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**CAPITAL FLIGHT FROM CHINA:
1984-2010**

Frank R. Gunter PhD
Associate Professor of Economics
Lehigh University
Senior Fellow, Foreign Policy Research Institute
E-mail: frg2@lehigh.edu

ABSTRACT: Since 1985, the foreign debt of the Peoples' Republic of China has increased at a greater rate than would be explained by changes in the country's current account, foreign direct investment and reserve holdings. This pattern is consistent with the large-scale outflow of financial capital, commonly referred to as capital flight. This study provides a range of estimates for capital flight from the PRC for the period 1984 through 2010 using both Cuddington's balance of payments and the more inclusive residual measures. These measures are adjusted to reflect the legitimate assets of the PRC banking industry, mis-invoicing of PRC trade with its major trading partners (especially Hong Kong), and the failure of official debt data to capture certain bank transactions. Based on these estimates, 2010 capital flight was about \$201 billion while accumulated PRC capital flight since 1984 is approximately \$2.1 trillion with over 50% of this total occurring in the most recent six years. Since this capital flight has occurred during a period of rapid economic growth, appreciating currency, and improved perception of political stability, the most likely cause is high transaction costs in China's financial markets. JEL# F34, O16

Key terms: capital flight, China, Hong Kong, transaction costs, international capital flows, balance of payments, foreign debt

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I. INTRODUCTION

Since the late 1970s, the People's Republic of China (PRC) has experienced rapid economic growth fueled - in part - by a sharp increase in foreign direct investment (FDI). However, there is evidence that the PRC has also experienced large-scale capital flight during the same period. (For example, Kaye 1993, Wu 1993, Prybyla 1994, Gunter 1996 and 2004, Fu 2000, Wu and Tang 2000, Zhu et al 2005, and Sharman 2012)

What is capital flight? A common definition of capital flight is that it is "...an outflow of funds from a country motivated by an adverse change in the country's economic, political or social environment." (Gunter 2008, p. 434) Some researchers use a narrower definition. For example, Epstein (2005, p. 3) states that: "Capital flight is the transfer of assets abroad in order to reduce loss of principal, loss of return, or loss of control over one's financial wealth due to government sanctioned activities." When defining capital flight it might be useful to keep in mind Dornbusch's warning that capital flight is like the proverbial elephant, more difficult to describe than to recognize. (1990, p. 3) Regardless of the precise definition, the size and large variance of a country's capital flight are sources of concern since capital flight may contribute to an unnecessary increase in a country's foreign debt, undermine the tax base, and result in a net real capital transfer out of the country (Khan and Ul-Haque, 1985).

Some critics of the literature have argued that capital flight is just a pejorative term for international diversification. Or as one writer put it: "Why is it that when an American puts money abroad it is called 'foreign investment' and when an Argentinean does the same it is called 'capital flight'?" (Kanitz 1984) Recognizing this distinction, Dornbusch posits two types of capital flight. The first is motivated by the fear of discrete losses as a result of expected major

changes in the exchange rate, political risk, financial repression, and tax considerations. The second type, referred to as "low level capital flight" takes the form of a steady outflow motivated by tax considerations or the inability to diversify a portfolio in the developing country's capital market. (Dornbusch 1990, pp. 4-4) This study will examine both types of Chinese capital flight.

Previous studies of capital flight from the PRC have attempted to both estimate the volume of capital flight and seek explanations for its size and growth. Gunter (2004 and 1996) estimated capital flight from the People's Republic of China for the period 1984-1998 and discussed various explanations including high domestic financial transactions costs, inappropriate exchange rates, the entrepôt role of Hong Kong, and political uncertainty. Roache and Maziad (2013) discuss the implications of Chinese capital flight for financial stability and the international use of the Chinese currency, the Renminbi (RMB). They report People's Bank of China estimates of \$60-\$80 billion a year of unreported capital flows for the period 2008-2011. (pp, 106-107) These results fall between the unadjusted and adjusted residual measure of capital flight shown on Figures 1 and 2 of this paper. Sharman (2012) returns to transaction costs as a determinant of capital flight while rejecting criminal activities and tax arbitrage as possible explanations. Zhu, Li, and Epstein (2005) not only provided estimates of capital flight for the period 1982-2001 but also examined why large-scale capital flight from China has had less of a negative impact than expected. Wu and Tang (2000) provide several estimates of Chinese capital flight based on three different estimates of China's external debt. Wu and Tang then examine the implications of capital flight for the value of the Yuan and the Chinese economy in general. Cai in his 1999 study of outward foreign direct investment noted that the growing amount of corruption might be an important determinant of capital flight. (pp. 857-858) Sicular (1998) used

the Gunter (1996) capital flight estimates in her study of capital flight and foreign investment in China. She focused on the mystery of why China was simultaneously experiencing large amounts of inward foreign capital investment and outward capital flight. She concluded that an important component of an explanation was the different incentives faced by foreign and domestic investors.

It is often confusing to define the inclusiveness of the geographic region “China”. In 1997, Hong Kong was formally reincorporated back into the People’s Republic of China. However, consistent with “one country, two systems”, Hong Kong continues to report balance of payments data separately from the rest of the People’s Republic. For the purposes of this paper, “China” will refer to the People’s Republic of China minus Hong Kong.

This current paper focuses on extending Gunter (2004) in two ways. First, the same techniques for estimating capital flight and adjusting these estimates for the effects of legitimate foreign bank assets, trade mis-invoicing, and incomplete foreign debt coverage are used to produce an extended period, 1984-2010, of capital flight estimates for both China alone as well as China and Hong Kong combined. This will provide an empirical base for analysis of the determinants of Chinese capital flight. Second, an over-valued exchange rate, political and economic uncertainty, and capital controls will be considered – and rejected – as the primary determinants of recent Chinese capital flight. Finally, the simple transaction costs model introduced in Gunter (2004) is used to provide a possible explanation for the acceleration of capital flight despite the improvements in the usual determinates.

II. ALTERNATIVE MEASURES OF CAPITAL FLIGHT

One method of estimating capital flight is the balance of payments method credited to Cuddington. He believed that the most important characteristic of flight capital was that it was "hot" money. Small changes in perceived returns or risks result in a rapid transfer of these funds out of the country. Based on this characteristic, Cuddington's balance of payments estimate of capital flight are equal to the sum of reported short-term capital exports by the non-bank sector and, the balancing entry, errors and omissions. The latter inclusion reflected Cuddington's belief that errors and omissions largely reflected unrecorded short-term capital flows (1986, p. 3). Estimates for the 2010 PRC capital flight using the balance of payments formula is given in Table 1 (Line G) while the balance of payments estimates for 1984-2010 are shown on Figure 1. This measure of capital flight shows substantial year-to-year variation ranging from a low of *minus* \$54 billion – a net inflow – in 2003 to a high of \$128 billion in 2010. If one assumes that the return on this flight capital is equal to the dollar inflation rate then the cumulative capital flight over the period 1984-2010 was about \$444 billion in 2010 dollars or roughly \$16 billion a year.

Table 1: 2010 Capital Flight Estimates

	2010 Capital Flight Estimates	Balance of Payments Measure	Residual Measure
A	Non-Bank Private Short-term Capital Outflows	\$68.6 billion	
B	Net Errors and Omissions Outflows	\$59.8 billion	
C	Current Account Balance		\$305.4 billion
D	Net Foreign Direct Investment		\$124.9 billion
E	Change in International Reserves		-\$471.7 billion
F	Change in International Debt		\$115.2 billion
G	<i>Unadjusted Capital Flight Estimate</i>	<i>\$128.4 billion</i>	<i>\$73.8 billion</i>
H	Reported Foreign Assets*	-\$18.9 billion	-\$18.9 billion
I	International Debt Correction		\$0
J	PRC/Hong Kong Trade Mis-invoicing		\$90.8 billion
K	<i>Adjusted Capital Flight – Low Estimate</i>	<i>\$109.5 billion</i>	<i>\$145.7 billion</i>
L	PRC Trade Mis-invoicing (Substitution for PRC/Hong Kong Mis-invoicing – Line J)		\$200.7 billion
M	<i>Adjusted Capital Flight – High Estimate</i>		<i>\$255.6 billion</i>

* A positive change in Reported Foreign Assets reduces estimated capital flight e.g. in 2010, Reported Foreign Assets increased by \$18.9 billion which means that estimated capital flight was reduced.

Sources: Lines A-E and H, World Bank, Balance of Payments Statistics; Line F, World Bank, Debt Tables; Line I, Bank for International Settlements, Annual Report; Lines J and L, International Monetary Fund, Direction of Trade Statistics

[Insert Figure 1 here: Unadjusted balance of payments and residual estimates]

A more widely accepted method of estimating capital flight concentrates on capital flight as being a residual. (See BIS, 1989; Erbe, 1985; Gunter, 2004, 1997, 1996 and 1991; and World Bank, 1985.) The current account balance, changes in reserves and the amount of net foreign direct investment determine the amount of necessary international borrowing for a nation. If actual foreign borrowing during a period exceeds this necessary amount then it is assumed that the difference or residual represents additional borrowing to offset capital flight. The estimate for 2010 PRC capital flight using this residual method is also shown in Table 1. In that year, the PRC had a current account surplus of over \$305 billion while there was a net inflow of foreign direct investment of about \$125 billion. In order to achieve the reported increase in the country's international reserves of \$472 billion, an increase in international debt of only \$41 billion was required. However, China's foreign debt increased by about \$115 billion, which implies about \$74 billion of capital flight. (See line G on Table 1.) Capital flight from 1984 through 2010 according to this crude residual measure is shown on Figure 1. During the sample period, 1984-2010, the cumulative capital flight according to the residual measure was \$780.0 billion or about \$29 billion a year. Wu and Tang (2000, Table 4, p. 70) used the same method in their estimates of Chinese capital flight for the period 1990-1998 and got roughly the same results for the overlapping period.

As can be seen on Figure 1, there is no consistent relationship between the balance of payments and residual estimates after approximately 2005. For example, in 2009, capital flight according to the residual measure was actually minus \$6 billion – a net capital inflow – while the balance of payments measure pointed to \$112 billion in capital flight. The gap in 2010 was less extreme but still large with a residual capital flight estimate of about \$74 billion while the balance of payments estimate was roughly \$128 billion.

The balance of payments approach and the residual measure, which rely on fundamentally different methods, provide a very rough guide to the direction and volume of Chinese capital flight. However, both approaches are flawed in different ways. The next section will attempt to improve these estimates of capital flight by adjusting for legitimate resident external capital, mis-invoicing of exports and imports especially, and correcting some exclusions in China's PRC foreign debt data. Rather than concentrate on a single measure of Chinese capital flight, these adjustments will be made – as appropriate - to both the balance of payments and the residual measures in order to provide a rough guide to the direction and volume of unreported capital flows and yet avoid the danger of implying an accuracy to the results that is not deserved.

III. ADJUSTMENTS TO CAPITAL FLIGHT ESTIMATES

1. Legitimate Resident Foreign Capital

All holdings of foreign financial assets are not evidence of capital flight. Some may be necessary to facilitate foreign trade and finance. It seems especially incorrect to count as capital flight those foreign financial asset holdings that are reported to the home government. Therefore one can reduce the capital flight estimate by any increase in the non-reserve foreign assets of China's banking system as reported by the People's Bank of China to the International Monetary Fund. Of course, changes in the value of these "legitimate" foreign assets can be caused by exchange rate variations as well as international flows. From 1984 through 2010, there have been large year-to-year changes in this adjustment for legitimate resident foreign assets. For example, the largest positive change in legitimate foreign assets – reducing capital flight - occurred in 2008 when the change was \$53.7 billion. This was followed in 2009 with the largest negative

change – increasing capital flight – of \$65.5 billion. In 2010, there was also a positive change of about \$19 billion. (Shown on Table 1 as a negative – capital flight reducing – entry on Line H.)

3. Incomplete Foreign Debt Data

The remaining adjustments are only appropriate for the residual measure. One adjustment that has become less important over time is to fill in reporting gaps in China's foreign debt statistics. Until 2002, the China statistical authorities only reported detailed data on long-term public debt owed to foreign creditors. There was evidence that this foreign debt was understated in two ways. First, foreign banks report exposure to the private non-guaranteed sector in the PRC that was not reported by the Chinese government. Second, foreign banks' estimates of their short-term exposure to the public sector in China also exceeded the amount reported by the public sector in the official statistics.

One method of adjusting for this discrepancy is as follows. Add the foreign debt reported by the Chinese government – primarily public debt - to the liabilities of Chinese entities – both public and private sector debt - reported by international banks. This sum, of course, would count twice loans from foreign banks to public entities in China. Since China provides a breakdown of foreign debt by maturity and, for long-term debt, by creditor, one can correct for this double counting.

If the sum of short-term debt and long-term debt reported as owed to foreign banks is greater than the reported liabilities of the international banks then it is assumed that the reported debt figures are correct. This occurred in 1987, 1989, 1992, 1997, and 1999. However, if incorporating foreign bank data leads to a larger debt estimate than the revised data is used. Beginning in 2002 through the end of the sample period, continued debt adjustment was not

necessary as a result of the Chinese government's decision to use the debt data reported by international creditors, instead of the data reported by its own bureaucracy.

It is, of course, possible that the higher estimates for the level of Chinese foreign debt could be consistent with the same amount, or even less, debt accumulation than that shown by the official debt figures. While this debt adjustment has no effect on the balance of payments measure of capital flight, it had a significant effect on the residual method since it changes the amount of foreign debt to be "explained." As is well known, China's foreign debt has grown rapidly since 1984, doubling about every five years. Most recently, foreign debt grew from \$283 billion in 2005 to \$558 billion in 2010. Any revisions are given on Line I of Table 1.

3. Mis-invoicing of Exports and Imports

Another adjustment that might be made to residual estimates is to correct for mis-invoicing of exports and imports. The residual measure assumes that the current account measure is accurate. If the actual exports were larger or imports were smaller than reported in the official statistics then this increases the size of the residual that will be identified as capital flight. McDonald and Gulati have argued that both reported exports and imports may be biased as a result of deliberate mis-invoicing in order to circumvent trade controls, avoid import tariffs and/or facilitate capital flight (McDonald, 1985; Gulati, 1987:68-78). For example, a Chinese resident may under-invoice his exports and then direct the unreported difference between the invoice amount and his actual receipts to some financial haven. Such under-invoicing of exports would reduce the reported Chinese trade surplus. Similarly, a Chinese resident may over-invoice his imports. If capital flight is his motivation then the payment for these imports would be divided between the actual cost of the imports and an unreported deposit in some foreign haven.

When foreign exchange is selling at a premium in the parallel market, over-invoicing of imports might also provide a means of obtaining additional foreign exchange to sell on the parallel market. Over-invoicing of imports also has the effect of worsening the country's reported balance of trade.

Accompanying the growth and changing pattern of China's trade since 1984 has been a growing discrepancy in the statistics reported for bilateral trade. One should be able to roughly match up China's exports to one of its trading partners, for example the U.S., as reported by China and the counterpart transaction of U.S. imports from China as reported by the U.S. The difficulties of making this type of comparison have been well known since Morgenstern's seminal book on the subject of the accuracy of economic data (1965, Chap. 9). First, one must adjust for the additional costs of insurance and freight (cif) that adhere to an import that are not included in the price of an export. According to the International Monetary Fund, this cif difference is approximately 9% for the PRC. Second, comparisons can also be affected by problems of timing. An export may be recorded in one year while the corresponding import is not recorded until the next year. Third, the quality of import data tends to be better than the quality of export data since governments more carefully monitor imports in order to maximize tariff income or enforce quotas. Fourth, while the country of origin of an import can often be determined by close examination of the product; the ultimate destination of an export is often impossible to determine since it may be re-exported by one or more intermediate countries before its journey is complete. Finally, comparisons of counterpart data can be complicated by deliberate attempts of exporters or importers to deceive customs officials or other government agents. This deception can be motivated by the avoidance of tariffs, non-tariff trade barriers, or as a means of facilitating capital flight.

In 2010, the Chinese government reported \$737.8 billion in exports to and \$537.2 billion in imports from its twenty-two high income trading partners. However, after adjusting for the difference between cif and fob, China's trading partners reported Chinese exports of \$886.2 billion and Chinese imports of \$484.9 billion in that year. Combining these discrepancies points to mis-invoicing consistent with capital flight of \$200.7 billion in 2010! (Line L on Table 1.)

The discrepancies in China –high income nations bilateral trade statistics have grown sharply from 1984 through 2010. If these estimates are accurate then mis-invoicing is now the method of choice for capital flight from China i.e. adjustment for mis-invoicing dominates all the other possible methods of capital flight.

Does this apparent mis-invoicing of Chinese trade always imply capital flight? In studies of Latin American capital flight, it is common to find under-invoicing of exports (consistent with capital flight) occurring at the same time as under-invoicing of imports presumably motivated by a desire to avoid import tariffs and/or quotas. (See Gunter 1991) However, in the Chinese data for 1984 through 2010, both the data for exports and that for imports were consistent with facilitating capital flight.

4. Role of Hong Kong

Any analysis of Chinese capital flight is complicated by the importance of Hong Kong as a capital and trade entrepôt for China. This importance is a function of geography, history, comparative advantage, and the 1997 reunification. While some state that Hong Kong is still the laissez-faire state that flourished under British rule prior to reunification. (Huang 2008, p. 3), there is evidence discussed below that its role has evolved since reunification. What is unambiguous is that Hong Kong remains Mainland China's most important export destination. Chinese exports to Hong Kong totaled about \$218 billion in 2010 compared to its exports to

Japan, its second most important export destination, of \$191 billion. However, a large proportion of Hong Kong's international merchandise transactions take the form of re-exports. Goods are imported into Hong Kong for processing and/or warehousing before being shipped to another country. China's imports from Hong Kong in 2010 were only \$9.5 billion only slightly more than China's imports from Switzerland.

Bilateral trade between the China and Hong Kong reveals an interesting pattern. As was discussed above, Chinese data on trade with industrial nations reveals an over-invoicing of imports and an under-invoicing of exports. Both of these mis-invoicing results are consistent with capital flight. However, with respect to its trade with the same high-income countries, Hong Kong tends to show under-invoicing of both exports and imports that to a great extent offsets the mis-invoicing of China. In other words, the combined trade data for China and Hong Kong (adjusted for double counting) reveals much smaller mis-invoicing with respect to high-income countries than either China or Hong Kong data considered separately. This result lends support to the view that the discrepancies in China's trade statistics may be caused more by problems in determining provenance and destination of merchandise trade rather than capital flight. In fact, until 1997, the contribution of the combined estimates of mis-invoicing to capital flight were small and often negative. However, beginning in 1998, the combined mis-invoicing began to increase although remaining substantially less than the mis-invoicing involving China alone. For example, in 2010, as can be seen on Table 1, China's mis-invoicing with respect to the major industrial nations was about \$201 billion (Line L) but combined China/Hong Kong mis-invoicing was less than half as large, about \$91 billion (Line J).

However, even if one accepts that the transshipment of Chinese exports through Hong Kong as the primary source of the discrepancy in the China's bilateral trade statistics then one is

still left with the question of determining the destination of the earnings from this mis-reported trade. One possibility is that these earnings from Chinese exports are repatriated to China but not reported as such. The failure to report may be a result of defective data collection or an attempt to capture certain subsidies intended for foreign investors. In this case, Hong Kong serves as a way station to disguise the origin of Chinese funds in order to facilitate the returns of these funds to China as "fake foreign" investments or round tripping. (See Huang 2008, pp. 1-10, for a discussion of the motivations of round tripping.)

On the other hand, the fact that the China and Hong Kong trade discrepancies tend to be offsetting may be irrelevant since Chinese portfolio holders may still view Hong Kong as a "foreign" haven for their capital. This confidence that their holdings in Hong Kong could be based both on China's commitment of "one country two systems" as well as a more pragmatic view that if the financial independence of Hong Kong is threatened then China portfolio holders with assets in Hong Kong will be able to quickly and efficiently move their funds to another haven at minimal cost. Despite their long history in China, capital controls are still considered very unlikely in Hong Kong especially since Hong Kong lacks the legal justification and procedures to enforce such controls. However, as noted above, the combined mis-invoicing estimates began to increase following the 1997 reunification. This result, which is consistent increased capital flight from China/Hong Kong, possibly reveals reduced confidence that Chinese flight capital in Hong Kong will safe from Chinese authorities.

IV. PATTERN OF PRC CAPITAL FLIGHT

Since estimating capital flight is fraught with theoretical and practical difficulties, it would give a false sense of accuracy to focus on one measure as "the" measure of capital flight.

However, keeping in mind the assumptions that are required, some conclusions concerning the probable range of PRC capital flight during the sample period are possible. Figure 2 shows three estimates of capital flight, an adjusted balance of payments estimate and two residual estimates. The "low" residual estimate is adjusted using the combined China/Hong Kong mis-invoicing data. The "high" residual estimate is adjusted using only the China mis-invoicing data.

[Insert Figure 2: Adjusted balance of payments, residual estimate (low),
and residual estimate (high)]

Since the balance of payments estimate of capital flight is dominated by capital flight through financial transactions while the residual estimates of capital flight are dominated by trade mis-invoicing, it is somewhat reassuring that, from 1984 until the imposition of capital controls in 1998, the three estimates tended to mirror each other. The rest of this paper will be devoted to attempting to explain the post-1998 pattern of Chinese capital flight especially the rapid acceleration of capital flight according to the residual measures since 2005.

Due to the importance of the mis-invoicing adjustments especially after the imposition of capital controls in 1998, it is most likely that the actual level of capital flight from the People's Republic of China is between the "low" and "high" residual estimates. If this is correct then capital flight over the last three years has grown from roughly \$137 billion (plus or minus \$55 billion) in 2008 to about \$177 billion (plus or minus \$45 billion) in 2009 before reaching approximately \$201 billion (plus or minus \$55 billion) in 2010. (Please note that this "best guess" estimate of 2010 capital flight of \$201 billion is coincidentally the same as the 2010 mis-invoicing adjustment. In other years, these two data are correlated but different.) Assuming that the net earnings of this flight capital was just sufficient to offset dollar inflation then the

accumulated PRC capital flight since 1984 is approximately \$2.1 trillion (\$2,100 billion) with over 50% of this total occurring in the most recent six years.

It might be useful to compare both the flow and stock of PRC capital flight to other Chinese economic variables in order to get a sense of scale. The estimated \$201 billion of capital flight in 2010 is equal to about 10% of China's total exports of goods and services and roughly 67% of the country's current account balance in that year.

Another comparison, emphasized by Cai (1999), is the ratio of capital flight to inward foreign direct investment. In 2010, this ratio was 109%! In other words, outward capital flight that year was larger than the inward foreign direct investment (FDI) of \$185 billion. (See IMF International Financial Statistics for FDI data) In fact, capital flight from the PRC was greater than inward FDI in every year since 2006.

With respect to the scale of the accumulated flight capital, the estimated 1984-2010 accumulated flight capital of about \$2.1 trillion was equivalent to 72% of the country's international reserves, which were \$2.9 trillion at the end of 2010. Another possibility is to compare it to the level of PRC foreign debt. This ratio has changed little over the last decade and was an estimated 376% at the end of 2010. Accumulated capital flight might also be compared to the assets of international banks that the banks have reported as being the deposits of Chinese residents. According to the Bank for International Settlements, such assets totaled \$244.6 in December 2010 that is about 13% of the accumulated Chinese flight capital.

V. TRADITIONAL DETERMINATES OF CAPITAL FLIGHT

In Gunter (2004 and 1996), it appeared that inappropriate exchange rates, political uncertainty, capital controls, and changes in the unique role of Hong Kong were the major

determinants of the volume and pattern of capital flight from the PRC. In view of the new data and the greater internationalization of the Chinese economy these explanations must be reconsidered.

It is tempting at this point to take one of the estimates of capital flight that are shown on Figures 1 or 2 and regress it on a series of variables representing the theoretically possible determinants. This is a widely adopted approach. (For example, see Collier, Hoeffler, and Pattillo, 1999.) However, in the case of analyzing capital flight, this approach is inappropriate because of the strong possibility that there are large measurement errors in both the dependent and independent variables. And, of course, the existence of such errors will usually lead to regression parameters that are both biased and inconsistent. (See Pindyck and Rubinfeld 1991, pp. 159-161 and 174-179; and Herbert 1995, pp. 98-100) Consequently, this paper uses a more intuitive approach that avoids assuming unwarranted data accuracy.

1. Inappropriate Exchange Rates

One of the most widely accepted causes of capital flight is exchange rate overvaluation. If portfolio holders expect devaluation then they have a strong incentive to arrange for at least part of their holdings to be denominated in a foreign currency in order to profit from the exchange rate change. Has exchange rate overvaluation been one of the causes of Chinese capital flight during the sample period?

Based on the gap between the official and black market exchange rates, one could make the argument that the RMB was overvalued through most of the 1980s and 1990s. And, in fact, there was a substantial devaluation – almost 33% - of the official RMB rate in 1990 that reduced but did not completely close the gap between the official and black market rates. Such an

overvaluation is consistent with capital flight and, as can be seen in Figure 2, the “High Residual” measure of such flight grew substantially. However, despite the Asian Financial Crisis of 1997, China resisted any further devaluation. It is possible that China engaged in a "back door" devaluation for two or three years following the Asian Financial Crisis. Concerned that an announcement of devaluation might lead to a further loss in international confidence in the region, China may have achieved some of the same trade benefits of devaluation by simultaneously providing export subsidies and increasing import tariffs.

Regardless of any “back door” devaluation, the RMB continued to trade at 8.3 RMB/\$ on the official market until 2005 when the government orchestrated a series of appreciations resulting in an exchange rate of 6.8 RMB/\$ in 2010 and about 6.3 RMB/\$ at the end of 2012. (Chalk and Syed 2013, Figure 2.11, p. 42) However, this 20% appreciation was accompanied by an *acceleration* of capital flight – the opposite of the prediction.

What can be said about exchange rate overvaluation and Chinese capital flight? Keeping in mind the large possible measuring errors in estimates of both capital flight and overvaluation, it seems fair to conclude that exchange rate overvaluation was a major but not the sole determinate of capital flight during the 1984-1998 period. However, between the Asian Financial Crisis and 2005, the Chinese RMB went from an undervalued currency to an overvalued one that required rapid accumulation of foreign reserves combined with capital controls to slow its appreciation. And yet, as can be seen on Figure 2, capital flight accelerated as the RMB increased in value. Expected exchange rate changes do not appear to be major determinate of Chinese capital flight during the post-Asian Financial Crisis period.

2. Economic and Political Uncertainty

Increases in economic or political uncertainty can lead to increased capital flight in two ways. First, increases in uncertainty reduce the expected risk adjusted return on domestic investments. This reduction could range from a slight decrease in expected risk adjusted interest all the way to government confiscation of real or financial assets. Lower expected domestic returns relative to those on foreign assets will lead to a capital outflow. Second, increases in uncertainty tend to decrease planning horizons and desired maturity of investments. (Gunter 1994, pp. 24-32) To the extent that foreign assets have transaction costs and risk adjusted returns that dominate domestic assets for short maturities then a shortening of desired maturities will also lead to increased capital flight.

Institutional Investor's twice a year listing of country risk provides an external evaluation of the political and economic risk facing investors in China. The almost one hundred participants tend to base their ratings on a country's debt service record, political outlook, economic outlook, financial reserves and current account, and several macroeconomic and financial measures. (Coplin and O'Leary 1994, p. 138) These ratings reveal an interesting pattern. From the beginning of *Institutional Investor's* rating of China in 1984 until 1989, the country was highly rated and, in fact, was considered one of the 25 best countries in for FDI. However, after Tiananmen Square, both China ratings and its international ranking dropped sharply for almost a decade and a half. In fact, it wasn't until 2004 that the country's rating exceeded the Pre-Tiananmen value of 62.9, which made it the 38th best country for FDI. Since 2004, its rating and ranking have steadily improved reaching 79.8 – 23rd in the world – in 2010. Comparing China's capital flight and its credit rating fail to show the expected inverse relationship. The annual rate of growth of Chinese capital flight was about the same (22-23%) before and after the collapse in the country's credit rating in 1989-1990. More recently, the improvement of China's ratings since

2004 has been accompanied by a substantial increase in capital flight, again the opposite of the prediction. However, there does appear to be a drop in capital flight when there is a perceived increase in the political and economic uncertainty in destination countries. For example, one is struck by the sharp drop in outward capital flows in 2001, the year of the Al Qaeda attack on New York City and Washington D.C., and in 2008, following the Asian Financial Crisis of 2007.

Is the steady improvement in the *Institutional Investor* China ratings supported by changes in the country's economic and political environment? As is well known, China has experienced almost three and half decades of strong real GDP growth. Of course, this progress has been uneven. While per capita real income has increased dramatically, the benefits and burdens of this growth are unevenly distributed with wide geographic, industrial, and professional inequalities. As evidence of growing inequalities, the last decade has seen increases in China's Gini coefficient – consistent with greater income inequality – as well as rises in illiteracy. There has also been serious environmental degradation. However, the liberalization of the Chinese economy is generally perceived to be a great success.

Less discussed is the political situation. In the two and half decades since the People's Liberation Army crushed the Tiananmen Square protest, confidence in the country's political stability has increased. The transfer of leadership under the 4th Constitution from Yang Shangkun to Jiang Zemin to Hu Jintao and - in March 2013 – to Xi Jinping followed accepted Communist Party procedures and was peaceful. It is true that the much-heralded transition to democracy has stalled while communism is no longer widely accepted as the ideal form of social and economic organization. As a result, China lacks an ideology to provide legitimacy for the state. However, the national leadership has been able to rely on the other two legs of the

legitimacy tripod; economic growth and nationalism. This political stability combined with strong economic growth is consistent with China's improved country risk rankings.

3. Capital controls

Since the beginning of the economic liberalization until 1998, there was a gradual weakening of Chinese capital and exchange controls. The ability of Chinese residents to deal in foreign currency and instruments was extended as was the ability of foreigners to deal in RMB and RMB-denominated instruments. However, some restrictions on such transactions remained and, in late 1998, China substantially tightened controls on capital and money market instruments in order to reduce capital flight. (See World Bank 1997, pp. 196-203 for a detailed look at capital controls before the 1998 changes.) Before the impact of these strengthened controls is analyzed, it might be useful to look at the theoretical impact of controls. Capital controls, to the extent that they increase the transaction costs associated with holding foreign assets or decrease the return on such assets should reduce capital flight. However, there are indirect effects that may cause capital controls to *increase* capital flight or at least decrease repatriation of flight capital. (Gunter 1994, pp. 73-77.)

First, the imposition of capital controls may be taken as a signal that the government intends to maintain or adopt perverse fiscal or monetary policies. Previously, economic decision makers were restrained from adopting bad policies by the concern that adopting these policies would lead to a sharp increase in capital flight. By increasing the cost of capital flight, greater flexibility in policy choice is obtained. To the extent that portfolio holders see the possible new policies as having a perverse effect on their holdings, there may be an increase in capital flight.

A second way in which capital controls may exacerbate problems with capital flight is by reducing flight capital repatriation. With low barriers to capital flight then repatriation of flight capital will occur whenever a change in the relative returns, transaction costs, or preferred maturities causes a reversal in the dominance of foreign and domestic assets. For example, a fall in economic or political uncertainty would increase the risk adjusted return on domestic assets and lead to some repatriation. However, an increase or strengthening of capital controls such as occurred in China in 1998 would reduce or eliminate such repatriation by increasing the penalty of guessing "wrong" about the economy's future. The holder of foreign assets realizes that if he repatriates his capital this month and realizes next month that he has made a mistake then sending his funds abroad will be more difficult and expensive. Portfolio holders will require a higher degree of confidence in their expectations of the future performance of domestic and foreign assets before they will repatriate since the decision may be irreversible. As a result, tightening of capital controls may "maroon" flight capital abroad.

Finally, the reporting requirements, enforcement procedures, and bureaucratic influence required by tougher capital controls may significantly reduce the efficiency of Chinese firms. This loss of efficiency will reduce the expected growth of the domestic economy, the return on domestic investments, and, therefore, increase the incentives for capital flight.

The effect of the 1998 capital controls on Chinese capital flight was surprisingly straightforward. Imposing stricter capital controls on the international transactions of Chinese banking and other financial intermediaries changed the preferred route of capital flight without substantially reducing the volume. As can be seen in Figure 2, capital flight estimated according to the balance of payments method, which is dominated by financial transaction, fell sharply from \$78 billion in 1998 to \$46 billion in 1999. However, during the same period the more

inclusive residual measure of capital flight, which is dominated by mis-invoicing, actually increased during the crackdown from \$60 billion in 1998 to \$70 billion a year later. This divergence between the balance of payments and the residual measures continued until 2009 when the government began to relax capital controls as part of its effort to internationalize the RMB.

The acceleration of Chinese capital flight from 2005 to the end of the sample period in 2010 does not appear to be caused by an overvalued exchange rate, an increase in economic or political uncertainty, or the relaxation of capital controls. An alternative explanation is that such capital flight is an example of Dornbusch's "low level capital flight" that takes the form of a steady outflow motivated by a desire for portfolio diversification. In the case of China, this capital outflow as a form of diversification is somewhat of a mystery. As a developing country, it would be expected that the return on capital would be greater in China than in one of the developed states or international financial centers. Also, China is a big economy. Its GDP today is greater than that of the entire world economy of just seventy-five years ago. And with over a billion people spread out over a large geographically diverse country engaged in a wide variety of economic activities, why can't any demand for portfolio diversification be met inside the country? One possible explanation is the unusual pattern of transaction costs in China.

VI. TRANSACTION COSTS

"Transactions costs arise from the transfer of ownership or, more generally, of property rights. They are a concomitant of decentralized ownership rights, private property and exchange." (Jürg Niehans, 1992, p. 683) With respect to financial instruments, these transaction costs would include the costs of gathering accurate information about an asset or liability,

finding and evaluating the other parties involved in the transaction, negotiating the agreement and, possibly, enforcing any agreements.

In the case of countries with well-developed financial markets, these transaction costs tend to account for only a small fraction of the value of a financial transaction. In addition, for well-developed markets, the transaction costs associated with international transactions are usually higher than those associated with domestic transactions. (See Gunter 1994 for a more extensive discussion.) However, portfolio holders in the People's Republic of China appear to face a situation where the transaction costs associated with financial transaction costs within China are substantial and often higher than those associated with equivalent international financial transaction. In other words, the transaction costs for a Chinese person to purchase a diversified portfolio of common stock on the Shanghai Stock Exchange is probably greater than the transaction costs for the same Chinese person to purchase a diversified portfolio of common stock on the New York Stock Exchange.

There are several reasons for the high level of financial transaction costs in China's financial markets. First, there is the high cost of missing, incomplete or confusing legislation on firm management and finance. (Roache and Maziad 2013, p. 111) These weaknesses, and the attendant uncertainty, are caused in part by the relatively recent legalization of the security markets in China. The bond market only dates from October 1990 while the market in equity began in November 1989. (Bei, Koontz, and Lu, 1992) It was only in 1999 that a National Security Law was announced intended to replace the confusing "temporary" regulations that have governed Chinese stock markets during the 1990s.

Second, accompanying the lack of regulatory rules and procedures are severe failings in accounting and auditing making it difficult or impossible to obtain information on ownership,

revenues, expenses, and balance sheets of Chinese corporations. China continues to lack both generally accepted accounting procedures and an independent auditing function to assure the public that data is reliable. As recently as 2008, investors found it impossible to determine whether one of the largest private sector firms in China was, in fact, employee owned. Even determining whether a particular enterprise is a state owned enterprise (SOE) or private company could be difficult. Prospective investors have to search out clues such as the job tenure of firms' senior leadership. Government directors of SOE tend to have short appointments while the leadership of private companies have longer tenures. (Huang 2008, pp. 10-12) While there are over 1,000 Chinese companies listed in China or abroad with an estimated capitalization of almost \$500 billion, almost all of these companies are majority owned by the government. As a result, regulators come under a great deal of pressure by various levels of the Chinese government to allow the firms to exaggerate their good news and conceal their bad. As a result of all of these issues, potential investors can have little confidence in the accuracy and timeliness of official statements concerning income statements, balance sheets, etc. In response, careful investors must expend money and energy in order to gather and analyze the necessary information before they can invest.

Finally, there is a substantial transaction costs associated with enforcing financial agreements. Chinese commercial law and the necessary body of procedures to enforce it are in their infancy. Adding to the lack of confidence in the agreement enforcement process is the widely held belief that the courts are often corrupt and biased.

The difficulty of obtaining reliable accounting information distorts financial intermediation in China. Insiders tend to dominate equity transactions since it is difficult, expensive and maybe impossible for an outsider to discover enough about a financial transaction

to make a rational decision. Also, financial intermediation in China is still dominated by large state owned banks. As recently as 2011, corporate issued stocks and bonds accounted for only about 14% of the nation's capital while bank loans and acceptances accounted for 82% (Guo 2013, Figure 11.1, p. 166)

The impact of changes in transaction costs on capital flight is illustrated using Equations 1-3 that are shown in Figure 3. Assume that there are only three financial instruments available to a Chinese portfolio holder: domestic (Chinese) money, foreign bonds, and domestic equity. Money (M), Equation 1, is assumed to have zero transaction costs and, since it pays no interest, a negative real return equal to the expected domestic inflation rate, λ . The change in the expected real value of money holdings at any time n is shown by the line labeled M_t in Figure 3. Similarly, as shown in Equation 2, the expected real value of Domestic Equity at any time n is the product of the nominal return on this equity, i_d , adjusted by expected inflation, λ , minus the transaction cost, C_d . The change in the expected real value of domestic equity is shown as line D_t in Figure 3.

The expected real value of foreign bond holdings, Equation 3, at any time n is the product of the nominal return on these bonds, i_f , adjusted by both any expected exchange rate changes, $(E_n - E_0)/E_0$, and expected domestic (Chinese) inflation, λ , minus the transaction cost, C_f . The change in the expected real value of foreign bond holdings is shown as line F_t in Figure 3. The transaction costs for domestic deposits, C_d , and foreign bonds, C_f , are “round trip” costs e.g. the costs of buying domestic equity with domestic money as well as the cost of converting that equity back into domestic money at some future time. Also, these transaction costs could be fixed, e.g. a notary fee, or proportional to the size of the transaction.

$$(1) \text{ Domestic Money: } M_t = \frac{M_0}{(1 + \lambda)^n}$$

$$(2) \text{ Domestic Equity: } D_t = D_0 \frac{(1 + i_d)^n}{(1 + \lambda)^n} - C_d$$

$$(3) \text{ Foreign Bonds: } F_t = F_0 \frac{(1 + i_f)^n}{(1 + \lambda)^n} \frac{(E_n)}{(E_0)} - C_f$$

$$(4) \text{ Subject to } C_d > C_f \text{ and } i_d > i_f' \text{ where } i_f' = i_f (E_n/E_0)$$

Consistent with the discussion Chinese financial markets, it seems plausible that, first, the transaction costs associated with foreign bond purchases and sales are *less* than the costs associated with the purchase of domestic equity i.e. $C_d > C_f$, and, second, the expected nominal return on domestic equity will be *greater* than the exchange rate adjusted nominal return on foreign bonds, i.e. $i_d > i_f'$ where $i_f' = i_f (E_n/E_0)$. These relationships are shown in Equation 4. The impact of these assumptions can be seen in Figure 3. A Chinese portfolio holder who intends to hold an asset for a period less than t_0 , will choose to hold domestic money since for this period, the transaction cost involved in either of the alternative assets offsets the returns on these assets. For any period of time between t_0 and t_1 , foreign bonds are the preferred asset even though the nominal return on foreign bonds is less than that of domestic equity. It is only for periods of time greater than t_1 that the higher returns of domestic equity offsets the higher transaction costs and allows domestic equity to become the dominant asset. Thus we would observe capital flight whenever the optimal period for an asset was between t_0 and t_1 .

Therefore, there are basically two routes through which changes in the Chinese and foreign situations can lead to a decrease in capital flight. Under the first route, there are five ways in which the "capital flight period," t_0 to t_1 , could be reduced. They are: (1) a decrease in the domestic inflation rate, (2) a decrease in the transaction costs associated with domestic

equity, (3) an increase in the return on domestic equity, (4) an increase in the transaction costs of foreign bonds, or (5) a decrease in the return on foreign bonds. All of these changes have the effect of either moving t_0 to the right or of moving t_1 to the left thereby reducing the "capital flight period."

The second route reflects the role of desired maturities in portfolios. A shift of portfolio holders preferences in the direction of longer maturities, greater than t_1 , would lead to a reduction in capital flight because for a long enough maturity the higher return on domestic equity investments offsets the higher transaction costs. This crude model of the impact of transaction costs on Chinese capital flight seems to provide insights into two phenomena that have received extensive attention from researchers; the relationship between capital flight and FDI and the motivation for round-tripping transactions especially with respect to Hong Kong.

1. Foreign Direct Investment

Thinking about the relationship between foreign direct investment (FDI) and capital flight is dominated by two theories. According to the investment-climate theory, capital flight is determined by the relative return on foreign and domestic assets. If the expected return on foreign assets increases relative to that on domestic assets then one would expect both an increase in capital flight and a decrease in inward FDI. This is inconsistent with Chinese situation over the last decade where there has been accelerations in both inward FDI *and* outward capital flight. The alternative explanation, the discriminatory-treatment theory, emphasizes that countries often discriminate in favor of foreign investors. This discriminatory-treatment theory provides an explanation of how a country might experience both large-scale capital flight and

inward foreign direct investment. (See Kant 1996, pp. 11-15 for a discussion of these two theories.)

Since China is currently experiencing simultaneous large-scale *inward* foreign direct investment (FDI), *outward* FDI, and capital flight it seems plausible that the discriminatory-treatment theory provides better insights. For example, Sicular (1998) when she examined the seeming contradiction between China simultaneously being the recipient of large-scale foreign direct investment and experiencing substantial capital flight, concluded that the explanation lay in the "...differential between returns to domestic and foreign investors..." (p. 601) An additional explanation is that foreign investors are seeking a longer maturity optimal portfolio, greater than t_1 , while Chinese portfolio holders desire shorter maturities between t_0 and t_1 .

But the returns and transaction costs of outward and inward capital flows may not be independent. For example, an increase in inward or outward FDI may change the transaction costs of capital flight, C_f . The involvement of a Chinese individual, or firm in either being the recipient of inward FDI or the source of outward FDI tends to reduce the transaction costs of capital flight by providing general information, specific contacts, and access to transactions that can be converted, possibly using the trade mis-invoicing techniques discussed above, to facilitate capital flight. For example, a manager of a firm in western China may desire to move some of his (or the firm's) assets abroad but lacks the knowledge and the means. However, if this firm becomes involved either as the recipient or source of FDI, it becomes more likely that he will be able to make international trips and consult with foreign financial institutions.

The foreign firm or individual that is the source of FDI into China or the recipient of FDI from China may have a strong incentive to facilitate the capital flight. The incentive could be an innocent desire to be helpful or involve a degree of corruption. Possibly the counter-party will

simply perceive that such assistance is necessary in order to ensure a successful FDI relationship. The impact of this reduction in transaction cost associated with purchasing foreign assets, C_f , can be seen in Figure 3. Participation as either the source or recipient of FDI will reduce the transaction costs associated with purchasing foreign assets, C_f resulting in an upward shift in the expected real return of foreign assets. This will widen the range of maturities, t_0t_1 , where foreign assets dominate both domestic money and equities.

If either inward or outward FDI facilitates capital flight by reducing the transaction costs associated with purchasing foreign assets, then it is likely that there will be an hysteretic effect if such FDI decreases. In other words, while an increase in either inward or outward FDI tends to lead to increased capital flight by providing useful knowledge and contacts, a decrease in FDI may have little impact on capital flight since the information gained and contacts made will not immediately lose their usefulness to anyone planning capital flight.

2. Hong Kong Again

Adams (1993), in his note on investments from Hong Kong into Guangdong Province, stated additional reasons why capital flight and inward foreign direct investment might be highly correlated. First, like many developing countries, the PRC provides various tax, regulatory, and other benefits and incentives to foreign investors that are not available to domestic investors.

Responding to these incentives, a Chinese portfolio holder might seek to use Hong Kong or another capital center as a laundry to disguise the origin of PRC funds in order to facilitate the return of these funds to the PRC as "fake foreigner" investments or "round tripping." (See Gunter 1996, p. 84; and Cai 1999, p. 870.) A second motivation for round tripping is the concern that the government may impose restrictions on the domestic use of foreign currencies such as those

imposed in 1993 and 1998. By routing investments through Hong Kong or some other capital center, it may be easier to circumvent such restrictions. If these explanations are accurate then unreported capital movements to Hong Kong are not really capital flight any more than if capital flows from Nebraska to New York City before it is invested in Kansas.

However, Hong Kong's role as the New York City of China appears to have shifted beginning in 1997, the year that Hong Kong was reunited politically with China. From 1984 through 1997, the mis-invoicing of Hong Kong's exports and imports to the major industrial nations was almost of the same scale but of the *opposite sign* than China's mis-invoicing of exports and imports with respect to the same countries. In other words, the combined China/Hong Kong mis-invoicing, adjusted for double counting, was much smaller than either China or Hong Kong's transactions taken separately. This result is consistent with Hong Kong acting as a financial center where capital from China was turned around and re-invested into China.

However, this pattern changed after 1997. Combined China/Hong Kong mis-invoicing consistent with capital flight grew from \$2 billion in 1998 to \$70 billion in 2005 and \$91 billion in 2010. This result is consistent with Hong Kong no longer acting as a destination for Chinese capital flight and increasingly Hong Kong is just a way station for capital flight headed elsewhere.

VI. SUMMARY AND FUTURE RESEARCH

Since 2004, there has been a sharp acceleration of capital flight from China reaching an estimated \$201 billion (plus or minus \$55 billion) in 2010. Assuming that the net earnings of this flight capital were just sufficient to offset dollar inflation then the accumulated capital flight

from 1984 through 2010 was about \$2.1 trillion. Since the imposition of capital controls in 1998, the bulk of this capital flight has taken the form of mis-invoicing of exports and imports. Since China has experienced an appreciating currency, improved economic and political stability, and no relaxation of capital controls; the recent sharp rise in capital flight does not appear to be caused by fear of discrete losses.

An alternative explanation, that the costs associated with financial transactions in China are greater than the costs associated with international transactions, is not only consistent with the regulatory environment of China but also provides a plausible explanation for the simultaneous growth of inward FDI, outward FDI, and capital flight.

An interesting motive for capital flight that has received little attention is the use of such flight to facilitate quality-of-life migration. There is anecdotal evidence that many high net worth individuals in China are engaged in long-term plans to move their families and their wealth to societies that are perceived to provide a better quality of life either because of less restrictive government, more open society, greater acceptance of outsiders, less environmental damage, etc.

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