the world is far lower. On average, foreigners only hold 4 percent of their equity investments in the United States, and only 12 percent of their debt investments. The median exposures to the U.S. markets are even lower. This suggests that most countries do not have nearly as much exposure to U.S. markets versus what standard portfolio diversification models predict.[8] Most countries are underexposed to U.S. equity and debt, and achieving more diversification in their portfolios could be an important factor driving investment in the United States. In other words, countries seeking to reduce their home bias and diversify their portfolios may generate a natural capital flow into the United States and support a continued strong demand for U.S. liabilities (at least for a limited time).[9]

Table 2
Country Exposure to the United States

	Equities	**Debt**
Global Market Share	***35.8%***	***38.2%***
Mean	4.3%	11.8%
Median	1.3%	7.0%
Minimum	0.0%	0.0%
Maximum	27.8%	62.8%
# Countries	82	53

Notes: Based on analysis in Forbes (2008). Debt includes corporate, government, and agency debt. Foreign holdings include foreign official holdings.

[8] It is worth noting that one of the few countries that is "overexposed" to the United States versus the predictions of these simple portfolio allocation models is China (with almost 63% of its debt exposure in the United States).
[9] If foreign countries reduced their home bias against the United States, however, this would not necessarily generate an increase in net U.S. capital inflows because U.S investors could simultaneously reduce their home bias and increase gross capital outflows (which could be even great than the increase in gross capital inflows).

In addition to return chasing and portfolio diversification, a third factor that could drive U.S. capital inflows is differences in financial market development and the quest for more liquid and efficient financial markets. This explanation has recently received a substantial amount of attention in the academic literature, such as Caballero, Farhi and Gourinchas 2008, Ju and Wei 2006, and Mendoza, Quadrini and Ríos-Rull 2006. Although the models and explanations in each of these papers are slightly different, the main idea is that countries around the world that are generating huge surplus earnings and savings (such as China and the Middle East) need to invest these earnings somewhere. Since financial markets in these countries are less developed—as measured by liquidity, efficiency, range of instruments, etc.—investors or governments choose to invest this money in another country that has more developed financial markets. Since the United States has the world's largest, most developed, and most liquid financial market, it was the recipient of the bulk of this surplus earnings and savings. (Granted, many of these perceived advantages of the U.S. market before 2007 may now be perceived as liabilities after the financial crisis, but these weaknesses were not widely appreciated before 2007.)

A fourth reason foreigners might invest in the United States is due to their trade links or other forms of "closeness". There is some evidence that when a country trades more with another country, it also tends to hold more of its financial liabilities.[10] There is also evidence that countries that are "closer" tend to buy more of the other country's financial assets, with "closeness" measured not only by distance, but also ties through measures such as a common language, a colonial heritage, or a cheaper cost of communications.[11] Any countries that trade more with the United States or are "closer" based on this broad definition would have a stronger demand for U.S. financial liabilities.

A final factor which could drive foreign investment in the United States is strong U.S. corporate governance. Yes, I realize that statement may seem rather contradictory given the recent problems in U.S. financial markets—such as in the markets for subprime housing and credit default swaps—just to name a few. Prior to this crisis, however, there was a widespread belief that the United States had the gold standard of corporate governance in its financial markets, and if anything many analysts worried that Sarbanes-Oxley and recent reforms to U.S.

[10] For example, see Obstfeld and Rogoff (2001) and Antràs and Caballero (2007).
[11] For example, see Portes, Rey, and Oh (2001) and Daude and Fratzscher (2006).

corporate governance may have been too stringent, rather than too loose. This perceived strong corporate governance may have been one factor attracting investment to the United States. Investors may have been willing to purchase U.S. liabilities, even with the expectation of a lower return relative to other investment opportunities, due to the country's strong institutions, perceived good accounting standards, and belief that their investments would not be confiscated by the government.

So which of these five factors is actually important in driving foreign capital flows into the United States? Forbes (2008) performs a detailed empirical analysis to attempt to sort out the relative importance of factors such as return differentials, diversification, financial market development, trade and closeness, and corporate governance in driving foreign investment into the United States.[12] The models, econometric issues and lengthy series of results are beyond the scope of this chapter, but the key findings can be briefly summarized. The main result of this analysis (which I will confess was not my expectation *a priori*) is that the relative development of U.S. financial markets has been the key driver of foreign capital into the United States from around the world. Countries with less developed financial markets sought to take advantage of the more liquid and more efficient financial markets in the United States.

To get a sense of the magnitude of this effect, consider the case of China. China held $894 billion in U.S. bonds at the end of 2007. Then assume that China developed its own financial markets, such as by increasing its private bond market capitalization to GDP to a size comparable to that in South Korea in 2006 (before the financial turmoil hit). This development of China's domestic bond market would make domestic investment more attractive and reduce China's need to send its surplus savings abroad to invest in U.S. financial markets. Using the central estimates from Forbes (2008), the magnitude of this effect would be substantial; China would reduce its holdings of U.S. bonds by $250 billion. Although $250 billion is small relative to the size of total U.S. bond markets, it would undoubtedly have some effect on U.S. financial markets—especially if sales of U.S. bonds by the Chinese were accompanied by sales in other countries.

Although this empirical analysis found that relative levels of financial market development appear to be the most important factor driving foreign investment into the United

[12] For other analyses of the determinants of cross-border investments and capital flows, see Bertaut and Kole (2004), Chan, Covrig and Ng (2005), Lane and Milesi-Ferretti (2008), and Faruquee, Li and Yan (2004).

States, it also found that other factors were important. More specifically, the analysis found a moderate role for trading and closeness in driving capital flows; countries that trade more with the United States and are closer through cultural ties, a common language, distance or the cost of communications, also tend to invest significantly more in the United States. Finally, the analysis also found a small role of return chasing in explaining investment in U.S. equity markets (although not bond markets). Surprisingly, there is no evidence that diversification motives are an important factor driving foreign investment into the United States.

C. Implications for the Euro

What are the implications for the euro? The key lesson from this analysis of foreign investment in the United States and the corresponding demand for the dollar is the role of financial market development. How do European bond and equity markets compare to those in the United States? Euro bond markets have been growing in size and liquidity and are closing the gap with dollar bond markets. This increase in size will correspondingly make the euro bond markets more attractive and increase foreign investment. Equity market capitalization in the euro zone, however, is still only about half of the equity market capitalization in the United States. As a result, in the near future European equity markets will not be as attractive an alternative for foreign investment that places a substantial importance on size and liquidity.

The key factor affecting the future of European equity and bond markets, however, will undoubtedly be how they perform during the current financial crisis and what new structure emerges. The responses by European regulators and policymakers will be critical. At the current time, the immediate response to the crisis is sending a strong signal that there is no “European market” and instead Europe is a collection of individual markets with differentiated rules and governance. Each regulator and each government has been responding in the interests of their own specific countries. If this approach continues, it may significantly detract from the attractiveness of European capital markets. Since a key factor driving foreign investment is the quest for large and liquid markets, the realization that European markets are not one large, combined, liquid, efficient, and deep market will deter foreign capital inflows.

In addition to financial market depth, the empirical analysis discussed in Section B suggested several other factors that can impact the demand for a country’s financial liabilities. One factor is trading flows and “closeness”. It is hard to see significant changes in these

variables over the next few years that will affect demand for European financial liabilities, but I will leave this topic to the other chapters in this volume which focus more on trade. Another factor driving demand for foreign investment in equity markets is return chasing. Over the three years from 2006-2008, European equity markets outperformed U.S. equity markets. For example, the total return on the Eurofirst 300 over this period was 26 percent, while the return on the S&P 500 was 22 percent. The stronger return in European equity markets may have attracted more foreign investment over this period. Since the start of 2008, however, this pattern has reversed. From January 1, 2008 to October 6, 2008, the return on the Eurofirst 300 was -31 percent while the return on the S&P 500 was -28 percent. This weaker performance of the European equity markets may reduce demand for European equities in the immediate future, but given the unprecedented turmoil in all financial markets, it is likely that any such effect would be overwhelmed by other factors—as well as impossible to make any prediction about relative returns going forward.

One final result from the analysis of the drivers of foreign demand for U.S. liabilities was the relatively unimportant role of diversification and a reduction in home bias in driving capital flows. Even if this was an important factor, however, it is unlikely to be a major factor driving future demand for European financial liabilities as foreigners' portfolios are already more exposed to Europe than to the United States. As shown in Table 3 (part of which replicates statistics in Table 2), U.S. equity markets are 35.8 percent of global equity markets and the average holdings of U.S. equities by foreigners is only 4.8 percent of their total equity portfolios. This indicates that foreigners hold only 13.5 percent of the "optimal" share of U.S. investments in their equity portfolio.[13] Making a similar calculation, foreigners hold only 24.9 percent of the optimal share of U.S. investments in their debt portfolio. The same calculations for the major European markets suggest that foreigners are still underweight European equity and debt versus the optimal portfolio shares, but substantially less underweight than for the United States. For example, foreigners hold 28.3 percent and 33.6 percent of the optimal shares of French and German equities, respectively, and hold 41.5 percent and 71.7 percent of French and German debt. This suggests that most countries around the world already have more exposure to European equity and debt markets than they do to U.S. markets. As a result, any increase in

[13] The 13.5% is calculated as 35.8% divided by 4.8%. Note that these numbers are substantially smaller if the numerator is median foreign holdings instead of mean foreign holdings.

diversification and reduction in home bias by foreign investors would actually drive a greater increase in demand for U.S. liabilities than European liabilities.

Table 3
Country Exposure to the United States and Europe

		Global Market Weight	Mean	% Global Market Weight
France	Equity	4.5%	1.3%	**28.3%**
	Debt	4.9%	2.0%	**41.5%**
Germany	Equity	3.0%	1.0%	**33.6%**
	Debt	5.9%	4.2%	**71.7%**
United States	Equity	*35.8%*	*4.8%*	***13.5%***
	Debt	*38.2%*	*9.5%*	***24.9%***

Notes: Based on analysis in Forbes (2008). Debt includes corporate, government, and agency debt. Foreign holdings include foreign official holdings.

D. Conclusions

The main conclusion from this analysis is that the key factors driving foreign demand for U.S. equity and debt over the past few years are unlikely to be replicated in a surge in demand for European equity and debt and the corresponding demand for the euro. A key factor determining future demand for the euro will be how European financial markets emerge from the current crisis. If regulators and policymakers treat European equity and debt markets as one coherent, large, and liquid market, this would attract additional foreign investment in the future. On the other hand, if they continue to treat Europe as a collection of individual markets with different regulations and different backstops, this would make European financial markets less attractive to foreigners in the future. Since foreigners place such a large premium on the size, liquidity and depth of financial markets when allocating their investment, how European markets evolve in these terms will be a key factor driving future demand for the euro.

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