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# **Hong Kong Capital Flight: Determinants and Features**

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A thesis  
submitted in partial fulfilment  
of the requirements for the Degree of  
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By  
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Abstract of a thesis submitted in partial fulfillment of the requirements for the Degree  
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# **Hong Kong Capital Flight: Determinants and Features**

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The frequent outbreak of financial crisis in recent years has triggered a new discussion of capital flight phenomenon in the fast growing emerging countries such as Thailand, India, and Malaysia. The capital flight phenomenon has captured many scholars' attention and interests. Previous studies of capital flight phenomenon have focused on mainland China. However, Hong Kong is known as one of the dynamic financial centers in Asia and plays an important role in the development of the Chinese financial market. Most of the capitals from China use Hong Kong financial system as the channel to flee to other countries.

The objective of this study is to determine whether there is capital flight in Hong Kong. What determines the capital flight in Hong Kong financial market and whether there is a capital flight round-trip between Hong Kong and mainland China (from Hong Kong's point of view). This study measures the capital flight in Hong Kong financial market using the direct and indirect capital flight measurements between 1998 and 2009 and the trade mis-invoicing method from 1970 to 2009. Ordinary least square method is used to analyze the determinants of capital flight in Hong Kong and to identify which factors have the most important impact on Hong Kong capital flight market. For the round-tripping capital flight between Hong Kong and mainland China, this study uses Xiao (2004) model to measure the round-tripping capital flight from Hong Kong financial market.

The result suggests that all three methods used in this study shows there is capital flight in Hong Kong. In addition, the determinants of Hong Kong capital flight are currency overvaluation, current account deficit and the dummy variable of China's announcement of Open Door Policy in 1979. The round-tripping phenomenon between Hong Kong and China takes about one-third of China's total recorded FDI from Hong Kong and more than half of Hong Kong reported FDI to China.

**Key Words:** Hong Kong, capital flight, determinants, round-tripping, features.

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## **CHAPTER ONE**

### **1 INTRODUCTION**

#### **1.1 Introduction**

After the late 1970s and early 1980s debt crisis, researchers noticed significant capital outflows from crisis ridden nations due to poor economy performance and political instability and researchers identify this phenomenon as capital flight. Researchers believe that capital flight constrained country development and it is an indicator for one country's ability to repay its debt. Capital flight study has been less mentioned after the 1980s debt crisis as capitals started to flow back to their original countries, new issues began to emerge when huge amount of capitals flow into fast growing economies in 1990s. For example, after the 1997 Asian financial crisis, most of those capital attracting economies such as Thailand, South Korea, Indonesia and other Asian countries suffered an enormous capital outflows which further burdened the post crisis economy recovery.

Capital flight phenomenon in developing countries has attracted a lot of attention from many policy makers and researchers such as Kindleberger (1937), Chantanawan (2000), Jomo (1998), Beja (2005), Gunter (1996), Sicular (1998). As documented by Knoop (2008), there have been an incredible expansion of capital and credit cross countries in the last 25 years, the capital flows between developed and less developed countries become current new ear for globalization. In most emerging economies, capital flight remains a serious problem. It is a known fact that for developing countries capital is a scarce resource, and capital flight contributes severe capital scarcity for developing countries. Capital flight takes away huge amount of a nation's resources which could be used for domestic developments. It restricts those affected

countries' capacity to use domestic resources and access to foreign resources for future development.

When a country is unstable or in the crisis time, capital flight can cause negative impact to those affected countries. If there is crisis in a country, the capital resources will be constrained, and the country also face a possibility of cut-off from external sources of funds. This result a further limitation for those crises affected countries' economic growth, and lead to more capital flight as the domestic investors move domestic capitals out of the nation to avoid financial loss (Knoop, 2008). Capital flight is the residents' response to the unstable domestic economic, and the sudden movement of huge capital flight of a nation will limit the nation's economic development. In short, capital flight phenomenon in developing countries does not just constrain the economic development and causes economic instability, but also further inhibits one country's future economic growth (Beja, 2005).

There are many different definitions of capital flight in the literature. The constitution of capital flight has long been debated in the literature. Some people argue capital flight is associated with illegality, others believe the motivation of cross abroad investment activities is relevant with capital flight. For example, Erbe (1985), World Bank (1985) and Morgan Guaranty (1986) associate capital flight with the unrecorded capital outflows and Cumby & Levich (1987) argue the illegal capital outflows are considered as capital flight. On the other hand, researchers including Epstein (2005) and Walter (1987, 1990) associate capital flight with the motivation of the capital outflows.

Kindleberger (1937, p.158) defines capital flight as the "abnormal" flows that been "propelled from a country...by...any one or more of a complex list of fears and

suspicious”. Similarly, Walter (1987, p.105) argues that “capital flight appears to consist of a subset of international asset redeployments or portfolio adjustments--undertaken in response to significant perceived deterioration in risk/return profiles associated with assets located in a particular country—that occur in the presence of conflict between the objectives of asset holders and the government. It may not violate the law but considered by authorities to violate an implied social contract.”

Capital flight is basically referred as those funds that flow out of one nation without any contributions to the nation. Brown (1992) defines capital flight as funds flowing out of nations to money “heavens”. Boyce (1993) further integrates the definition with government-sanctioned activities that is the assets transfer abroad for the purpose of limiting the loss of principal, return or financial wealth control because of government-sanctioned activities. Beja (2005) defines capital flight as the capital movement from the resource-scarce developing countries to avoid the social control. This study follows Beja (2005) definition of capital flight.

The motivations behind capital flight include portfolio diversification, escape from economic or political instability, avoid taxation, inflation or confiscation, better treatment or higher return elsewhere (Epstein, 2005). The motivation behind capital movement activity is the key point to distinguish capital flight and capital outflows. The motivation of portfolio diversification, escape from unstable economic or political environment and seek higher returns from overseas investment is the key factor for capital outflows, while avoiding government authority control is capital flight (Walter, 1987, 1990).

According to different motivations, there are basically two forms of capital flight:

recorded and unrecorded (also known as licit or illicit in some study). Regardless of the motivations, capital flight phenomenon is considered bad for the home country's economy. This is true especially in developing countries, where large amount of capital flight could disturb the economy development process, may increase foreign debt for a country and distort the base for taxes and real capital outflow (Khan & Haque, 1985).

Capital flight study is not a new issue and it could be traced back to 17th Century or even earlier in some European countries (Kindleberger, 1984, 1987; Brown 1987). Crotty (1983) documents that as early as 1930s, John Maynard Keynes had recognized capital flight phenomenon is the danger posted by an open economy, and he believes that it is impossible to achieve full employment in a country if the capital flow freely among countries. Keynes assumes that in order to control international capital movements the country's central bank has to monopolize its supply of foreign exchange.

Following World War II, there were also concerning about capitals that flow from European countries to the U.S., for example, both Brown (1987) and Helleiner (1994) mention the capital flight between Europe and the U.S. was a debate subject in the Bretton Woods meetings. New discussion of capital flight was triggered by the Latin American debt crisis, where two topics were focused by researchers. The first is the relationship between external debt and capital flight, the second is whether external debt fuels capital flight (Beja, 2005). However, after the 1980s debt crisis as those capitals from crisis ridden nations began flow back to its origin countries, the discussion of capital flight issue gradually became less mentioned in the literature. As Collier, Hoeffler & Patillo (2004) mentioned that, in later 1980s, the financial capital flight from Africa started to be reversed, and the capital flight reverse were caused by the parallel market premium reduction, the indebtedness of African, the decreasing

rate of civil war incidence and the declining of the US' real interest rate.

The new discussion of capital flight was triggered in recent years, when the accelerating speed of development in developing countries has tracked most of the capitals flowing freely into those high speed developing countries, especially in Asia, such as Thailand, Singapore, Malaysia and China. However, the 1997 Asian financial crisis has somewhat destroyed investors' enthusiasm, triggered a discussion about the root causes of the crisis, and many of the crisis ridden developing countries suffered huge capital outflows.

Hong Kong plays an important role in the global financial market. It is one of the leading international financial centres in the world. Hong Kong's leading position in global financial market shows in many ways including the high availability of skilled personnel and easy access to suppliers of professional services in financial area. The financial services and related professional sectors in Hong Kong have already developed to expertise. For example, the number of Chartered Financial Analysts (CFAs) in Hong Kong has ranked 4<sup>th</sup> largest in the world. Hong Kong's regulatory framework is sounded and has international standards, which attracted many international investors play actively in the stock market. Furthermore, nearly all the major international investment banks have operations in Hong Kong (Securities and Futures Commission Research Department, 2006), indicating that Hong Kong as an international financial centre has been noticed worldwide.

Hong Kong has the freest economy in the world, the Heritage Foundation ranked Hong Kong as the freest economy in the world for 12 years also the Fraser Institute ranked Hong Kong as the freest economy (Gwartney, 2005). In 2006, Hong Kong's overall score for the Index of Economic Freedom was 1.28 (Securities and Futures

Commission Research Department, 2006).

Hong Kong also provides a high availability of business infrastructure and a fair & just business environment. The business infrastructures in Hong Kong are advanced and sophisticated, but it is the soft infrastructure of Hong Kong namely the fair & just business environment distinguishes Hong Kong from other financial centres. The World Bank's *Doing Business in 2006* ranked Hong Kong as the 4<sup>th</sup> in term of easy doing business among 13 selected Asian economies, and 7<sup>th</sup> among the 155 economies in the world.

Hong Kong's leading position in the global financial market also shows on its tax system. According to the Securities and Futures Commission Research Department (2006) report, Hong Kong's tax system is the simplest, most transparent and most effective among the selected Asian 13 economies. And Hong Kong's tax rate is also the lowest among the studied economies, which contribute to a favorable business environment and attract business, investment and ultimately propels Hong Kong as a financial centre development to serve the business community.

The availability of skilled personnel and easy access to suppliers of professional services in financial area, the freest economy in the world, the availability of business infrastructure and a fair & just business environment, the simple transparent effective and low taxation, as well as free trade and popular trading currency and many other factors combine Hong Kong's capitalist service economy ([http://en.wikipedia.org/wiki/Hong\\_kong](http://en.wikipedia.org/wiki/Hong_kong)). Hong Kong is one of the leading trading centres for Asia and it is one of the most important trade partners for China. The following part is a brief description Hong Kong's background including its historical and economical relationship with mainland China.

## 1.2 Background

Following the 19<sup>th</sup>-century Opium Wars in Hong Kong, Hong Kong is placed under the British administration and colonial rules. As part of the arrangement between the British government and the Qing Dynasty, Hong Kong could not stop Chinese people from mainland China to enter into Hong Kong. As a result, Hong Kong attracted capitalist and skilled workers from mainland China which provide the foundation for its modern developments. In the late 19<sup>th</sup> century, the British developed Hong Kong as a warehousing and distribution centre for trading with southern China, and after World War II, Hong Kong became a manufacturing, commercial, finance and tourism centre (The U.S. Department of State, 2010). The economy success helped Hong Kong experienced more than three decades of high growth rate in 20<sup>th</sup> century, and caught up with developed countries' per capital income levels (Sung & Wong, 1998), Hong Kong became one of the most open and dynamic economies in the world.

Hong Kong is close to mainland China and plays an important role in the Chinese economy development. It acts as the trade and financial entrepot for China before Chinese economy was opened up to the world in 1979. From 1979 to 1996, China's trade with other countries via Hong Kong rose dramatically from only 4.2 percent (US \$1.2 billion) to more than 41 percent in 1996 (US\$120 billion ) (Sung & Wong, 1998). According to Hong Kong 2009 official statistic figure, Hong Kong's re-exported trade figure took more than 97% of Hong Kong's total export and more than 50 percent of those re-exported goods are exported to mainland China (Hong Kong, n.d.). China trading via Hong Kong is one of the most important trade methods for the Chinese growing economy. Hong Kong also remains as the most important trade partner with China before and after its reunification with China in 1997. In 2001, China exported

\$60 billion to Hong Kong just \$20 billion less than its export to U.S. In the same year, China imported about \$38 billion from Hong Kong (Gunter, 2003).

Hong Kong and mainland China maintained a close relationship on the capital market, and it is common that Chinese companies list in Hong Kong financial market for the purpose of raising foreign funds. Before the opening of the Chinese economy to the rest of the world, for example, many of the Chinese companies are listed in Hong Kong capital market but there is no legal channel for Chinese residents to purchase those shares. In 2002 China announced its plans to allow foreign investors to invest in its “A share” market, at the same time the authorities in China discussed the Qualified Domestic Institutional Investors (QDII) that allowed Chinese residents invest in overseas security market including Hong Kong market. Even before the Chinese government allowed residents to invest in overseas security market, Chinese residents have already purchased shares in Hong Kong capital market without authorization, for the high returns and low risk of Hong Kong capital market. For example, before 2002, Chinese residents used the third party who was in another country to purchase shares in Hong Kong Market.

The close linkages between mainland China and Hong Kong include geographical, historical, political, trade and capital markets. The close linkages especially on trade and capital market provide good channels for capital to flow out of China into Hong Kong. In the global stage, Hong Kong plays the role of connecting between Western countries and Asian countries. As one of the Asian financial and trading centres and the hub of Asian financial centre, every day millions of goods and funds pass via Hong Kong. The well-established financial service centre provides a perfect place for capital to flow in and out of Hong Kong.

### 1.3 Motivations for the Study

It is important to consider capital flight today. In the past, the indebtedness remains a problem for developing countries. For instance, prior to 1997, some Asian countries such as Thailand fixed their exchange rate with dollar and made it attractive for foreign investment, the low interest rate and fixed exchange rate not only encouraged corporations borrowed lots of dollars and covert into local currency but also encouraged local people spend the borrowed money widely. Furthermore, the low interest rate encouraged people using the new borrowed money to pay the old debt which caused debt roll over. At certain point, when the nation could not peg the exchange rate and have to devalue the local currency, suddenly the borrowing corporations have to pay more local money to pay back the principle and interest. They faced nearly twice or even three times payment and there were no borrowing sources for paying back the old debt, which caused the burst of crisis. The increased indebtedness is positively related with the increased intensity and frequency of debt-related economic cycle (Jomo, 1998; IMF, 2003) which has significantly shown in Asia. The indebtedness of a nation could lead to a crisis in the nation, and the unstable situation in the nation could encourage its residents move their capital out of the nation to avoid the economic losses, most of the time the capitals are flow out as unrecorded capital flight. The close relationship between capital flight and external debt further affect the country's economic growth problems.

The second reason for considering capital flight phenomenon is because of the economic policies that been adopted or even forced upon developing countries, especially the neoliberal policies caused massive deregulation of the financial sectors and the integration of global economy. The neoliberalism is a revival of liberalism and suggests that the most efficient method for global resource allocation is the free market. And the neoliberal policies are propagated to developing countries through the IMF, World Bank and WTO.

<http://www.stwr.org/globalization/neoliberalism-and-economic-globalization.html>

However, the lack of adequate governance structures and poor build-up of appropriate defensive mechanisms for administrative regulations in the developing countries further erode the economy to withstand all kinds of external shocks. Because of the global economic integration, the economy has become more vulnerable and more sensitive to financial swings, crises and contagions (Demirguc-Kunt & Detragiache, 1998; Eichengreen & Mussa, 1998; Furman & Stiglitz, 1998). For example, in the period of 1880 to 1913, the frequency of financial crises was about 2% to 5% probability per year, while during 1973 to 1997 period this figure dramatically raised to 12% per year (Knoop, 2008).

The last reason for considering capital flight is because capital flight represents lost resources for developing countries. Most of the capitals flow out of developing countries where they are needed most. Recent empirical evidence shows that even the poor country became the net creditor to rest of the world (Boyce & Ndikumana, 2001), which represents a phenomenon that investors in the poor country are actually investing in overseas rather than domestically. This phenomenon leads to the result of losing resources from the developing countries, which could be used for domestic development and improve domestic social welfare. Furthermore, capital flight from developing countries also means lost resources for servicing foreign debt which makes the repayment of debt heavier (Beja, 2005).

The growth of the Asian economy attracts foreign capitals flow into those fast growing developing countries, however there are also evidences showing that capital flight from those fast growing developing countries. For example, Beja, Junvith & Ragusett (2005) point out that Thailand's real capital inflows on average were smaller than its real capital flight for the period of 1980 to 2000. Thailand's real capital inflow was about \$1 billion in 1980 and reached the peak of \$25 billion in 1995, while its

real capital flight was about the same in 1980 but reached a peak of \$40 billion in 1995. According to Global Financial Integrity (GFI)'s 2008 study, during the period 2002 to 2006, developing countries lost an estimated \$858.6 billion to \$ 1.06 trillion to illicit financial outflows. Asia contributed about half of the illicit capital flight with China showing an outstanding \$233.5 billion illicit capital flight, followed by India with \$22.7 billion and Malaysia with \$19 billion illicit capital flight (Kar & Cartwright-Smith, 2008).

Hong Kong is considered as the financial hub for most Asian countries and it is also the trading entrepot for China (Gunter, 2003), millions of goods and capitals pass by Hong Kong daily. Although Hong Kong is now reunified with China, it still has its own governance. The fully established service and finance channel in Hong Kong provides a convenient conduit for capitals to pass by, since it is difficult to track capitals that flow through a third country, it is hard to measure the capital flight from another country that use Hong Kong as conduit, as there will be no data showing how much of the third country's capital flow into Hong Kong and out of Hong Kong as capital flight.

#### **1.4 Research Questions**

Previous capital flight studies show that capital flight can have negative impacts on the economy development and cause a large amount of national resources flowing out of the nation. However, previous studies did not focus on Hong Kong market and did not consider Hong Kong as a conduit channel for capitals from other nations. Majority of previous studies on Asian emerging economies are focused on mainland China and "ASEAN (Association of South East Asia Nations) Four", the countries of Indonesia, Malaysia, The Philippines and Thailand. For example, Beja (2005) studies the capital flight phenomenon in the ASEAN Four and concludes that the external debt fuels

capital flight and the author also finds evidence that external debt drives capital flight. There is less attention being paid on Hong Kong capital flight phenomenon before and after its unification with China. It is interesting to test whether the capital flight in Hong Kong, this study investigates Hong Kong's capital flight phenomenon including the determining factors and the round-tripping phenomenon between Hong Kong and China. The research questions of this study are listed as follows:

1. Is there capital flight in Hong Kong? If yes, are there any particular patterns about capital flight in Hong Kong?
2. What are the determinants of capital flight in Hong Kong?
3. How much of the Hong Kong capital flight actually represent a round trip flow back to China from Hong Kong's perspective?

## **1.5 Outline of Thesis**

There are five chapters in this thesis. Chapter One introduces the overall background information and the research problem and questions. Chapter Two reviews the relevant literatures on capital flight. Chapter Three discusses the data and research methodology of the study. Chapter Four contains the empirical results and findings. Chapter Five discusses the implications of the results, limitations of the research, and recommendations for future studies.

## CHAPTER TWO

### 2 LITERATURE REVIEW

The literature review on capital flight is divided into five sections. The first section provides the definitions of capital flight, followed by determining factors on capital flight and the discussion of the Hong Kong capital flight literature. Section 2.4 reviews the studies on capital flight related to other topics in the literature and the last section concludes the chapter.

#### 2.1 Definitions of Capital Flight

Capital flight is a complicated phenomenon and researchers have tried to come up with a clear definition for this phenomenon. However, different researchers have different views about capital flight which lead to different definitions of capital flight in the literature. Basically, there are two methods to define capital flight: the first method is to separate capital flight from capital outflow, while the second method does not differentiate between capital flight and capital outflow. If capital flight is regarded as a special type of capital outflow, then researchers define the illegal, unreported or unrecorded capital outflow as capital flight. With this definition, researchers assume that capital flight is an identifiable entity that could be controlled by domestic authorities. In this case, capital flight is the government's lost income or revenue over those lost capitals. The second method refers capital flight as the residual or the net unrecorded capital outflow. In this method, researchers assume that capital flight is embedded in the capital outflow, which is the leftover after all types of capital flows are counted. Thus, capital flight represents the lost resources that could be used for domestic economic development. Kar & Cartwright-Smith (2008) also argue that capital flight is referred to the capitals flowing out from developing

countries to Western countries.

### **2.1.1 Capital Flight versus Capital Outflows**

The first method in defining capital flight in the literature views capital flight as an entity and is separated from capital outflow. The common dimensions for distinguishing capital flight and capital outflow in the literature used by researchers include volume, motive and capital flow's direction. Section 2.1.2 to 2.1.4 discusses how volume, motive and capital flow's direction separate capital flight from capital outflow.

The second method in defining capital flight in the literature does not distinguish between capital outflow and capital flight. Instead, researchers define the net unrecorded capital outflows as capital flight (see Erbe, 1985; World Bank, 1985; Morgan Guaranty, 1986). Following the 1980s debit crisis, it was presumed that a country's balance of payment cannot record its debt and asset flows properly during the crisis period. As a result, the data from other sources are used as supplement for a country's balance of payment record. For example, OECD (Organization for Economic Cooperation and Development) and World Bank are considered as better record for liabilities. Dooley, Helkie, Tryon & Underwood (1983) use the indirect method to compute the private external claims on non-residents, whereby it uses the differences between the build-up of external debt and foreign exchange record to obtain non-residents' private claims. Erbe (1985), World Bank (1985) and Morgan Guaranty (1986) interpret the estimated unrecorded capital flows as capital flight.

The indirect method is known as the residual or broad definition for capital flight, where those items that cannot be accounted officially in capital inflow and foreign

exchange outflows records are captured in the residual which is capital flight. This definition includes both “hot” (short-term) money and “cool” (long-term) money capital outflows, which is considered as the aggregate estimation for capital flight. The balance of payment (BOP) errors and omissions entry reflects capital flight, but according to the unrecorded and illegal capital flows’ definition it may only account for a portion of the capital flight. Under the broad definition, it does not involve capital flows volume nor motivation. The purpose of avoiding taxes results in unrecorded flows while unaccounted capital outflows are lost resources from the domestic economy which could be used to increase the country’s productivities (Cuddington, 1987).

### **2.1.2 Volume**

Volume criteria defines capital outflow as a normal or abnormal outflow. If the capital outflow is used for investment portfolio diversification then it is normal outflows. On the other hand, if the capital outflow is caused by the unfavorable domestic or external economic conditions, then it defined as abnormal outflows or capital flight (Cumby & Levich, 1987). The key factor in defining capital flight is the magnitude of the capital outflows. Furthermore, abnormal outflows always occur in large outflows. Based on this criteria, researchers define capital flight as those capital outflows that are not under domestic authorities’ controls, regulation or unreported to domestic authorities, or even those reported capital outflows but have inaccurate information or been manipulated (Beja, 2005). Under the volume criteria, capital flight is considered as the abnormal capital outflow which is refer to either a sudden or discrete capital outflow, where the normal capital outflow is the diversification of the investment portfolio.

Cuddington (1986) defines abnormal capital outflows as “hot money” which includes

only the short-term capital as capital flight. In fact Cuddington defines capital flight as speculative capital outflows. Under Cuddington's definition, funds that quickly respond to the level of risks and returns are referred as "hot" money. Thus short-term capital which is most sensitive to unfavorable news is considered in Cuddington's definition. For instances, investment in equity and capital market can easily pull out from the market and transfer to other favorable investment environment. The sudden movement of large amount of short-term capital is considered as capital flight. However, short-term capital also returns fast when condition is favorable for investors.

Beja (2005) broadens Cuddington's definition by arguing that easily convertible long-term bond should also be considered as capital flight instead of only short-term capital, because convertible long-term bond could be quickly sold in the secondary market under unfavorable conditions. For example, bond holders can quickly sell off their bond holdings and transfer the capital somewhere else when the country's bonds are unattractive. Additionally, Claessens, Dooley & Warner (1995) point out that it is hard to differentiate financial assets according to their time series properties.

### **2.1.3 Motivation**

According to Kar & Cartwright-Smith (2008) the motivations for capital flight are usually for portfolio diversification, and fear of political or economic instability. In terms of the motivation criteria, the intention of capital holders is the key factor to differentiate capital outflow and capital flight. If the purpose of capital outflow is to secure favorable returns of those capitals, then it is consider as normal capital outflows. On the other hand, if the purpose of the capital outflow is to avoid taxes or evade government regulations or controls, then those capital outflows are considered as abnormal capital outflows or capital flight (Beja, 2005).

There is a high probability that capital holders will move capital around to avoid unfavorable environment from one investment environment to another. For example, if capital holders suspect that there will be a negative effect in the capital investment returns from economic policy changes in one country, they will withdraw their capital from the country as soon as possible and a huge amount of capital outflows will follow then.

Large amount of capital outflows caused by herding behavior because of panic and mania, loss of confidence and contagion are also considered as capital flight. Deppler & Williamson (1987) reveal that if capitals in the domestic country are more likely to experience substantial value losses, capital flight will increase substantially.

Some researchers have also included risks such as political instability, possibility of war, developmental assistance or aid uncertainties that could scare away foreign investors could therefore trigger an increase in capital flight. For example, Alesina & Tabellini (1989) link the developing countries' political instability with their public external debt accumulation, private capital outflow, income distribution, capital outflow restrictions and external debt reputation. The authors conclude that capital flight is more likely to occur in countries that have political turbulent. Similarly, Lensink, Hermes & Murinde (2000) examine the relationship between political risk and capital flight in developing countries, and the authors conclude that under the condition of no other macroeconomic variables are taken into account, political risk factors do have impact on capital flight. In most cases (except capital flight is measured according to the Hot Money method) there is a statistical robust relationship between capital flight and political risk variables. Hermes & Lensink (2001) study the relationship between capital flight and policy uncertainty such as uncertainty in

budget deficits, tax payments, government consumption and the inflation rate. The authors conclude that policy uncertainty stimulates capital flight.

It is difficult to exactly uncover the investors' motive for investment action, as only investors themselves know their purpose of investment. Under the assumption that the motive for investment action can be predicted and identified by other people, Beja (2005) makes the following conjecture: capital flight is defined as capital outflow that escape from government control or evade tax payment or even been keep as secret. There are two definitions that represent capital flight motive criteria: one is Dooley definition and the other is classifying capital outflow as legal and illegal outflow.

Dooley defines capital flight as “motivated by the desire of the residents to obtain financial assets and earnings on those assets which remaining outside the control of domestic authorities” (Dooley, 1986, p.15). Dooley suggests that it is not enough to consider only those abnormal risks to define capital flight, but the intention underlying capital outflows should be addressed too. Dooley also points out that different tax treatment for domestic and foreign capital or different treatment for foreign and domestic debt could cause capital “round-tripping” (Dooley, 1986, 1988; Boyce, 1992, 1993).

Compare with volume criteria definition of capital flight, Dooley claims that if large amount of capital outflows have been reported to domestic authorities then it can be considered as normal capital outflows rather than capital flight. On the other hand, even if the capital outflow is small but unreported to the domestic authorities, it should be considered as capital flight. After eliminating legitimate capital outflows, Dooley's definition measures capital flight is considered as pure capital flight. Capital flight can still occur even if there is no capital been move around. For example,

earnings from current foreign assets that have not been reported to domestic authorities are considered as capital flight.

Capital outflows can also be classified as legal or illegal flows. Capital outflow that follows the law, reported to domestic authorities and recorded is not considered as capital flight. On the other hand, if capital outflow is neither sanctioned by law nor reported to the domestic authorities or information been mis-reported and even manipulated is considered as capital flight. Cumby & Levich (1987) point out that illegal transaction is not necessary motivated by domestic financial market fundamentals, it could arise from capitals evading taxes, or from illegal drug trading activities. They argue that the illegal transactions are primarily motivated by tax evasion, illegal drugs trading as well as other illegal activities.

Illegal activities are difficult to detect because such activities are unrecorded and unreported. The illegal activities that caused capital flows could be transferred out as normal capital outflows but used for illegal activities. There is also a possibility that capital flows for illegal activities mixed up with capital outflows for business. It is hard to identify or even separate the illegal capital outflows from the normal capital outflows.

Trade mis-invoicing is one way to represent illegal transactions. There is no clear definition of capital flight in trade mis-invoicing. However, Cerra, Rishi, & Saxena (2005) find that trade mis-invoicing is a channel for capital flight and have differences with other components of flight. Exporters or importers use the systematic trade mechanisms to avoid foreign exchange controls or trade taxes. Trade mis-invoicing shares the same motivation as Dooley's definition.

Cuddington (1986) and IMF (1987) both point out that systematic trade mis-invoicing information could be traced from the errors and omissions account in the balance of payments (BOP) tables. There is an argument from Beja (2005) that errors could occur even if there is no intention to manipulate the records and the errors in the records or manipulated information could result in capital flight. Furthermore, the author points out that failure to adjust capital flight residual measurement for trade mis-invoicing net effect could lead to under or over estimate of capital flight.

Beja (2005) further reveals that trade mis-invoicing method may be the least risky technique for measuring capital flight, as government agencies do not have the capability nor mechanism to analyze every single trade transaction. However, the trade mis-invoicing method might not be accurate, as other measurement of other illegal activities can also generate capital flight, such as money laundering or drugs trafficking, etc. Furthermore, it is difficult to obtain information to calculate capital flows associated with illegal activities.

#### **2.1.4 Capital Flows' Direction**

The third method to distinguish between capital flight and capital outflows is the capital flows' direction. If the capital flows both ways in and out of a country then there is no capital flight. FitzGerald & Cobham (2000) argue that large amount of capital flow out and into a country should not be considered as capital flight, if the country is openly integrated and growing fast. On the other hand, if one country's capital flow is dominated by capital outflows there could be an abnormal capital flow, as large net capital outflow could be caused by high domestic risks such as economic instability, policy uncertainty or domestic crisis. Under those situations the net capital outflows is considered as abnormal capital flows and considered as capital flight. Besides considering either one-way or two-way of a country's capital flows,

Kindleberger (1937) describes another way of identifying capital flight's direction which traces the capital starting point that is tracing where the capital originates from.

Furthermore, Kindleberger believes capital from developing countries that particularly undertaken from residents' benefit should be defined as capital flight. In other words, the author believes capitals from developed countries should not be considered as capital flight. Kindleberger's point of view is challenged by Kanitz (1984) where the author question about the different names in the literature that have been given to capital outflows from developing or developed countries, where capital flight is used for capital outflows from developing countries and foreign investment is used for capital outflows from developed countries (cited in Gunter, 2003). Calvo & Mendoza (1996) and Furman & Stiglitz (1998) argue that it is not important to consider who is causing the capital outflow activities to differentiate capital outflows.

Capital flight do not only affect developing countries but also affect developed countries, considering only capital outflows from developing countries will cause an under estimation of developed countries capital flight effects. Under the directional criteria, there is another method called mirror statistic (Hermes & Lensink, 1992) which defines capital flight as "assets of non-bank residents of a country held at foreign banks" (Hermes & Lensink, 1992, p.517). This means those capitals from domestic non-bank residents and holding in foreign banks are considered as capital flight.

In summary, there are two methods to define capital flight. One is to treat capital flight as an entity, which distinguishes it from capital outflows. In general, researchers use volume, motive and capital flows' direction to distinguish capital flight and capital outflows. The other method is to treat capital flight as the net unrecorded

capital outflow. Different definitions of capital flight result in different measurements of capital flight which will be discussed in the next chapter. The next section discusses capital flight determinants and capital flight in the Hong Kong market.

## **2.2 Determinants of Capital Flight**

Researches on capital flight study attracted researchers' attention after 1980s Latin America financial crisis, and from then the topic became popular especially in countries or regions that have experienced major financial or currency crises. Previous studies on capital flight determinants include Cuddington (1986), Ketkar & Ketkar (1989), Pastor (1990), Gibson & Tsakalotos (1993), Kant (1996), and Mulino (2002).

Cuddington (1986) points out that the exchange rate overvaluation and the inflow of foreign debt are the main determinants of capital flight in Argentina, Brazil and Chile. Additionally, Cuddington (1987) uses annual balance of payment data to identify the macroeconomic determinants of capital flight in Mexico, Argentina, Uruguay and Venezuela for the period 1974 to 1984 and concludes three factors that can explain capital flight phenomenon in those four countries. These are the exchange rate overvaluation (+), the increase of interest rate in the US (+) and the inflow of foreign debt (+).

Cuddington (1987) reveals that the exchange rate overvaluation positively describes the capital flight from selected countries. This implies the macroeconomic policy should be imposed to prevent local currency overvaluation, and to prevent capitals from moving to other countries where the currencies are more stable. The increase in the U.S. interest rate had a positive relationship on Mexico and Venezuela's capital flight, which implies that a nation's capital flight is also affected by factors from

another country especially the developed country. Additionally, the author finds that macroeconomic policy in the U.S. can help lessen developing countries' capital flight problem. Cuddington also insists that capital inflows in terms of foreign loan are positively cor-related to capital flight in Mexico and Uruguay. In other words, capital outflows from those two countries are actually capitals flow into the countries from overseas. The author further suggests that foreign loan efficiency utilization should be considered in the country to avoid capital flight.

Ketkar & Ketkar (1989) use quarterly data to derive how capital flight is determined, and they also use a dummy variable for the exchange rate regime and the interest rate difference between the U.S. and home country. Ketkar & Ketkar summarize those determinants into two groups which are push and pull factors, where push factors are those characteristics of capital flight in the source countries such as high inflation, local currency overvaluation, high fiscal deficits and political uncertainty. Pull factors are interest and inflation rate in host countries. The authors agree with Cuddington's (1986, 1987) study that currency overvaluation and inflation variables are significant determinants for several Latin American countries' hot money capital outflows. Additionally, the authors find out that uncertainty caused by changes in government and debit crisis also have a significant impact on capital flight activities. However, Ketkar & Ketkar did not find the U.S. interest rate has any significant impact on capital flight from Argentina and Brazil, instead the authors find the Mexican private deposits held in the U.S. banks have a positive effect on the interest rate changes in the U.S. The authors conclude that overall the push factors have a greater impact on capital flight than the pull factors.

Pastor (1990) studies the capital flight determinants in eight Latin American countries; Argentina, Brazil, Chile, Columbia, Mexico, Peru, Uruguay and Venezuela for the period 1973 to 1985. The author identifies five factors significantly affect capital

flight in those countries: (1) U.S. and other currencies' differences; (2) inflation rate changes; (3) net long-term capital inflow; (4) differences in economic growth rate between U.S. and other countries; and (5) increase in tax rate (per GDP). The author also points out that the exchange control can help to reduce the capital flight in some countries. For example, after the 1997 Asian financial crisis, many Asian countries such as Thailand, Indonesia, Korea and the Philippines received financial assistance from the International Monetary Fund (IMF). Malaysia employed capital control to unilaterally stop capital inflows and outflows, and this has assisted the economy to recover from the crisis much faster than its neighboring trading partners (Abdelal & Alfaro, 2003). However, Pastor (1990) points out that the Stand-by Credit Program sponsored by the IMF does not affect capital flight.

Gibson & Tsakalotos (1993) identify three factors influencing capital flight in five European countries including France, Italy, Spain, Portugal and Greece. The three factors include: (1) the expected changes in exchange rate particularly the depreciation of currency; (2) the uncertainty of government's policy that affects many investors; and (3) the government deficits. The authors conclude that apart for Italy, capital flight has been positively impacted by the expected exchange rate devaluation and political uncertainty in the other four European countries. There is a positive relationship between the government budget deficits and capital flight in France. However, the authors also show that domestic interest rate in some countries had a negative effect on capital flight with evidences from Spain and Portugal, where a decreased in domestic interest rate caused an increase in capital flight in from these two countries.

Kant (1996) associates capital flight with the inflow of Foreign Direct Investment (FDI). The author studies capital flight in developing countries for the period of 1974 to 1992. The author uses the World Bank method to measure the capital flight and the

Contemporaneous-correlation and Principal-component analysis on East Asia and the Pacific, Latin America and Caribbean, Europe and Mediterranean. The author believes that capital flight is a consequence of government administration inefficiency rather than the foreign investors' privileges. Loungani & Mauro (2000) analyze Russia's capital flight determinants from 1994 to 1998. The authors conclude that Russia's capital flight come from several sources, such as macro-economy instability, corruption, and failure of protecting intellectual property rights. Loungani & Mauro's study further shows that the motivations behind Russia's capital flight are high inflation rates, government budget deficits and the high level of economic reform. The authors conclude that in selected countries capital control does not influence capital flight.

Mulino (2002) addresses the problem of assessing capital flight scale in Russia, and reviews the channels that capital leaves Russia including both legal and illegal channels. The study highlights the determinants of Russia's capital flight and concludes that various determinants caused the capital flight in Russia, such as macro-economy instability, arbitrary taxation, weakness in financial institutions, popularity of corruption, and failure to protect property rights. The author's results are consistent with Loungani & Mauro (2000) study. Additionally, Mulino (2002) points out that the frequent changes of government policies, diminishing access to finance and lack of stimulation for better governance also influence capital flight.

Antzoulatos & Sampanioits (2002) use quarterly data from 1993 to 1999 to measure capital flight and study seven variables in 17 Eastern European countries, and conclude three variables help to describe capital flight. The first variable is the appreciation of local currency which shows a negative relationship with capital flight. The second variable is the government budget deficits which have a positive relationship with capital flight, and the last variable is tax rate which negatively

impacts capital flight.

Researchers including Vita & Kyaw (2008), Chuhan, Claessens & Mamingi (1998), Carlson and Hernandez (2002) focus on examining the determining effects of push and pull factors. According to Vita & Kyaw (2008), most of the studies on the determinants of capital flows to developing countries focus on push and pull factors. The push factors are external factors referring to the industrial countries' development that influence the capital flow supplement to developing countries. The authors identify the U.S. low interest rate and the declining international interest rates as the main push factors. Another push factor that has been frequently documented in literature is the slowing down of the U.S. economy (Calvo, Leiderman, & Reinhart, 1992; Fernandez-Arias, 1996; Montiel & Reinhart, 1999). Pull factors are internal factors that are country-specific and endogenously related to the capital recipient countries' economic development and affect the capital flow demand.

Most studies try to establish the important relationship between push factors and developing countries' capital flight phenomenon versus the relative importance of pull factors influence to capital flight in developing countries. For example, both Chuhan, Claessens & Mamingi (1998) and Carlson & Hernandez (2002) point out that capital flows of developing countries are mainly dominated by the push factors in the industrial countries or it is a function of the developing countries' specific factors. The authors focus on two questions: Are the decreasing of global interest rate and the slugging development in the U.S. and other industrial countries determine the capital flows to developing countries? Are the developing countries' economic growth dominated by the capital flows?

Calvo, Leiderman, & Reinhart (1992) use the principal components analysis to

examine capital inflows between 1973 and 1991 in the developing countries, and conclude that push factors are the causes of capital inflows in developing countries especially the U.S.'s low interest rate. The authors further argue that it is the industrial countries' cyclical conditions that result those capitals flow into developing countries. Harvey (1994) studies the developing countries' equity flows between 1976 and 1992, and uses regression to analyze the risk and returns in the developing countries. The author reveals that investors are more concern with the investment returns in developing countries, compare with the returns in another country that have lower foreign country risk. Harvey concludes that the global factors are the main caused for equities flow into developing country. Similarly, Fernandez-Arias (1996) also suggest it is the push factor that leads to capital flowing into developing countries. The author uses the Asian and Latin American countries' panel data from 1989 to 1993. Furthermore, Fernandez-Arias believes that foreign interest rate is the most important key factor in contributing the enlarged capital flows to developing countries as the country-creditworthiness depends on the world interest rate.

On the other hand, there are some researchers who argue that it is the pull factors rather than the push factors that caused capital flow in developing countries. Bohn & Tesar (1996) examine the investment timing differences by using the international capital asset pricing model from 1980 to 1994. The authors' result shows that it is the investment opportunities rather than the investment balances that determine the investment behavior. In other words, it is the pull factors in the Asian developing countries that attract the capital flow rather than the push factors that caused the capital flow to developing countries. In addition, Hernandez, Mellado & Valdes (2001) study capital flows to developing countries from 1977 to 1997 using the panel regression model. The authors find that developing countries' specific characteristics for hosting the investments are the main determining factors to attract private capital flows. On the other hand, Hernandez, Mellado & Valdes (2001) find that the push factors or the external factors are not significant in determining developing countries capital flight.

Similarly, World Bank (1997) shows that between 1994 and 1995, the co-movements of U.S. asset returns and portfolio that flow to developing countries started to slow down. The report suggests that in recent years it is the pull factors rather than push factors that are getting more attention.

Chuhan, Claessens & Mamingi (1998) investigates the factors that cause large capital flows to a number of developing countries. The study covers the period 1998 to 1992 and employs a panel data approach. The result shows that pull factors have the same importance as push factors in explaining capital inflows in Asian developing countries. Montiel & Reinhart (1999) use the fixed effects panel data to analyze the capital flows in developing countries from 1990 to 1996, and conclude that the pull factors are important in determining capital flows distributions while push factors are important in determining the timing and magnitude of such flows. These two studies highlight the potential complementarity of push and pull factors when inducing capital flows.

Vita & Kyaw (2008) use the structural vector autoregression (VAR) model and five developing countries' quarterly data from 1976 to 2001 to analyze the capital flow push and pull factors in Brazil, Mexico, Korea, the Philippines and South Africa. The study also investigates the temporal dynamic effects of various shocks to the determinants. The authors conclude that there is a negative relationship between foreign output shock and capital flow, while foreign interest rate is positively related to capital flows and the domestic productivity shock is positively link to FDI. The authors' finding also reveals that the variation of both foreign direct investment and portfolio flows can be explained by foreign output shock, foreign interest rate shock and domestic productivity shock. On the other hand, depend on the type of flow the impact of a shock on capital flows may vary, the shocks from the foreign interest rate and the domestic money appear to have a less significant role across the time horizon.

Studies of capital flight in developing countries focus on investigating the determining factors. For example, Chantanawan (2000) uses the portfolio theory to compare the investment returns and investment risks for both domestic and foreign assets in Thailand. The author used seven capital flight measurements to test the variables from the third quarter of 1997 to the fourth quarter of 1999, and the result shows that devaluation of the Thai baht can explain capital flight in three measurements but not the other four measures. The results may be caused by the limitation of the data and the interest rates difference may not accurately estimate Thailand's economy risk. Davies (2007) studies the relationship between inflation and capital flight after war for 77 developing countries, and finds evidence that inflation has a positive impact on capital flight flows after a war.

Chunghachinda & Sirodom (2007) use an ordinary least square model to study capital flight phenomenon in five Asian countries, including Thailand, the Philippines, Indonesia, South Korea, and Malaysia, during the 1997 Asian financial crisis. The study uses quarterly data from 1991 and 2000. The result shows Thailand has the highest capital flight which is \$25.71 billion, and Indonesia has the lowest capital flight value of \$8.49 billion. The authors also discover that the 1997 Asian crisis has a significant impact on the five countries' capital flight structure which is similar to previous studies, where the increase in capital flight in a country was significantly caused by the financial or economic crises in the country.

According to Chunghachinda & Sirodom's (2007) study, the important determining factors in Thailand's capital flight are: increased inflation rate, interest rate differential between U.S. dollar and Thai baht, overvaluation of Thai baht, foreign direct investment and current account deficit. In the Philippines, there are four

determinants of capital flight including the interest rate differences between U.S. dollar and the Philippines's peso, peso's overvaluation, foreign direct investment and government budget deficit. In term of Indonesia and South Korea, the determinants of capital flight are similar to Thailand, except it is the government budget deficit factor that determines the capital flight in both Indonesia and South Korea rather than the inflation rate factor as in Thailand. As for Malaysia, all the factors determine the capital flight.

Previous studies on China's capital flight focus on measuring China's capital flight, identifying the determinants of capital flight in China as well as the volume estimation and the size of growth. For example, Gunter (1996) estimates capital flight in China from 1984 to 1994 and discusses the impact of transaction costs, exchange rate and political uncertainty on capital flight. Based on Gunter's capital flight estimations of China, Sicular (1998) studies the relationship between capital flight and foreign investments in China. The author focuses on why there is a large amount of capital investment in China while at the same time China also experiences outward flow of capital, Sicular finds different incentives faced by domestic and foreign investors as important factors in explaining capital flight phenomenon.

Using monthly and quarterly data, Cheung & Qian (2010) empirically assess the determinants of capital flight in China. They include various commonly considered macroeconomic variables in the literatures and a few institutional factors, and conclude that a favorable covered interest differential deters the capital flight in China. They point out that compared to quarterly data, monthly data results are more consistent with the expected RMB appreciation and the media anecdotes on capital flight. Cheung & Qian (2010) also point out that when using quarterly data, trade openness of the macroeconomic variable has a significant impact on China's capital flight, while the capital flight calculated by monthly data is significantly impacted by

the international reserve variable. On the other hand, the selected institutional factors' relevance depends on both the frequency of the data and the specification of the regression, and is not significant in explaining China's capital flight. In fact, it is the Chinese history and covered interest differentials that explain China's capital flight.

Cai (1999) studies China's outward foreign direct investment and insists that corruption might be an important determinant of capital flight in China. Wu & Tang (2000) provide several estimations of capital flight in China between 1990 and 1999 based on three estimations of Chinese external debt, and they provide a general capital flight implication for RMB value and China's economy. The authors discovered that there was capital flight (illegal capital outflow) during the study period, which is consistent with Yi (2008)'s finding who studies the relationship between the Chinese currency and China's external imbalances for the year 1994 to 2006. However, Yi (2008) claims that the capital flight declined sharply after 2000, because of the increase confidence in the Chinese economy and market which implicates the saving surpluses for the rest of study period. The author also points out that China's high savings could be the source for China's external imbalances, and the imbalances between China's saving-investment contribute to China's external imbalances. To correct the imbalances, the reversal of the saving-investment imbalance and the combination of RMB's real appreciation and deficit countries currencies' real depreciation are required. Yi concludes that to achieve China's external balance people should pay attention to the RMB's nominal exchange rate as it plays an important role in the real exchange rate adjustment.

Gunter (2003) extends Gunter's (1996) study for another five years, from 1984 to 2001 and uses the same capital flight estimating techniques and the legitimate foreign bank assets effects, trade mis-invoicing as well as incomplete foreign debt coverage to analyze the determinants of Chinese capital flight. The author finds that the foreign

asset, foreign debt and mis-invoicing can lead to a higher estimation of capital flight compare with measurements without any adjustments. Gunter's (2003) study also provides estimation for capital flight in Hong Kong for the period of 1998 to 2001, and measures the individual trade mis-invoicing of China and Hong Kong with their major trade partners. The author points out that Hong Kong's trade mis-invoice figure cannot offset the trade mis-invoice figure of China.

This study investigates capital flight in Hong Kong. However, there are limited studies on capital flight phenomenon in Hong Kong. Previous researchers only study mainland China's capital flight. As a result, there is a gap in the literature. This study also addresses the round-tripping capital flight between Hong Kong and mainland China.

### **2.3 Hong Kong Capital Flight**

Previous studies on Hong Kong capital flight including Yang & Chen (2000) who view Hong Kong as the financial capital of China. The authors include both China and Hong Kong trade flow together and use double-counting for adjustment. The authors find out during 1992 to 1998, China trade mis-invoicing errors were almost completely offset by Hong Kong's trade mis-invoicing errors. As a result, they consider Hong Kong mis-invoicing as an offset to China's mis-invoicing with other countries. However, Gunter (2003) disagrees with this argument, who further estimates capital flight for Hong Kong for the period from 1998 to 2001. Gunter (2003) points out that trade between Hong Kong and China, unlike the period before Hong Kong reunion with China, Hong Kong's mis-invoice trade statistics failed to offset PRC's trade mis-invoice figure. There are more capital flights from China flowing to other country or converting into dollars or gold through Hong Kong.

This study focuses on capital flow round-tripping between China and Hong Kong. Capital flight from China in the first place triggers the round-tripping of capital flow back to China. As the trade and financial capital for China, Hong Kong plays a special role in China's capital flight phenomenon. Round trip issue can be separated into two parts; one part is about the round trip of FDI while the other part is the discussion about round trip of capital flight. A report by World Bank in 2002 highlights the importance of FDI round-tripping in China (p.41). The report shows that Hong Kong's FDI to China takes more than a quarter of China's total FDI capital inflow. In 1996, Hong Kong's FDI to China was the half size of China's total FDI inflow, and took as high as 42%, 40% and 38% of China's total FDI inflow in year 1998, 1999 and 2000 respectively. The report shows that the annual Hong Kong's FDI to China follows the net error and omissions in China's balance of payment closely. The net and omissions term in the balance of payment is considered as a proxy for capital flight. Hence, Hong Kong's annual FDI provides a guideline for China's capital flight round-tripping back to China in the form of Hong Kong's FDI to China.

Similarly, Xiao (2004) estimates China's round-tripping FDI scale for the year 1998 to 2002, and reviews the causes and implications of China's round-tripping FDI. The author reports that the ratio for China's round-tripping FDI is about 40% of its total capital flight. It is higher than the previous estimations in the literature and a high level of round tripping FDI means China's FDI inflows has been exaggerated. The author concludes that China capital flight is much larger than the capital inflow. Furthermore, the round-trip of the capital flow is only a quarter of the capital flight from China. The reasons why China suffered both large amount of capital flight and round-tripping capital are due to the country's strong ability in creating new capital and the weakness in protecting property rights.

Several studies have highlighted the round-tripping issue of China's capital flight. For

example, Gunter (1996) studies capital flight round-tripping phenomenon between Hong Kong and China, and argues that the main purpose for Chinese investors to smuggle funds out of China to Hong Kong then reinvest openly in Chinese market is to capture the benefits as a foreign investor. Harrold & Lall (1993) claim that round-tripping is one of the two reasons for short-term capital outflows in 1992. The authors believe as the linkage between Hong Kong and China financial market become stronger, it is more volatile for Chinese short term capital to flee in and out of China which makes the balance of payment more vulnerable to deficit. Sicular (1998) points out the special provisions that been adopted by central and local government to attract more foreign investment lead to a higher return of foreign capitals, which encourages Chinese investors to move capital out of China and then bring it back as foreign capitals to capture those higher returns.

#### **2.4 Other Studies on Capital Flight**

Epstein (2005) who edited a book on capital flight and capital controls in developing countries of South Africa, Turkey, Thailand Chile, Brazil, middle East, Africa and China concludes that capital flight remains high and even increasing in developing countries, thus reducing capital flight and its costs in developing countries is a challenge. Similarly, Neely (1999) reviews the capital controls reconsideration issue in developing countries, and the author reveals that capital control on capital flows may change the flows' composition but there are economic costs. The economic costs include the limits of the capital inflows benefits, for example, risk-sharing, diversification, growth and technology transfer. With capital controls, capital exporting countries have a lower return while capital importers receive less investment and grow slowly.

Schneider (2003) discusses the difficulties in capital flight measurement and the

capital flight components, which highlights the fallacy of treating everything that is captured in the capital outflows measurement as capital flight. Kant (1996) studies the relationship between foreign direct investment and capital flight, and finds that 31% to 40% of developing countries' government guaranteed external borrowing flow out of the country as capital flight. Dominguez, Kamil & Tesar (2005) discuss the role of cross-listed shares as a mechanism for capital flight, and the authors conclude that investors are willing to pay significant amounts of money to move their funds abroad and hedge the dollar value for their assets. Pakko (2000) studies the high interest rate and capital outflows and concludes that higher interest rate increased the capital outflows.

## **2.5 Conclusion**

This chapter reviews previous studies on capital flight, which includes the definition of capital flight, the factors that determine capital flight and round-tripping capital flight in Hong Kong. This study defines capital flight as the capital movement from the resource-scarce developing countries to avoid social control, and provides a brief review of different definitions for capital flight in the literature, including the methods in separating capital flight from capital outflow and the residual method. In terms of the determinants of capital flight, previous studies examine various factors including macroeconomic factors, the push and pull factors between developed and developing countries. The chapter concludes with an overview of capital flight studies in Hong Kong.

## CHAPTER THREE

### 3 RESEARCH METHODOLOGY AND DATA COLLECTION

This chapter discusses the research methodology and data used in this study. Section 3.1 to Section 3.3 discusses each of the three research questions. The data sources and collection methods are described in Section 3.4.

#### 3.1 Measuring Hong Kong Capital Flight

As discussed in Chapter Two, researchers have different views and definitions about capital flight and the different definitions lead to different measurements for capital flight in the literature. Table 3.1 shows the typology of capital flight's measurement procedures.

**Table 3.1 Typology of Capital Flight Measurement Procedures**

DIRECT METHOD	INDIRECT METHOD	
	DERIVED METHOD	RESIDUAL METHOD
(1) Cuddington (1986) (1) Mirror Statistic or BIS Method (BID 1984)	(1) Dooley (1986) (2) Hermes and Lensink (1992) (3) Trade Misinvoicing (e.g., Bhagwati 1964; Gulati 1987)	(1) Erbe (1985) (2) World Bank (1985) (3) Morgan Guaranty (1986)

Source: Beja (2005, p. 27)

In general, researchers use either direct or/and indirect methods to measure capital flight. The difference between direct method and indirect method is that direct method uses the available data from balance of payment tables or Bank for International Settlement (BIS) tables to compute capital flight, (see Cuddington, 1986; The Mirror Statistic or BIS Method, 1984). On the other hand, indirect method indirectly identifies capital flight, for example, capital flight is the residual of official record of

capital inflow and foreign exchange outflows. There are two types of indirect measures: derived method and residual method (Beja, 2005).

The direct and indirect measurements of capital flight described above provide a good estimation when there is no deficiency with the data. However, there are many deficiencies in the data, such as misreporting data, manipulated data, missing data, etc. Beja (2005) points out that the current account or the capital account can be affected by errors, such as data collection errors or reporting problems in data and it is necessary to make adjustment to obtain the correction of capital flight estimation.

There are other adjustment methods for capital flight such as the current account adjustment, capital account adjustment and foreign investment account adjustment. This study uses the “hot” money measurement from Cuddington (1986) which is a narrow measurement for capital flight. There is no official record for Hong Kong’s Balance of Payment report before Hong Kong and China’s reunification in 1997. As a result, it is necessary to use another baseline measurement for Hong Kong capital flight before 1997. This study chooses the trade mis-invoice method as the baseline measurement for Hong Kong’s capital flight for the whole study period. Following 1997 data are available for Cuddington and the World Bank methods this study uses the three methods to measure Hong Kong’s capital flight. The following section describes the hot money, trade mis-invoice and the World Bank measurements for measuring capital flight in Hong Kong.

### **3.1.1 Hot Money Measurement**

Cuddington (1986) defines capital flight using short-term capital and includes errors and omission which represents the unrecorded short term capital outflows. Ketkar &

Ketkar (1989) discuss four methods to calculate hot money. The first method is the short-term capital flows, and the second method adds the short-term capital and errors and omissions account into the balance of payment. The third method is the source of the countries' short term foreign assets of non-bank entities changes and the last method is the source of the countries' short term foreign assets of non-bank entities changes adding the errors and omissions. Schneider (2003) believes that the total short term capital is the private short-term capital outflows. Our study follows Cuddington (1986)'s model:

$$KF_{cu} = SK + EO \quad (3.1)$$

Where

$KF_{cu}$  is the total capital flight calculated using Cuddington's method

$SK$  = total short term capital

$EO$  = errors and omissions

The hot money definition of capital flight refers to funds that quickly response to changes in the level of risk and returns in the investment. Compare with other capitals, short-term capital is more sensitive to unfavorable news or information that could have huge impact on capital values. The huge and sudden short-term capital outflows are considered as capital flight in the literature. This study uses Cuddington's (1986) model which consider the total short-term capital and errors and omission in the BOP table. However, this study uses the total capital to replace the total short-term capital.

### **3.1.2 The World Bank Measurement**

The World Bank (1985) estimates the capital flight as the difference between the sources of funds and uses of funds. The sources of funds include the changes in public and private external debts (includes long-term and short-term debts) as well as the net

foreign investments; uses of funds include the current account deficits and the accumulation of international reserves. There are some different opinions on what should be excluded from the BOP accounts. For example, in Eggerstedt, Hall & Wijnbergen's (1995) study, the authors did not include the assets held abroad by public institutions, as they believe investments from government controlled corporations do not belong to capital flight. Similarly, Conesa (1987) suggests the public sector, particularly the sectors involve foreign exchange transactions, should not be included in capital flight, as those funds are official used funds and cannot be considered as capital flight. Zedillo (1987) excludes the change in imputed interest earnings of identified residents with deposits abroad from the World Bank measurement, however, this method assumes that the only foreign asset domestic residents hold is the deposit account, it ignores the possibility that domestic residents holding foreign asset in other forms. In our study, the World Bank (1985) method is used as the broader estimation of capital flight which is also used in Beja's (2005) study.

$$\mathbf{KF}_{\text{WB}} = \text{CDET} + \text{NFI} - \text{CAD} - \text{CRES} \quad (3.2)$$

Where:

$\mathbf{KF}_{\text{WB}}$  = capital flight according to World Bank's measurement

CDET = change of both public and private external debts and includes both long-term and short-term debt.

NFI = net foreign direct investment

CAD = current account deficit

CRES = accumulation of international reserves

### **3.1.3 The Difference between Hot Money and World Bank Methods**

Depler and Williamson (1987) provide a figure (as shown in Figure 3.1) to show the differences between the hot money and the broad measurement for the capital flight.

Figure 3.1 shows the broad measure of capital flight's components but it does not differentiate between the capital flight component and non-capital flight component.

**Figure 3.1 Broad Measure of Capital Flight: Sectoral Coverage of Foreign Assets**

	Short-term	Long-term	
<b>I. Official Sector</b>			
(a) Monetary authorities			
Official Reserves			
Other assets			
(b) Nonbank official			
<b>II. Private Sector</b>			
(c) Deposit bank			
(d) Equity investment			
(e) Nonbanks, other			
(f) Errors and omissions			Hot Money

Broad Measure

Whole economy

Source: Depler and Williamson (1987)

Similarly, Schneider (2001) provides a table showing the summary for the hot money and broad measuring procedure (Table 3.2). Table 3.2 shows the different measuring procedure for the Broad and Hot Money methods.

**Table 3.2 Summary of Measuring Procedure**

*(Broad and Hot Money Measure)*

Current Account surplus	A
Net Foreign Direct Investment	B
Private short-term Capital Outflows	C
Portfolio Investment Abroad: Bonds + Equities	D
Banking System Foreign Assets	E
Change in Reserves	F
Error and Omissions	G
Change in Debt	H
IMF Credit	I
Travel (Credit)	J
Reinvested FDI Incomes	K
Other Investment Incomes	L
Counterpart items	M
Capital Flight	CF
<b>Broad Measure</b>	
a) Erbe and the World Bank:	$CF = H + B + A + F$
b) Morgan Guarantee Trust Company:	$CF = H + B + A + F + E$
<b>Hot Money Measure</b>	
c) Cuddington:	
	i) $CF = (-G - C)$
	ii) $CF = (-G - C - D)$

*Note: The sign convention used in the balance of payments accounts is used here also. All the variables in the equation are flow data.*

Source: Schneider (2001, p.12)

### 3.1.4 Trade Mis-invoicing

Trade mis-invoicing can be used to measure capital flight. The export under-invoicing and import over-invoicing is a channel to divert funds flow in and out of a nation. Ajilore (2010) argues that countries that have strong capital flight proclivities, it is reasonable to assume that trade mis-invoicing may be utilized as a channel for capital flight.

Trade mis-invoicing can be measured by comparing trade partners' trade data, Bhagwati (1964), Bhagwati, Krueger & Webukswasdi (1974) and Gulati (1987) explain how exporters and importers are using under-invoicing and over-invoicing to avoid foreign exchange controls and regulations. Beja (2005) believes that both export under-invoicing and import over-invoicing are used as channels for capital flight. Chang & Cumby (1991) on the other hand argue that trade mis-invoicing has limited impact on capital flight because trade mis-invoicing can happen at both end of the trading. However, empirical evidence from developing countries shows that trade mis-invoicing could be a component in residual measures of capital flight. For example, Gulati (1987), Boyce (1993), Boyce & Ndikumana (2001) and Epstein (2005) add the trade mis-invoicing method as the adjustment in measuring the capital flight. The basic measurement for capital flight such as hot money, World Bank are believed to give good estimation of capital flight when there is no data error, however, errors such as data collection or reporting problems do exist in the reality. In such situation, trade mis-invoicing method is used as the current account adjustment and adds to the capital flight measurement to obtain capital flight measurements' accuracy.

In this study, trade mis-invoicing is used to measure capital flight. The reason for using trade mis-invoicing method to measure capital flight rather than the current account adjustment in this study is the availability of the data. The data for both hot money and the World Bank methods in Hong Kong are not available for the full study period. In fact, both hot money and World Bank data are only available from 1998. On the other hand, the data for trade mis-invoicing method covers the study period.

There are three steps in trade mis-invoicing method. First, we need to obtain the

export and import differences of a country with its trade partners. The data can be obtained from the IMF's direction of trade statistics (DOT). Second, we need to obtain the global export and import discrepancies. The last step is to summarize the trade discrepancies in the second steps to obtain the total trade mis-invoicing, which is the net capital flight. When the trade mis-invoicing method is used for capital flight adjustment the result from the last step is added to the baseline measurements. The equation is given as follows.

$$DX = PX - CIF * X \quad (3.3a)$$

$$DM = M - CIF * PM \quad (3.3b)$$

$$MISX = DX / X\_INDUS \quad (3.4a)$$

$$MISM = DM / M\_INDUS \quad (3.4b)$$

$$MIS = MISX + MISM \quad (3.5)$$

Where

DX = total export discrepancies with trade partners

DM = total import discrepancies with trade partners

PX = trading partner's export value from Hong Kong

PM = trading partner's import value to Hong Kong

M = reported imports for Hong Kong

X = reported exports for Hong Kong

CIF = cost of freight and insurance adjustment

X\_INDUS = industrialized-country trading-partners in the country's total export

M\_INDUS = industrialized-country trading-partners in the country's total import

MISX = trade mis-invoicing from the export

MISM = trade mis-invoicing from the import

MIS = total trade mis-invoicing

### 3.2 Model for Determinants Factors of Hong Kong Capital Flight

This study follows Chunghachinda & Sirodom's (2007) method to test the importance and the relationship between the capital flight determinants and capital flight in Hong Kong. The determinants include inflation, government budget deficit, interest rate difference between the U.S. and domestic countries, foreign direct investments, current account deficit, and overvaluation of local currency. The study period includes December 1978 announcement of Open Door Policy from China. The only difference between this study and Chunghachinda & Sirodom's (2007) study is instead of using the direct capital flight figures calculated from Cuddington (1986), World Bank (1985), Morgan Guaranty Trust (1986) and Cline (1987), this study uses the capital flight measured in Section 3.1. As both hot money and World Bank methods do not have full coverage for the study period, this study uses the result of trade mis-invoicing capital flight as the independent variable. The equation is given as follows:

$$CF_t = a + b_1 (CHINF)_t + b_2 (FINC)_t + b_3 (OVAL)_t + b_4 (FDI)_t + b_5 (GBUD)_t + b_6 (CAD)_t + b_7 (DUM)_t + \varepsilon_t \quad (3.6)$$

Where:

CF = Hong Kong capital flight measured by trade mis-invoicing method.

$t$  = time period

CHINF = change in inflation and is derived as follows:

$CHINF = \ln\pi(t) - \ln\pi(t-1)$  where  $\pi$  is the domestic inflation rate  $t$  is the time period

FINC = financial incentive and is derived as follows:

$FINC = \ln(1 + i_{US}) - \ln(1 + i) + \ln(e) - \ln(e-1)$  where  $i$  is the domestic interest rate;  $i_{US}$  is the US Treasury bill interest rate;  $e$  is the exchange rate between local currency and US dollar

OVAL = degree of currency overvaluation and is derived as follows:

$OVAL = P/(e * P_{US})$  where,  $P$  stands for price level of domestic product

$P_{US}$  = price level in U.S.,  $e$  is the exchange rate between US dollar and local currency

FDI = foreign direct investment

GBUD = government budget deficit

CAD = current account deficit

DUM = dummy variable; 0 for data before 1979 and 1 for the data starting from 1979

$\varepsilon$  = error term

### **3.3 Round-Tripping Capital Flight Model**

The round-tripping capital flight from China includes capital flows that initially flow out of China but return back to China as foreign direct investment (FDI). This study uses Xiao's (2004) model to calculate the round-trip FDI and uses the result from Hong Kong capital flight estimation to interpret the round trip capital flight phenomenon between Hong Kong and China. The steps in conducting this test are documented in Table 3.3.

**Table 3.3 Round Tripping FDI from Hong Kong to China in China Recorded FDI Inflow**

A1	Hong Kong reported FDI from Hong Kong to China
$A2 = A1 - A4$	Hong Kong reported FDI to China without the communications sector
$A3 = A1 - A4 + B2$	Hong Kong reported FDI to China correcting for over-reporting in communication sector
A4	Hong Kong reported FDI to China in the communication sector
B1	China reported FDI from Hong Kong to China
B2	China's total FDI inflow in the transportation, storage, post and telecommunication services
$C1 = B1 - A1$	Type 1 unverifiable FDI from Hong Kong
$C2 = B1 - A2$	Type 2 unverifiable FDI from Hong Kong
$C3 = B1 - A3$	Type 3 unverifiable FDI from Hong Kong
$D1 = C1/B1$	Ratio of Type 1 unverifiable FDI from Hong Kong to China
$D2 = C2/ B1$	Ratio of Type 2 unverifiable FDI from Hong Kong to China
$D3 = C3/ B1$	D3 is the upper range estimation for round-trip FDI from Hong Kong to China in China's recorded FDI inflow

Following the calculation of the standard deviation, we use one half of the standard deviation as proxy for the systematically biased statistics reporting errors, which is similar to Xiao's (2004) method. This includes using the calculated upper bound estimation of the round-tripping FDI ratio minus the one half of the standard deviation to obtain the mean estimation for round-tripping FDI. Following this, we use the mean estimation minus one half of the standard deviation to obtain the lower bound estimation for round-tripping FDI ratio from Hong Kong to China (Xiao, 2004).

This study uses the Hong Kong's record of FDI outflow to China as the base to measure the upper range of round-tripping FDI in Hong Kong's total recorded FDI to China. By using a half of the standard deviation as the proxy for the systematically

biased statistics reporting errors, this study estimates the middle and lower range for the total round-tripping FDI in Hong Kong recorded FDI outflow to China. Table 3.4 shows the round-tripping FDI in Hong Kong recorded total FDI to China.

**Table 3.4 Round Tripping FDI from Hong Kong to China in Hong Kong Recorded FDI Outflow**

A1	Hong Kong reported FDI from Hong Kong to China
$A2 = A1 - A4$	Hong Kong reported FDI to China without the communications sector
$A3 = A1 - A4 + B2$	Hong Kong reported FDI to China correcting for over-reporting in communication sector
A4	Hong Kong reported FDI to China in the communication sector
B1	China reported FDI from Hong Kong to China
B2	China's total FDI inflow in the transportation, storage, post and telecommunication services
$C3 = B1 - A3$	Type 3 unverifiable FDI from Hong Kong
$D4 = C3 / A1$	D4 is the upper range estimation for round-trip FDI from Hong Kong to China in Hong Kong's total recorded FDI outflow to China.

This study follows Xiao's (2004) study which assumes that the percentage of total round-tripping capital flight is the same percentage for the total round-tripping FDI.

### 3.4 Data

The data covers the period 1970 to 2009 and consist of three parts. The first part of the data calculates the capital flight figures in Hong Kong, the second part of the data examines the determinants for capital flight in Hong Kong and the last part of data calculates the round-tripping capital flight between Hong Kong and China. However, the economic data for Hong Kong market was not properly reported before 1997. The data for calculating capital flight using the hot money and World Bank methods are

only reported after Hong Kong and China's unification. Therefore, the study period starts from 1998. On the other hand, data is available for the import and export figures from Hong Kong, thus the trade mis-invoicing method covers the period from 1970 to 2009.

The first part of data includes total short-term capital, total errors and omissions, reported import and export figures from Hong Kong, trading partners (export and import) of Hong Kong, cost of freight and insurance adjustment. The data is collected from Hong Kong's balance of payment, the International Financial Statistic table on the IMF website. As discussed in Beja's (2005) study, some data such as CEDT can be derived from World Bank debt tables and IMF figures. However, the World Bank did not record any debt information for Hong Kong. It is not possible to use the same method to derive CEDT data used in Beja's (2005) study. The only debt data for Hong Kong is found in the Balance of Payment (BOP) report of Hong Kong and it is gross debt, where Beja (2005) argues the gross external debt is the appropriate measure to use as it includes all public external debt, both private and public guaranteed external debt and the private debt (not public guaranteed). The major trading partners of Hong Kong include China, United States, Japan, Germany, Singapore, Netherland, Australia, United Kingdome, Switzerland, South Korea, Canada, India, Thailand, and Malaysia. The import and export data can be obtained from the Direction of Trade table on the IMF web site.

The second part of data includes Hong Kong's inflation rate, interest rate, price level, government budget deficit, current account deficit, foreign direct investment, US Treasury bill rate, US products price level, Hong Kong and US exchange rate. Hong Kong's inflation rate, interest rate, price level, and US's Treasury bill rate and price level are obtained from Datastream. Hong Kong's government budget deficit data and part of the exchange rate between Hong Kong and US are derived from the PACAP

2006 CD-room data set. The current account deficit is derived from the International Financial Statistic table on IMF website. Foreign direct investment is obtained from Hong Kong's BOP report.

The third part of data includes both Hong Kong and China reported FDI figures which is available from the Statistical Yearbook of China. For FDI statistics of Hong Kong the data can be obtained from the external direct investment statistics of Hong Kong.

## CHAPTER FOUR

### 4 EMPIRICAL FINDINGS AND RESULTS DISCUSSION

The results and findings of this study are reported in this chapter. Section 4.1 discusses the study period. The results for the three capital flight measurement methods are discussed in Section 4.2, followed by the determinants of Hong Kong capital flight in Section 4.3. The specification tests for the OLS model are presented in Section 4.4. And the result for the round-tripping FDI between Hong Kong and China is reported in Section 4.5. The summary of the main findings are presented in the last section.

#### 4.1 Study Period and Data Description

##### 4.1.1 Data for the Hot Money, World Bank and Trade Mis-Invoicing Methods

The study period is from 1970 to 2009. However, some data are not available for Hong Kong market before 1997. The study used three methods to measure Hong Kong's capital flight. The first is the hot money method, where the capital flight is equal to the sum of total short term capitals and the error and omission. According to Cuddington (1986), both the short-term capital and the error and omission data can be found in Hong Kong's Balance of Payment (BOP) report. This study uses the total capital of Hong Kong comparing with the short term capitals used in Cuddington's (1986) study. There are two reasons to use total capital in place of total short term capital. First, Hong Kong BOP fifth edition<sup>1</sup> focuses on the type of financial instruments rather than the instruments' maturities. It is difficult to separate the short-term capital from the total capital reported in the BOP report. Second, some researchers such as Claessens, Dolley & Warner (1995) argue that it is difficult to differentiate financial assets according to their time series properties. Beja (2005)

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<sup>1</sup> The current BOP Fifth Edition published in 1993 have structural differences with the BOP Fourth Edition (published in 1974)

further points out that the long-term convertible bond should be considered when we measure capital flight. In term of study period, the earliest Hong Kong BOP report can only be traced back to 1998, and it is believed that before Hong Kong reunion with China, there is no formal record of BOP in Hong Kong. As reported by Goodstadt (n.d.) it is until the end of colonial rule in 1997, there is no release of Hong Kong's official balance of payment statistics. The author points out that the reason for few statistics collected by Hong Kong's government was because of the *laissez faire* policy used in Hong Kong and statistics were seen as a freedom threaten from London's control.

The second method used to measure capital flight is the World Bank method. According to the World Bank equation, the total capital flight is equal to the sum of the changes of public and private external debts (including both long-term and short-term external debt), net foreign direct investment then minus the current account deficit and the accumulation of international reserve. The World Bank equation is shown in equation (6) in Chapter Three. The changes in public and private external debts including both long-term and short-term external debt can be derived from three sources, the BOP report, the IMF report and the World Bank world debt tables. The changes in external debt are equal to the total external debt plus the debt differences between the World Bank and IMF reported debts. However, this study can only use the total external debt reported in Hong Kong's BOP, as there is no recorded debt for Hong Kong on the World Bank website. Furthermore, in previous studies measuring capital flight in the four Asian countries of China, India, the Philippine and Thailand, have shown the difference in external debt between the World Bank and the IMF is very small, on average the difference is \$0.03 million for the four Asian countries (see Beja 2005) and the external debt is at least \$9000 million. Thus, the difference will not significantly affect the analysis of this study.

The net foreign investment includes the net foreign direct investment and the net portfolio investment. Both figures can be found in Hong Kong BOP report in the

Capital and Financial Account section. In addition, the earliest record for Hong Kong's gross external debt is from 2002 and the earliest record for Hong Kong's Net Foreign Investment is from 1998. This study uses the average gross of external debt to estimate the missing gross external debt.

The current account is a primary component of the balance of payment. It is the sum of the balance of trade (including both goods and services), other income and current transfers (Beja, 2005). Both the balance of trade and the current transfer information can be obtained from Hong Kong's BOP table. However, only balance of trade was recorded pre 1997, which equals to exports minus imports. Both Hong Kong exports and imports figures can be obtained from the IMF website, the International Financial Statistics (IFS) table covering the period 1970 to 2009. As there is no data from Hong Kong BOP report before 1998, to compromise the BOP period the World Bank measurement selects the period 1998 to 2009. This study uses the trade balance to calculate the current account deficit.

“The accumulation of international reserves refers to the reserve assets including changes in gold holding, special drawing rights, foreign exchange assets, reserve position with the International Monetary Fund and other claims on nonresidents” (Beja, 2005, p.28). Hong Kong's BOP only reports the net changes of Hong Kong's reserve asset. This data can be obtained from the World Bank website covering the period 1990 to 2009, as there is no available data from Hong Kong BOP report before 1998, thus we chose the accumulation of international reserves data from 1998 to 2009.

Mis-invoice trade is another method used to measure capital flight in Hong Kong. The data for trade mis-invoicing method can be obtained from the Direction of Trade (DOT) table on the IMF website and the data can be traced back to 1970. Compared to the hot money and World Bank methods, trade mis-invoicing method is the only method which covers the whole study period of 1970 to 2009. The availability of data

provides a longer period to study Hong Kong's capital flight. This is the main reason this study used the trade mis-invoicing method as the major measurement for capital flight in Hong Kong. As discussed in Chapter 3, there are 14 selected major trade partners of Hong Kong; U.K., U.S., Japan, Germany, Canada, Switzerland, Netherland, Australia, China, South Korea, India, Thailand, Malaysia and Singapore. The export and import figures between those countries and Hong Kong are individually obtained from the DOT on the IMF website. The cost of freight and insurance adjustment (the cif/fob factor) can also obtained from the DOT.

#### **4.1.2 Data for Hong Kong Capital Flight Determinants**

This study uses the OLS model to test the importance of Hong Kong capital flight determinants and the relationship with capital flight. The data covers the study period from 1976 to 2009, but there are some missing data for 1970s that can be estimated by using the average weighted method. The data for this model can be found in the DataStream, PACAP 2006 CD-room, the International Financial Statistical table and Hong Kong BOP report.

In the OLS model, the foreign direct investment (FDI) data can be obtained from Hong Kong's external debt statistic report. However, this data is only recorded after the reunification of Hong Kong with China, and the earliest data can be found is from 1998. There are only 12 observations for the foreign direct investment (FDI) data compare with the total observation of 40 for other variables. This is small for statistical analysis and therefore we excluded the FDI variable in the OLS test.

The capital flight figure used in the trade mis-invoicing method to calculated Hong Kong's capital flight starts from 1970. The current account deficit data starts from 1970. But the financial incentive data for this model is available from 1976, the government budget deficit variable is available from 1979, the changes of inflation

from 1982 and the degree of currency overvaluation variable from 1981. To test the whole study period, this study uses the weighted average method to replace the missing data for the financial incentive, the government budget deficit, the changes in inflation and the currency overvaluation variables.

#### **4.1.3 Data for Round Trip FDI**

Model 3 measures the round trip FDI between Hong Kong and China. The data can be obtained from the Statistic Year Book of China and the External Direct Investment Statistics of Hong Kong. However, the study period is from 1998 to 2009 since there is no data available for Hong Kong before 1997. External direct investment statistics of Hong Kong can be found on Hong Kong Census and Statistics Department website (<http://www.censtatd.gov.hk/home/index.jsp>).

China's statistic year book can be traced back to 1981 on the Chinese website (<http://epub.cnki.net/grid2008/index.htm>), which is a useful digital on-line library for both Chinese and international researches. However, there is no foreign direct investment recorded in Chinese statistic year book before 1987. In early years from 1987 to 1991, Hong Kong's FDI inflow was combined with Macau's figure. And from 1992 to 1996, China combined the FDI inflow from Hong Kong and other investment from Hong Kong together and reported as one whole figure. This study uses the average percentage to estimate China reported Hong Kong's FDI inflow.

#### **4.2 Results of the Capital Flight Measurement Methods**

The results from the three methods show that capital flight existed in Hong Kong from 1998 to 2009. The results differ within the 3 methods used in the study. The results show that Hong Kong capital flight ranges between \$2 million by the trade mis-invoicing method to over \$500,000 million by the World Bank method. The

highest capital flight in Hong Kong was \$574,152 million in 2007 measured by the World Bank method. The following sections discuss the result from the hot money method followed by the World Bank and trade mis-invoicing methods. Section 4.2.4 discusses the differences among the three methods.

#### **4.2.1 Result from the Hot Money Method**

Table 4.1 shows Hong Kong's capital flight measured by the hot money method. The minus sign shows there is an outflow of capital flight from Hong Kong. From the table we can see the overall capital flight in Hong Kong showed an increasing trend, where there is a dramatic increase of capital flight between 1998 and 1999 for about \$8,000 million. In 2008, Hong Kong's capital flight measured by the hot money method reached a peak of \$29,245 million.

**Table 4.1 Hong Kong Capital Flight Measured by the Hot Money Method (1998 to 2009)**

<b>Year</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Capital Flight</b>	-2507.4	-10252	-6992.9	-9785.2	-12412	-16466	-15722	-20293	-22976	-25605	-29245	-18281

(In USD millions)

**Table 4.2 Hong Kong's Capital Flight Measured by the World Bank Method (1998 to 2009)**

<b>Year</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Capital Flight</b>	198226	225883	230127	195209	199754	235399	266351	316456	375682	574152	473661	398409

(In USD millions)

**Table 4.3 Hong Kong's Capital Flight Result from Trade Mis-Invoicing Method (1998 to 2009)**

<b>Year</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Capital Flight</b>	-1.67	-2.19	-2.22	-2.29	-2.23	-2.19	-2.33	-2.34	-2.48	-2.59	-3.04	-2.71

(In USD millions)

From Table 4.1, it can be seen that from 1998 to 1999 Hong Kong capital flight measured by the hot money method increased sharply from \$2,507.4 million to over \$10,000 million. The dramatic increase capital flight could be attributed to the sharp fall of 7.1% GDP in the third quarter of 1998. The dramatic increase of Hong Kong capital flight between 1997 and 1998 could also be explained by the sudden and huge amount of withdrawal of Hedge funds from Hong Kong in October 1997. The hot money method measures Hong Kong capitals that response to the investment environment or political condition changes. The 1997 Asian financial crisis had a long impact on Hong Kong economy which resulted in a prolong period of the high unemployment rate and low economic recovery rate. Meanwhile, Hong Kong residents were dissatisfied with the local government because of the slow recovery from the 1997 Asian financial crisis. Furthermore, the outbreak of health problem such as Bird Flu Pandemic in late 1990s and SARS in 2003 caused uncertainty in the economy and financial market, which further encouraged investors to constantly moving capitals out of Hong Kong. Thus Hong Kong capital flight was over \$10,000 million between 2001 and 2009.

#### **4.2.2 Result from the World Bank Method**

Table 4.2 shows the result calculated from the World Bank method, which also known as the board measurement. The table showed a fluctuated increasing trend for the period 1998 to 2009. Hong Kong's capital flight dropped to \$195,209 million and reached the lowest peak in 2001. Following this, Hong Kong's capital flight reached \$235,399 million in 2003 and it kept increasing thereafter. From 2006 to 2007, Hong Kong's capital flight increased dramatically and reached a peak of \$574,152 million in 2007. From 2007, Hong Kong's capital flight started to decline again.

The large capital flight in 2007 measured by the World Bank method is mainly caused by the high level of external debt in 2007 which reached over \$700,000 million. The

recovery of Hong Kong economy from 2004 encouraged the growth of Hong Kong's external debt from 2004 which is the main reason for Hong Kong capital flight to be more than \$260,000 million from 2004 and reached the peak of \$574,152 million in 2007.

According to Hong Kong's annual report, Hong Kong economy started to grow from 2004, and in 2007 Hong Kong economy had a GDP of 6.4% growth followed by a 7% GDP growth in 2006, Hong Kong financial services sector continued to outperform as the economy strive to enhance its international financial center role. As the report mentioned that in 2007 local consumption had a robust growth which resulted in a robust growth in labor market and a strong performance of the local asset market. For example, in the last quarter of 2007, Hong Kong's total employed person reached an all-time high of 3.53 million. Also, in 2007, Hong Kong's overall investment growth rate remained firm and the growth rate were mainly shown in investment in machinery, equipment and software. All the above evidences show that Hong Kong's economy in 2007 had a strong recovery since the 1997 financial crisis, which further encouraged external debt flow into Hong Kong.

<http://www.yearbook.gov.hk/2007/en/pdf/E03.pdf>

#### **4.2.3 Result from the Trade Mis-Invoicing Method**

The result from the trade mis-invoice method is shown in Table 4.3. This method uses the differences between reported Hong Kong's export and import data to estimate the capital flight. This method measures Hong Kong's capital flight from 1970. We list only the capital flight of Hong Kong between 1998 and 2009 in Table 4.3 and the full results of trade mis-invoicing method are reported in Figure 4.1.

The data in Table 4.3 shows a rising trend for Hong Kong's capital flight reaching a peak of \$3.04 million in 2008. In this method the minus sign represents the outflow of

capital flight from Hong Kong. Hong Kong's capital flight measured by trade mis-invoicing method was about \$2 million between 1998 and 2009. The capital flight increased \$0.4 million from 1998 to 1999 reached to \$2.19 million in 1999, and then remained stable round \$2.2 million between 1999 and 2003. From 2004, Hong Kong's capital flight started to increase again, and reached the peak of \$3.04 million in 2008, and in 2009 dropped back to \$2.71 million.

The trade mis-invoicing method that measures Hong Kong capital flight is based on the differences between Hong Kong and its 14 major trade partners' reported export and import data. As discussed previously, Hong Kong's economy started to recover from the 1997 Asian financial crisis in 2004. With the recovery of Hong Kong economy, Hong Kong's trade in goods also expanded in 2008. According to Hong Kong 2008 annual report (<http://www.yearbook.gov.hk/2008/en/pdf/E03.pdf>), Hong Kong's total value of visible trade (comprising of re-exports, domestic exports and imports of goods) reached \$5,868 billion which is equivalent to 350% of Hong Kong's GDP in 2008. If the trade in services were also taken into account, the figure would larger. Hong Kong's expedition in trading could be the reason that caused its capital flight in trade mis-invoicing to reach the peak of \$3.04 million in 2008. The decreased in capital flight in 2009 could be the result of Hong Kong's economy suffering from the global financial crisis in 2009.

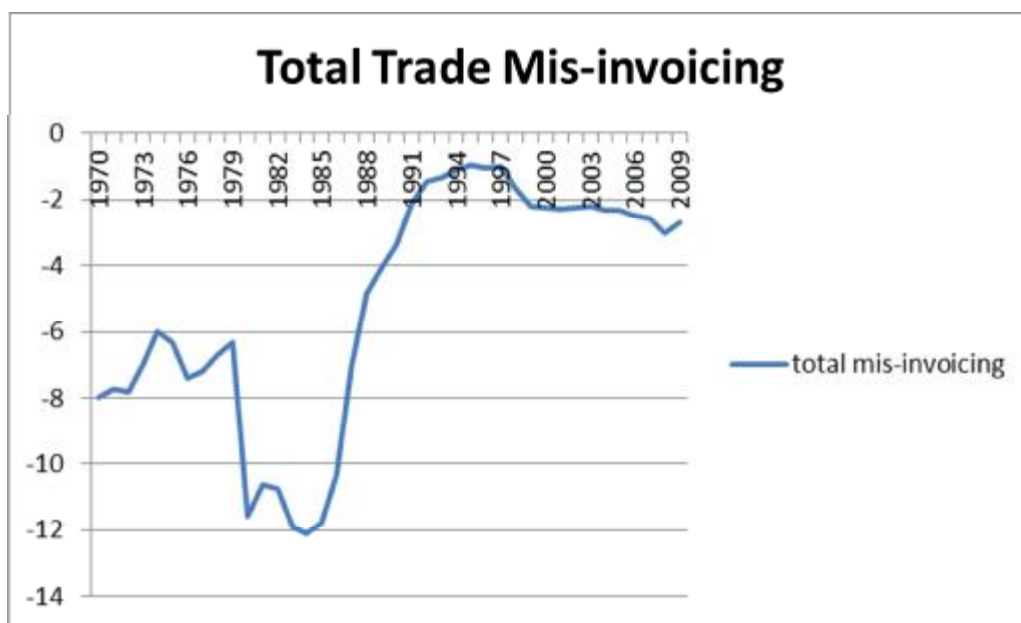
(<http://www.yearbook.gov.hk/2009/en/index.html>)

Figure 4.1 shows Hong Kong's capital flight measured by the trade mis-invoicing method for the year 1970 to 2009. The result shows Hong Kong's capital flight increased from 1970 to 1984, and thereafter started to decrease. In 1970s, capital flight in Hong Kong was about \$7 million, and increased to about \$11 million in 1980s. The increased in the capital flight could be caused by the 1978 announcement of China's Open Door Policy which marked a new era for Hong Kong's economy. The policy encourages trade between Hong Kong and mainland China, where on average the trade between Hong Kong and mainland China grows at 28% per annum

(<http://eh.net/encyclopedia/article/schenk.HongKong>). The increased in trade encourages increases in capital flight in Hong Kong through the export and import channel.

However, with the increase of openness of mainland China, there is less chance for businesses from mainland China to use Hong Kong as the middle transfer port for exports and imports with other countries which in some circumstance affect Hong Kong's re-export and re-import trading, and further affect the capital flight through trade. In 1984, the further opening of Shanghai and 13 other cities accelerates mainland China's trade with the world which indirectly affects Hong Kong's capital flight through the export and import channel. For example, Figure 4.1 shows Hong Kong's capital flight dramatically dropped to about \$6 million from 1986 to 1988 and reached to \$4 million in 1988.

**Figure 4.1 Hong Kong's Capital Flight Result from Trade Mis-Invoicing Method (1970 to 2009)**



(In USD millions)

#### 4.2.4 Discussion

To compare the results of three different capital flight methods, it is necessary take the

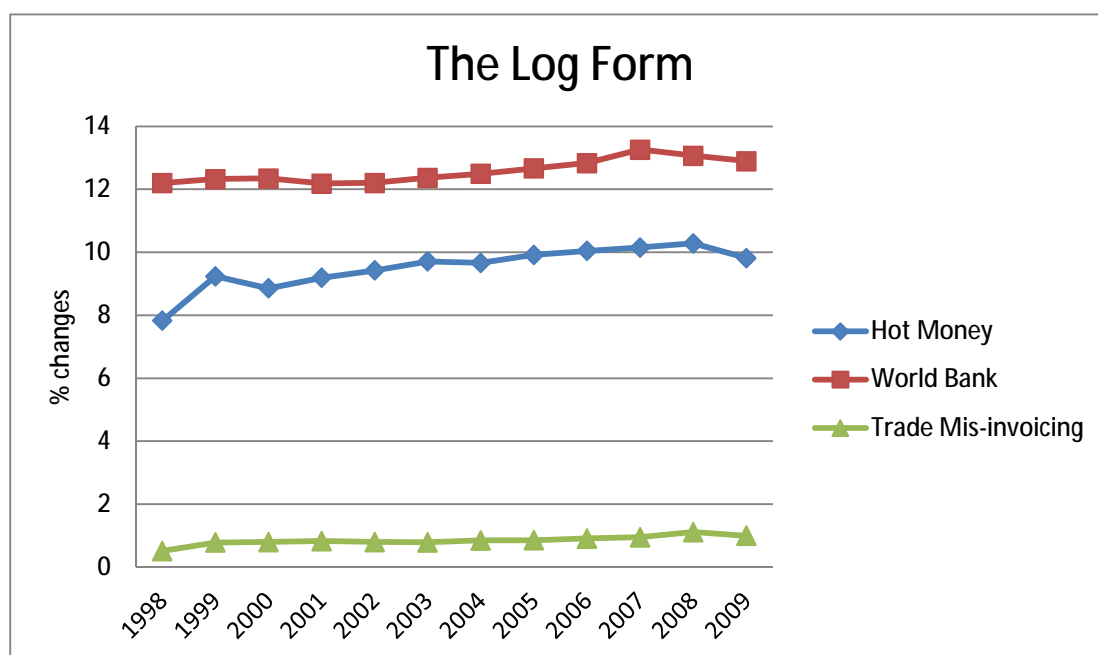
absolute value of the results. The result from the trade mis-invoicing method is the smallest followed by the hot money method and the World Bank measurement. The order of the results is understandable as the trade mis-invoicing method only measures the capital flight through the export and import channel. If the capital flight does not use trade as the channel, for example capital flight is in the form of money laundering, then those capital flight could not be captured by the trade mis-invoicing method as this method only measured the over-invoicing or under-invoicing in the export or import trade activities.

Compare with the trade mis-invoicing method, the hot money method measures the easy convertible capital. The World Bank method uses the indirect approach of capital flight, where it considers the sources and uses of funds, and the differences between the sources and uses of funds are the unrecorded capital outflow, or capital flight (Beja, 2005). The World Bank result is the most robust of the three measurements used in this study, followed by the hot money and the trade mis-invoicing methods. The World Bank measurement is considered as the aggregate estimation for capital flight, where the hot money method in this study measures the easy convertible capital outflows.

Both the hot money and World Bank methods measure Hong Kong capital flight between 1998 and 2009 because of data availability. The next section discusses the results from the three measurements between the year 1998 and 2009.

Figure 4.2 shows the log form for the results of the three capital flight measuring methods. All three results showed slight increasing trends for the year 1998 to 2009. The result of World Bank method exhibits the highest value of the three results with a peak of 13.26 units in 2007, followed by the hot money method with a peak of 10.28 units in 2008, and the trade mis-invoicing method with a peak of 1.11 units in 2008.

**Figure 4.2 Three Different Capital Flight Methods (in Log Form)**



Between 1998 and 1999 Hong Kong’s capital flight measured by hot money method increased from 7.8 units to 9.23 units. This could be explained by the reunification of Hong Kong with China in 1997. In addition, Hong Kong also suffered from the Asian financial crisis which broke out in July 1997. The changes in political and economic conditions caused uncertainty for both domestic and foreign investors, as investors are uncertain if the investment environment in Hong Kong will change significantly with the unification with China and the outbreak of the financial crisis. Under such uncertainty, the rational actions for investors are withdrawing their investment from Hong Kong market, and hold on to determine whether major changes will be implemented. Short-term capitals and easily convertible capitals are quite sensitive to any changes in investment environment, though there is no data or evidence to show the dramatic decrease before 1997. It is reasonable to believe that investors did not reinvest back into Hong Kong until the handover to China has been completed and the investment environment become stable and favorable.

As discussed in Chapter Two, there are few studies which focused on measuring capital flight in Hong Kong market, where Gunter (2003) investigates Hong Kong’s

capital flight using three different measurement methods. Thus, it is difficult to provide a comparison with previous studies in this research.

Gunter (2003) measures Hong Kong's capital flight for the year 1998 to 2001. Gunter's study focuses on capital flight from China and studies the bilateral trade between China and Hong Kong. The result of Gunter's study is shown in Table 4.4.

**Table 4.4 Measures of Hong Kong Capital Flight (in USD millions)**

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
<b>A. Cuddington Method</b>	\$1775	\$310	-\$209	\$1493
<b>B. World Bank Method</b>	\$5642	\$21852	\$19322	\$20243
<b>C. Mis-invoicing</b>				
<b>C.1. China Only</b>	\$2490	\$5058	\$6748	\$8672
<b>C.2.China and Hong Kong</b>	-\$782	\$1830	\$1794	\$229

(Note: Please refer to Table 3 in Gunter's (2003) for the complete table)

Table 4.4 shows Cuddington Hong Kong's capital flight result decreased from \$1,775 million in 1998 to -\$209 million in 2000, and then increased to \$1,493 million in 2001. The minus sign represents the capital outflows. Compare with Table 4.1 of this study, the direction of Hong Kong capital flight is different with our result. The magnitude of Hong Kong capital flight in Gunter (2003) using Cuddington's method is about \$1,000 million from 1998 to 2001, which is smaller than our result of \$7,000 million. Gunter's (2003) study shows Hong Kong's capital flight flowing into Hong Kong was \$1,775 in 1998 and \$1,493 million in 2001, while our result in Table 4.1 shows that Hong Kong's capital flight flowing out of Hong Kong was \$2,507 and \$9,785 million respectively. In 1999, Hong Kong capital flight reported in Table 4.1 was an outflow of over \$10 billion while in Gunter's (2003) study, it was an inflow of \$310 million. Gunter's study showed, Hong Kong's capital flight was an outflow of \$209 million in 2000 which is 33 times less than the results in Table 4.1. The differences could be

caused by the different terms that had been used in the equations.

For example, this study uses the total capital while Gunter (2003) uses non-bank private short-term capitals for the hot money equation. The reason this study used the total capital instead of total short-term capitals can be attributed to the following: First, there is no separate maturity for capitals in Hong Kong's BOP report. Second, based on Beja's (2005) study who argues convertible long-term bond should be considered as capital flight instead of short-term capital, since convertible long-term bond could be quickly sold in the secondary market under unfavorable conditions. Claessens, Dolley & Warner (1995) further argue that it is hard to differentiate financial assets according to their time series properties.

Table 4.4 shows Hong Kong capital flight measured by World Bank method increased from less than \$6 billion in 1999 to over \$20 billion in 2001 and had a peak of \$21.8 billion in 1999. Compare with the results in Table 4.2, on average Hong Kong capital flight for the same period was about \$200 billion. Our result is nearly 10 times more than the Gunter's (2003) result. The difference between our result and Gunter's (2003) study could be caused by the different instrument variables used in the test model. For example, in our study, we use the differences between Hong Kong recorded exports and imports figure to obtain the current account deficit, but Gunter (2003) uses current account balance in Hong Kong's BOP which leads to a narrower result. In addition, we use Hong Kong gross external debt instead of the debt changes since there is no record for Hong Kong's external debt changes from the World Bank website. The gross external debt also can lead to a larger estimation for capital flight in Hong Kong.

Hong Kong capital flight measured by trade mis-invoicing method in Gunter (2003) for the year 1998 to 2001 is shown in Table 4.4. However, Hong Kong's capital flight was not reported separately, it was mixed with China's capital flight. We use China and Hong Kong's total trade mis-invoicing figure minus China's total trade

mis-invoicing figure to obtain Hong Kong's total trade mis-invoicing figure between 1998 and 2001 and the results are shown in Table 4.5.

**Table 4.5 Hong Kong's Capital Flight Measured by Trade Mis-Invoicing Method in Gunter's (2003) Study**

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
<b>C.1. China Only</b>	\$2490	\$5058	\$6748	\$8672
<b>C.2.China and Hong Kong</b>	-\$782	\$1830	\$1794	\$229
<b>Hong Kong</b>	-\$3272	-\$3228	-\$4954	-\$8443

(In USD millions)

Table 4.5 shows Hong Kong capital flight increased from \$3 billion in 1999 to over \$8 billion in 2001 measured by trade mis-invoicing method in Gunter's (2003) study. The minus sign in Table 4.5 represents the direction of the capital outflow. The Hong Kong's capital flight in our study was around USD \$2 million between 1998 and 2001 (see Table 4.3). The difference between our study and Gunter (2003) could be explained by the measuring method. Gunter (2003) indirectly obtained Hong Kong capital flight from China's trade mis-invoicing figure as well as China and Hong Kong combined trade mis-invoicing figure. Gunter also used 24 major trade partners for China and Hong Kong. Our study used the difference between Hong Kong and its 14 major trade partners' export and import figures to obtain Hong Kong capital flight. Compare with Gunter (2003), our study limits the amount of capital flight to only 14 major trade partners and only measures Hong Kong's capital flight through the trade mechanism.

### **4.3 Results for Hong Kong Capital Flight Determinants**

This study uses the OLS to test the determining factors for Hong Kong's capital flight. This study uses the factors that are commonly found in previously studies on capital flight such as current account deficit, government budget deficit, financial incentives,

currency overvaluation and inflation. Table 4.6 shows the OLS results calculated from Excel. In the OLS model, we use the trade mis-invoicing method as the dependent variable and current account deficit, government budget deficit, financial incentives, currency overvaluation, inflation and the announcement of China's Open Door Policy at end of 1978 (the dummy variable) as the independent variables. This model, dropped the FDI variable since there are only 12 observations. In this model the missing data of the financial incentive, the government budget deficit, the changes in inflation and the currency overvaluation variables for the study period are replaced by the weighted average method. The dummy variable is used in 1979, since the announcement of Open Door Policy for China started at the end of 1978.

**Table 4.6 Results of the OLS Model**

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.824163							
R Square	0.679244							
Adjusted R Square	0.620925							
Standard Error	2.207208							
Observations	40							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	6	340.4493	56.74156	11.64701	5.6E-07			
Residual	33	160.7684	4.871769					
Total	39	501.2177						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-29.5689	3.847796	-7.68463	7.55E-09	-37.3973	-21.7405	-37.3973	-21.7405
finc	-3.26244	1.096106	-2.97639	0.005426	-5.49248	-1.03239	-5.49248	-1.03239
oval	155.2114	25.98499	5.973118	1.04E-06	102.3446	208.0783	102.3446	208.0783
gbud	0.00018	9.49E-05	1.899157	0.066315	-1.3E-05	0.000373	-1.3E-05	0.000373
cad	0.000202	7.99E-05	2.522982	0.016636	3.9E-05	0.000364	3.9E-05	0.000364
CHINF	18.71803	12.10356	1.54649	0.131524	-5.90684	43.3429	-5.90684	43.3429
dummy	2.265816	0.869483	2.605936	0.013642	0.49684	4.034792	0.49684	4.034792

Table 4.6 shows the overall model can explain the problem quite well as the F statistic for the whole model is 5.6E-07 and it is significant. The CHINF coefficient is not significant as their P-values are greater than 0.05 at 95% significant level. The P-values for GBUD, FINC, OVAL, CAD and the dummy variables' coefficients are significant at the 5% level of significance. The OLS results show that the determining factors for Hong Kong capital flight are financial incentive, currency overvaluation, current account deficit and the announcement of China's Open Door Policy at end of 1978. However, changes in inflation do not significantly affect Hong Kong capital flight.

#### 4.4 Specification Tests of the Model

It is important to check if the OLS assumptions hold in our study model. We use two tests to check if the OLS model has any heteroskedasticity or autocorrelation.

##### 4.4.1 White Test

To test if the model is Heteroskedasticity or Homoscedasticity this study used the White Test where  $\chi^2 = N \times R^2$ , with the following hypothesis:

$$H_0: b_1 = b_2 = \dots = b_{11} = 0; H_1: H_0 \text{ does not hold}$$

From the E-view result the  $R^2$  is 0.242471, the number of observation is 40,

$$\text{So } \chi^2 = 40 \times 0.242471 = 9.69884$$

The 5% critical value is  $\chi^2_{(0.05,11)} = 19.6751$  as the calculated value is less than the critical value  $H_1$  does not hold, we can conclude that heteroskedasticity does not exist.

##### 4.4.2 Durbin-Watson Test

This study uses time series data and it is important to check the Durbin-Watson value

to see if there is any autocorrelation between the independent variable. The Durbin-Watson value is 0.80 (see Table 4.7) indicating there is autocorrelation in model.

**Table 4.7 Durbin-Watson Test Result**

R-squared	0.679244	Mean dependent variable	-5.011107
Adjusted R-squared	0.620925	S.D. dependent variable	3.584932
S.E. of regression	2.207208	Akaike info criterion	4.578962
Sum squared residual	160.7684	Schwarz criterion	4.874516
Log likelihood	-84.5793	Hannan-Quinn criter.	4.685825
F-statistic	11.64701	Durbin-Watson statistic	0.80018
Probability(F-statistic)	0.000001		

Since autocorrelation is presented in the model, it is necessary to seek remedial measures. According to Gujarati (2006, p.440), we transform equation (3.6) into the following form:

$$Y_t^* = B_1^* + B_2 X_t^* + v_t$$

where

$$Y_t^* = (Y_t - \rho Y_{t-1}^*)$$

$$B_1^* = B_1(1 - \rho)$$

$$X_t^* = (X_t - \rho X_{t-1}^*)$$

We obtain the Durbin-Watson value of 1.388518 (see Table 4.8).

**Table 4.8 Remedial Measures Durbin-Watson Test Result**

R-squared	0.4221	Mean dependent variable	-1.9246
Adjusted R-squared	0.31374	S.D. dependent variable	1.71838
S.E. of regression	1.42352	Akaike info criterion	3.70529
Sum squared residual	64.8447	Schwarz criterion	4.00387
Log likelihood	-65.253	Hannan-Quinn criter.	3.81242
F-statistic	3.89547	Durbin-Watson statistic	1.38852
Probability(F-statistic)	0.00495		

The Durbin Watson statistic value is 1.388518, hence there is no evidence to prove the model has autocorrelation, and there is no evidence to show the model does not have autocorrelation (see Gujarati, 2006). However, the Durbin Watson value does improved significantly from 0.800 to 1.388. Therefore, the original coefficient in the model is replaced with adjusted coefficient. According to Gujarati (2006, p.438)

$$\hat{\rho} = \frac{\sum_{t=2}^n e_t e_{t-1}}{\sum_{t=1}^n e_t^2}$$

We obtain the  $\hat{\rho} = 0.594626$

The new coefficient is list in Table 4.9

**Table 4.9 Adjusted Coefficients and t Statistic Value**

	Coefficient	Stand Error	t- Statistic
<b>Intercept</b>	-4.26685	0.790149	-5.40006
<b>CHINF</b>	1.54498	4.235932	0.364732
<b>FINC</b>	-0.21474	0.368753	-0.58235
<b>OVAL</b>	58.29234	13.7684	4.233779**
<b>GBUD</b>	2.07E-05	2.36E-05	0.876289
<b>CAD</b>	3.75E-05	1.93E-05	1.937107*
<b>DUMMY</b>	0.415892	0.240272	1.730925*

\*\*Significant at 5% level

\*Significant at 10% level

Compare the t-statistic value of for each of the variable at the 5% significant value of 1.96, the determinants for Hong Kong capital flight is currency overvaluation. At 10% significant level, current account deficit and the dummy variable of China Open Door policy in 1979 variables are significant

Among the three determining factors, all three factors have positive relationships with the capital flight in Hong Kong. For example, the coefficient for the currency overvaluation factor is 58.29, which means for every one unit change in Hong Kong capital flight, there will be about 58 unit change in the currency overvaluation. The current account deficit coefficient is 0.0000375, which means a unit increase in Hong Kong's capital flight there will be 0.0000375 unit increase in the current account deficit. Similarly the dummy variable has a positive coefficient of 0.4159, which means for every 0.4159 increase in the dummy variable there will be a unit increase in Hong Kong capital flight.

The result of this study shows that the currency overvaluation, the current account deficit and the dummy variable have significant impact on Hong Kong capital flight. The result of this study is similar to previous studies in the literature. Chughachinda & Sirodom (2007) investigate the important determinants for capital flight in Thailand, the Philippine, Malaysia, Indonesia and South Korea and identified increased in inflation rate, interest rate differences between U.S. and local country, overvaluation of local currency, foreign direct investment and current account deficit, and government budget deficit have significant impact on capital flight. Compare to our study, the currency overvaluation and current account deficit are two common determinants of capital flight. On the other hand, our study does not have evidences to show that the inflation rate, the interest rate differences between the U.S. and Thailand, the Philippine, Malaysia, Indonesia and South Korea (in our study it is the financial incentive variable), foreign direct investment and government budget deficit have significant impact on Hong Kong's capital flight.

Antzoulatos & Sampanioits (2002) study seven variables in 17 Eastern European countries and conclude that the appreciation of local currency, the government budget deficits and the tax rate are the determinants for the capital flight in those 17 countries. Similarly Ketkar & Ketkar (1989) reveal that currency overvaluation and inflation variables are significant determinants factors for hot money capital outflows in several Latin American countries. Compare to our study, the common factor is the currency overvaluation which is the determinant for capital flight. As opposed to Antzoulatos & Sampanioits (2002) and Ketkar & Ketkar (1989) study, government budget deficit, tax rate and inflation factors do not significantly impact the capital flight in our study.

There are also some studies in the literature that have different conclusions on the capital flight determinants. For example, Cuddington (1986) reports that the exchange rate overvaluation and the inflow of foreign debt are the main determinants of capital flight in Argentina, Brazil and Chile. Similarly, Pastor (1990) identifies the U.S. and other currencies' differences, the inflation rate changes, the net long-term capital inflow, the differences in economic growth rate between the U.S. and other countries, and increase in tax rate (per GDP) significantly affect capital flight in eight Latin American countries. Gibson & Tsakalotos (1993) identify three factors in the expected changes in exchange rate particularly the depreciation of currency, the uncertainty of government's policy that affects many investors and the government deficits influencing capital flight in five European countries. Moreover, Mulino (2002) highlights the determinants of Russia's capital flight and concludes that various determinants caused the capital flight in Russia, such as macro-economy instability, arbitrary taxation, weakness in financial institutions, popularity of corruption, and failure to protect property rights.

Other researchers analyze the push and pull factors' impact on capital flight. For example, both Chuhan, Claessens & Mamingi (1998) and Carlson & Hernandez (2002) point out that capital flows of developing countries are mainly dominated by the push

factors in the industrial countries or it is a function of the developing countries' specific factors. Calvo, Leiderman & Reinhart (1992) conclude that push factors are the causes for capital inflows in developing countries especially the U.S.'s low interest rate. Similarly, Fernandez-Arias (1996) suggests that it is the push factor leads to capital flowing into developing countries. The author believes that foreign interest rate is the most important factor in contributing to the enlarged capital flows to developing countries. Ketkar & Ketkar (1989) also conclude that the push factors have a greater impact on capital flight than the pull factors.

On the other hand, Bohn and Tesar (1996) show that it is the pull factors in the Asian developing countries that attracted the capital flow, rather than the push factors from U.S. that caused the capital flow to developing countries. In addition, Hernandez, Mellado & Valdes (2001) find that developing countries' specific characteristics for hosting the investments are the main determining factors to attract private capital flows. The authors discovered that the push factors or the external factors are not significant in attracting capital inflows. Similarly, World Bank (1997) suggests that in recent years it is the pull factors rather than push factors that are getting more attention.

There are also researchers who report that both push and pull factors having impact on capital flight, for example, Chuhan, Claessens & Mamingi (1998) show that the pull factors have the same importance as the push factors in explaining capital inflows in Asian developing countries. Montiel & Reinhart (1999) conclude that the pull factors are important in determining capital flows distributions while push factors are important in determining the timing and magnitude of such flows.

The studies on push and pull factors focus on which of the two factors have significant impact on developing countries' capital flight. Our study focuses more on common factors that impact capital flight, such as current account deficit, government budget deficit, financial incentives, currency overvaluation and inflation. Compare

with the push or pull factors, the result of our study is more similar to Hernandez, Mellado & Valdes (2001), Bohn & Tesar (1996) and World Bank's (1997) studies, where the pull factors have significant impact on capital flight. The reason is the currency overvaluation and the current account deficits are related to the pull factors. However, the result of this study also show that the 1979 China's Open Door Policy has significant impact on Hong Kong capital flight, which might indicate that Hong Kong's capital flight is also affected by other developing country's economic policy especially the policies from China.

#### **4.5 Results for Round Tripping FDI between Hong Kong and China**

This study uses Xiao's (2004) study to calculate the round-tripping FDI between Hong Kong and China. Table 4.10 shows the result for Hong Kong round-tripping FDI to China. The results provide three versions of FDI flows from Hong Kong to China. The first is the unadjusted FDI (A1), the second is the adjusted FDI excluding the communications sector (A2) and the last is the adjusted Hong Kong FDI which includes the regular FDI from the communication sector but does not include the over-reporting in the communication sector (A3). In the last category of the FDI (A3), the difference between the FDI flow from Hong Kong to China in the communication sector (A4) and China's FDI inflow in the transportation, storage, post, and telecommunications services sectors (B2) have been excluded from the unadjusted FDI from Hong Kong to China ( $A3=A1-(A4-B2)$ ). The reason A3 does not include the difference between A4 and B2 is because of there are over reporting in the communication sector.

**Table 4.10 Hong Kong's Round-Tripping FDI Flows into China: 1998 to 2009 (in USD Million)**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Standard Deviation	Weighted Average 98-09
<b>A1</b>	6900	10131.22	46350.48	8501.09	15937.94	7690.93	18582.21	16849.43	21484.58	36498.98	27588.33	27107.23		20301.87
<b>A2</b>	4200	7785.311	13140.33	3859.469	4551.866	4994.607	11575.38	13435.58	13992.06	27371.02	16947.85	15676		11460.79
<b>A3</b>	5900	9336.451	14152.21	4768.369	5465.326	5861.977	15969.65	23171.68	22215.7	30863.02	22573.95	20450.22		15060.71
<b>A4</b>	2700	2345.905	33210.14	4641.621	11386.08	2696.318	7006.827	3413.852	7492.52	9127.959	10640.48	11431.23		8841.077
<b>B1</b>	18508.36	16363.05	15499.98	16717.3	17860.93	17700.1	18998.3	17948.79	20232.92	27703.42	41036.4	46075.47		16768.16
<b>B2</b>	1645.13	1551.14	1011.88	908.9	913.46	867.37	4394.27	9736.1	8223.64	3492	5626.1	4774.22		3206.365
<b>C1</b>	11608.36	6231.834	-30850.5	8216.21	1922.989	10009.18	416.0917	1099.362	-1251.66	-8795.56	13448.07	18968.24		2585.219
<b>C2</b>	14308.36	8577.739	2359.645	12857.83	13309.06	12705.49	7422.919	4513.214	6240.864	332.4006	24088.55	30399.47		11426.3
<b>C3</b>	12608.36	7026.599	1347.765	11948.93	12395.6	11838.12	3028.649	-5222.89	-1982.78	-3159.6	18462.45	25625.25		7826.372
<b>D1</b>	0.627195	0.380848	-1.99036	0.491479	0.107665	0.565487	0.021902	0.06125	-0.06186	-0.31749	0.327711	0.411678		0.052125
<b>D2</b>	0.773076	0.524214	0.152235	0.769133	0.74515	0.71782	0.390715	0.251449	0.308451	0.011999	0.587004	0.659776		0.490918
<b>D3</b>	0.681225	0.429419	0.086953	0.714764	0.694007	0.668817	0.159417	-0.29099	-0.098	-0.11405	0.449904	0.556158	0.346036	0.328136
<b>High estimation</b>														0.328136
<b>Middle estimation</b>														0.155117
<b>Low estimation</b>														-0.0179

Hong Kong outflow FDI figures to China and the adjusted FDI figures are compared with China reported FDI figure from Hong Kong to China. For example, row C3 ( $C3=B1-A3$ ) in Table 4.10 shows the unverifiable part of FDI from Hong Kong to China. In addition, row D3 shows the ratio of unverifiable part FDI from Hong Kong to China in Hong Kong's total FDI inflow reported by China ( $D3= C3/B1$ ). The weighted average of row D3 can be used as the estimated round-tripping FDI from Hong Kong to China's upper range. Previously in the literature, Xiao (2004) studies Hong Kong's round-tripping FDI flows to China for the year 1998 to 2002. This study extends the study period for another 7 years (1998 to 2009) compared to Xiao (2004) who used the data from 1998 to 2002. In our study D3 fluctuates between about 70% in 1998, 2001 and 2002 to about -30% in 2005 with an average of 32.8%. The standard deviation for row D3 is 34.6%. Our study follows Xiao's (2004) method which used half of the standard deviation as the proxy for the systematically biased statistics reporting errors. The study used the upper range estimation for round-tripping FDI from Hong Kong to China minus half of D3's standard deviation 17.3%, and obtained the middle estimation of round-tripping FDI from Hong Kong to China which is 15.5%. Following this, the study used the middle range of the estimation figure of 15.5% minus the half of standard deviation to get the lower range estimation for round-tripping FDI from Hong Kong to China which is -1.8%. In another word, the round-tripping FDI from Hong Kong to China over the study period of 1998 to 2009 ranged from -1.8% to 32.8%.

The lower range of the estimated round-tripping FDI from Hong Kong to China is a minus figure, which shows that Hong Kong reported FDI flow to China is greater than China reported FDI inflow from Hong Kong. This means that there are some FDI reported in Hong Kong as the outflow of FDI to China, but for some reason did not report as inflow of FDI from Hong Kong in China. Those FDI either flow into China but have not been reported or flow out from Hong Kong to other places.

In Xiao's (2004) study, the round-tripping FDI from Hong Kong to China is as high as 53.4%, while our result is about 20% less. The upper range for the estimated round-tripping FDI from Hong Kong to China is 32.8%. This result could be caused by the minus figures in 2005, 2006 and 2007. The minus sign means in those three years the China reported FDI inflows from Hong Kong are less than Hong Kong reported FDI flow to China.

The result for round-tripping FDI from Hong Kong to China in this study is similar to previous studies. For example, World Bank (2002) documents that Hong Kong FDI to China takes more than a quarter of China's total FDI capital inflow. The report showed Hong Kong's FDI to China was the half size of China's total FDI inflow in 1996, and took in as high as 42% of China's total FDI inflow in 1999. The annual FDI of Hong Kong provides a guideline for China's capital flight round-tripping back to China in the form of Hong Kong's FDI to China. The conclusion of more than a quarter of China's total FDI capital inflow is from Hong Kong in the World Bank (2002) report is similar to the result in our study.

To estimate how much Hong Kong FDI actually represents a round trip FDI flow back to China from Hong Kong's point of view, it is necessary to make some changes to the measuring method. Instead of comparing the unverifiable part of FDI from Hong Kong to China (C3) with China reported total FDI inflow from Hong Kong (B1), we compare the unverifiable part of FDI from Hong Kong to China (C3) with Hong Kong reported FDI to China (A1). The results are shown in Table 4.11. For example, row D4 shows the percentage of round-tripping FDI from Hong Kong to China in Hong Kong's reported FDI outflow to China. Table 4.11 shows that the round-tripping FDI is about 63% of total FDI outflow from Hong Kong to China. The calculated standard deviation for row D4 is 0.6761, based on Xiao (2004)'s method uses half of the standard deviation as the proxy for the systematically biased statistics reporting errors, we obtained the middle range of 29.2% and the lower range of -4.7%. The study result

from Hong Kong's point of view is much larger than the previous findings of both Lardy (1995) and Harrold and Lal (1993) who conclude that the round-tripping FDI is about a quarter of total FDI. However, Xiao (2004) measures the round-tripping FDI between Hong Kong and China and has about 50% of China's total FDI. The high percentage of round-tripping FDI in Hong Kong total FDI to China in our study could be caused by the larger differences between China's reported FDI inflow from Hong Kong and Hong Kong's reported FDI outflow to China. Another reason could be the low level of Hong Kong's reported FDI outflow to China.

In 1998, 2001 and 2003, the percentage of Hong Kong's round-tripping FDI flow to China in the total FDI to China is over 100% which means Hong Kong round-tripping FDI is actually larger than its total FDI to China. This implies there are some FDI flow to China from a third party as the round-tripping FDI between Hong Kong and China. In fact, China's special policy provides advantages to foreign investment, for example, Chinese government provides low or no tax to foreign direct investment companies. Some foreign investment companies do not need to pay import tariff on certain goods, and the Chinese local government also provides low fees for foreign investment company to use the land for commercial purpose. Those policy advantages encouraged local investors to move capital out and then round-tripping back as "Foreign investment". Hong Kong is regarded as the best place for such maneuver. For example, in 1998 the round-tripping FDI is almost twice as Hong Kong reported FDI outflow to China.

Using the measured percentage of round-tripping FDI in place of Hong Kong's total FDI to China, we can use the same percentage for Hong Kong's round-tripping capital flight. We assume that the percentage for round-tripping FDI in Hong Kong total FDI to China is same as the percentage of Hong Kong round-tripping capital in its total capital flight to China. Table 4.11 result shows it is about 63% of round-tripping FDI in Hong Kong total FDI to China, which means there will be about 63% of Hong Kong total capital flight to China round-tripping back to China (see Table 4.11).

**Table 4.11 Hong Kong's Round-Tripping FDI Flows into China from Hong Kong Point of View: 1998 to 2009 (in USD Million)**

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Standard Deviation	Weighted Average 98-09
<b>A1</b>	6900	10131.22	46350.48	8501.09	15937.94	7690.93	18582.21	16849.43	21484.58	36498.98	27588.33	27107.23		20301.87
<b>A2</b>	4200	7785.311	13140.33	3859.469	4551.866	4994.607	11575.38	13435.58	13992.06	27371.02	16947.85	15676		11460.79
<b>A3</b>	5900	9336.451	14152.21	4768.369	5465.326	5861.977	15969.65	23171.68	22215.7	30863.02	22573.95	20450.22		15060.71
<b>A4</b>	2700	2345.905	33210.14	4641.621	11386.08	2696.318	7006.827	3413.852	7492.52	9127.959	10640.48	11431.23		8841.077
<b>B1</b>	18508.36	16363.05	15499.98	16717.3	17860.93	17700.1	18998.3	17948.79	20232.92	27703.42	41036.4	46075.47		16768.16
<b>B2</b>	1645.13	1551.14	1011.88	908.9	913.46	867.37	4394.27	9736.1	8223.64	3492	5626.1	4774.22		3206.365
<b>C1</b>	11608.36	6231.834	-30850.5	8216.21	1922.989	10009.18	416.0917	1099.362	-1251.66	-8795.56	13448.07	18968.24		2585.219
<b>C2</b>	14308.36	8577.739	2359.645	12857.83	13309.06	12705.49	7422.919	4513.214	6240.864	332.4006	24088.55	30399.47		11426.3
<b>C3</b>	12608.36	7026.599	1347.765	11948.93	12395.6	11838.12	3028.649	-5222.89	-1982.78	-3159.6	18462.45	25625.25		7826.372
<b>D1</b>	0.627195	0.380848	-1.99036	0.491479	0.107665	0.565487	0.021902	0.06125	-0.06186	-0.31749	0.327711	0.411678		0.052125
<b>D2</b>	0.773076	0.524214	0.152235	0.769133	0.74515	0.71782	0.390715	0.251449	0.308451	0.011999	0.587004	0.659776		0.490918
<b>D4</b>	1.827299	0.693559	0.029078	1.405576	0.777742	1.539231	0.162986	-0.30997	-0.09229	-0.08657	0.669212	0.945329	0.676173	0.630099
<b>High estimation</b>														0.630099
<b>Middle estimation</b>														0.292012
<b>Low estimation</b>														-0.04607

## 4.6 Conclusion

We can conclude that there is capital flight phenomenon in Hong Kong based on our empirical results. The determining factors for Hong Kong's capital flight are currency overvaluation, current account deficit and the announcement of China's Open Door Policy (dummy variable). Furthermore, the results show round-tripping is presented which is about 32% of China's total FDI, and the round-tripping FDI is about 63% of Hong Kong's total FDI outflow to China.

The results from the three methods show there is capital flight in Hong Kong, though there are large differences among the three measurements. The magnitude of the results revealed the trade mis-invoicing method is the narrowest measurement followed by the hot money method and the result from the World Bank method is the largest of the three methods. This study takes the Log form to compare the three measurements. Overall the three methods show a stable increasing trend over the study period of 1998 to 2009 with only the hot money method displaying a sharp increase between 1998 and 1999. The sharp increase could be caused by the re-investments from investors who are doubtful about the investment environment in Hong Kong due to Hong Kong's reunification with China. The result from the trade mis-invoicing method concludes that the capital flight in Hong Kong decreased over the study period of 1970 to 2009, and the dramatic increase in Hong Kong capital flight in 1980 could be caused by the announcement of China's Open Door Policy which attracted more trade to Hong Kong in early 1980s. However, as rapid development takes place in mainland China, the trade through Hong Kong became less significant which could have caused the decreased Hong Kong capital flight through the trade method in 1986.

The empirical results also show that there is a round-tripping FDI phenomenon between Hong Kong and China, for the study period of 1998 to 2009, on average the

estimation for round-tripping FDI from Hong Kong to China is about 32% of China's total FDI inflow from Hong Kong. This result is different from Xiao's (2004) study, but is similar with previous study of Lardy (1995) and Harrold & Lal (1993) where the authors' results show the round-tripping FDI is about 30% of the country's total FDI. This study also measured the round-tripping FDI from Hong Kong's point of view, and calculated the round-tripping FDI from Hong Kong to China is about 63% of Hong Kong reported FDI outflow to China. From the estimated round-tripping FDI result, we assumed that the round-tripping capital flight is about 63% of Hong Kong total capital flight to China. The differences of the results between this study and previous studies could be caused by Hong Kong's unique situation both in the economic and the politic environment and Hong Kong's role in the World economy.

## CHAPTER FIVE

### 5 SUMMARY AND CONCLUSIONS

This chapter summarizes the findings on Hong Kong market capital flight phenomenon. The overview of the study is described in Section 5.1. Section 5.2 summarizes the results and discusses the relevant implications of the study. Section 5.3 discusses the limitations of the study, followed by some recommendations for future research in Section 5.4. The last Section concludes the study.

#### 5.1 Overview of the Study

Capital flows across countries has an incredible expansion in the last 25 years, especially the capital flows between developed and developing countries becomes the new era for the current globalization (Knoop, 2008). The accelerating development of developing countries in recent years has attracted lots of capital flowing freely into those countries especially those developing countries in Asia. For example, private capital flows to less developed countries increased from \$174 billion in 1980s to \$1.3 trillion in 1990s and more than \$2 trillion a year today. In 2004, China attracted more than \$55 billion foreign capital inflows (Knoop, 2008).

The 1997 Asian financial crisis triggered a new discussion of capital flight. In the pre 1997, some Asian country either fixed or pegged its exchange rate with the U.S. dollar, which reduced the exchange risk faced by exporters, importers and investors to enhanced international trade and foreign investment. Once investors believed the exchange rate is overvalued, they sell the local currency and withdraw their capitals from the nation, forcing the local governments to sell their foreign reserves and buy their own currency in order to prevent a mass depreciation of their local currency. As more and more investors realize the government's foreign reserve is declining and cannot defend the fixed or pegged exchange rate, panic selling occurs, and more

investors rush to sell the local currency to obtain the foreign currency before devaluation kicks in. Eventually, the government runs out of foreign reserves, and the country is forced to abandon the pegged or fixed exchange rate. This was exactly what took place in 1997 Asian crises. Knoop (2008) points out that speculative attack and capital flight further precipitate the currency crisis.

Previous studies of capital flight did not focus on the Hong Kong market. This study uses the hot money, the World Bank and trade mis-invoicing methods to measure the capital flight in Hong Kong. The study uses the OLS model to test the determinant of capital flight in Hong Kong. This study also uses the round-tripping FDI model to estimate the round-tripping capital flight between Hong Kong and China.

There are many definitions for capital flight in the literature. For example, Kindleberger (1937) defines capital flight as the “abnormal” flows that been propelled from a country because of fears and suspicions. Brown (1992) defines capital flight as funds flowing out of nations to money “heavens”. Boyce (1993) associates capital flight definition with government-sanctioned activities that is the assets transfer abroad for the purpose of limiting the loss of principal, return or financial wealth control because of government-sanctioned activities.

Based on the debate for capital flight, researchers do not have a common agreement for capital flight’s definition. Some researchers associate capital flight with illegality while others believe the motivations of the investment activities are relevant with capital flight. This study follows the definition of Beja’s (2005) study, where capital flight is defined as the capital movement from the resource-scarce developing countries to avoid the social control.

According to the different definitions of capital flight in the literature, there are two ways to define capital flight. The first is to separate capital flight from capital outflows, where capital flight is an identifiable entity. The second is not make any

differences between capital flight and capital outflows, where most researchers refer capital flight as the residual or the net unrecorded capital outflows (Beja, 2005). In the first method, there are three commonly used dimensions to distinguish capital flight and capital outflows such as volume, motive and capital flow direction. For the second method, researchers define the net unrecorded capital outflows as capital flight (see Erbe, 1985; World Bank, 1985; Morgan Guaranty, 1986).

Cuddington (1986, 1987) concludes many determinant factors for capital flight phenomenon including exchange rate overvaluation, inflow of foreign debt, and increase of U.S. interest rate. Some researchers divide the determinants of capital flight into two groups; push and pull factors (Ketkar & Ketkar, 1989). Poster (1990) points out the currency difference between local country and the U.S., inflation changes, net long-term capital inflows, the different economic growth rate between the U.S. and other countries and the increasing tax rate as capital flight determinants. Gibson & Tsakalotos (1993) identify the expected changes in exchange rate, policy uncertainty and government deficit determining capital flight. Other researches including Kant (1996) associate capital flight with the inflow of FDI and Loungani & Mauro (2000) associate Russia's capital flight with macro-economy instability, corruption, and failure of protecting intellectual property rights. Chunghachinda & Sirodom (2007) use the ordinary least square model to study capital flight phenomenon during the 1997 Asian financial crisis in Thailand, Malaysia the Philippines, Indonesia and South Korea. The authors test the significance of changes in inflation, financial incentive, degree of currency overvaluation, foreign direct investment, government budget deficit, current account deficit during the 1997 Asian financial crisis to determine each country's capital flight.

Previous studies of round-tripping phenomenon between Hong Kong and China can be separated into two types: round-tripping FDI and round-tripping capital flight. Hong Kong FDI to China takes more than a quarter of China's total FDI capital

inflow from Hong Kong (World Bank, 2002). According to Xiao (2004), China's round-tripping FDI is about 40% of its total capital flight.

This study examines the capital flight phenomenon in Hong Kong market. There are three research questions. Research question one measures whether there is any capital flight in Hong Kong using three capital flight measurement methods. Research question two uses the OLS to test which of the factors such as incentive, currency overvaluation and current account deficit, changes in inflation, government budget deficit and China's Open Door Policy announcement in 1979 are the determinants for Hong Kong's capital flight. Research question three examines the round-tripping FDI between Hong Kong and China.

The study period is from 1970 to 2009. The data are collected from Hong Kong BOP report, IMF statistic tables on IMF website, DataStream, the PACAP 2006 CD-room, statistic year book of China and the external direct investment statistic of Hong Kong. However, some of Hong Kong's data are not reported before 1997. For example, two of the capital flight measurement methods only cover the period of 1998 to 2009, and the trade mis-invoicing method covers the whole study period. The OLS model also covers the whole study period of 40 years. However, the round-tripping model only covers 12 years due to the limited data.

## **5.2 Results and Implications**

### **5.2.1 Result for research question one and implications**

The results using three different methods show that there are capital flight movements in Hong Kong regardless of which estimation method is used. However, the result from the three measurement methods differs substantially. For example, the result from the World Bank method exhibits the biggest absolute value, followed by the hot money method and the smallest absolute value from the trade mis-invoicing method. In the literature the World Bank method is considered as the broad definition, where it

includes both short-term and long-term capitals. On the other hand, the trade mis-invoicing method uses the export and import data to measure capital flight which is the narrowest of three methods.

All three methods' results exhibit a stable increasing trend of Hong Kong's capital flight from 1998 to 2009. However, when the study period begins from 1970, the result from the trade mis-invoicing method shows an overall of decreasing trend (as shown in Figure 4.1). There are period of fluctuation as well, for example, Hong Kong capital flight experienced a sharp increase in 1980 and a sharp decrease in 1986. The sharp increase could be caused by the announcement of China's Open Door Policy which encouraged trade between Hong Kong and China, and further encouraged capital flight through trade linkages. However, as time passed, more and more Chinese cities started to open to the world, there are less demand for China to use Hong Kong as transfer trading port trade with the world which eventually caused a sharp decreased of Hong Kong capital flight in 1986.

The results of this study showed that capital flight in Hong Kong through the trade method decreased from 1970 to 2009. There are evidences from the hot money and the World Bank methods that Hong Kong capital flight increased slightly in 1998. The decreased in capital flight from trade mis-invoicing method indicates that there are fewer chances for capital holders to use the trade method as a channel to move capital from 1970 to 2009. However, the increasing amount of capital flight from 1998 indicates Hong Kong's fast development after its reunifications with China. The results from the three methods showed that there is capital flight in Hong Kong, though the trade mis-invoicing method showed Hong Kong capital flight from 1970 has an overall of decreasing trend. However, all three results showed that from 1998 Hong Kong capital flight started to rise.

### **5.2.2 Results for research question two and implications**

For the second research question, the results show the determinants for Hong Kong capital flight include currency overvaluation, current account deficit and China's Open Door Policy announcement in 1979 (dummy variable). The result also shows that the determinants for Hong Kong capital flight are slightly different from Thailand, Malaysia, the Philippines, Indonesia and South Korea in Chunghachinda & Sirodom's (2007) study. And in Hong Kong market, the financial incentive, the changes in inflation, and the government budget deficit have no significant effect on its capital flight.

In this study, dummy variable is used to test the effect of China's Open Door Policy in 1979 on Hong Kong's capital flight. Beside Hong Kong reunification with China in 1997, (see Figure 4.1), Hong Kong's capital flight measured by the trade mis-invoicing method exhibits two sudden changes, one between 1979 and 1980, the other between 1987 and 1988. We tested all three years 1979, 1987 and 1997, where the dramatic changes in Hong Kong capital flight in 1979 are caused by China's announcement of Open Door Policy, while the changes in 1987 could be caused by less Chinese mainland investors and traders using Hong Kong as the transferring port. Our study showed the 1979 announcement of Chinese Open Door Policy affected Hong Kong capital flight significantly.

### **5.2.3 Result for research question three and implications**

For the third research question, the result shows the round-tripping FDI from Hong Kong to China is about 32% of China's total FDI inflow from Hong Kong. From Hong Kong's point of view, the round-tripping FDI is about 63% of Hong Kong reported total FDI to China. Following Xiao (2004)'s assumption that the percentage of round-tripping capital flight between Hong Kong and China is same as the percentage of round-tripping FDI between Hong Kong and China. Our study

concludes that in Hong Kong's case, the round-tripping capital flight from Hong Kong is 63% of Hong Kong's total capital flight outflow to China. The round tripping result implies that China has implemented successful policy of different tax treatment for domestic and foreign capital and the special treatment for foreign investment policy used in China. The result further showed the immaturity of China's capital control system.

### **5.3 Limitations**

There are several limitations in this study. First is the study time period. This study uses annual data and there are only 40 observations for the whole period from 1970 to 2009. In addition, within the 40 observations, there are still some data missing. In fact, in the trade mis-invoicing model there are 40 observations while the hot money and the World Bank models have only 12 observations. And in the round-tripping model, the number of observation is also 12. The small observations imply our study models are not robust.

Second, some of the data in this study are either not available for a longer period or missing for a couple of years. For example, the data for the hot money and the World Bank methods are not available before 1998. In this case, we analyzed only the period from when the data are available. Similarly, the financial incentive data is available only from 1976. In our study, we replaced the missing financial data with the weighted average figure of the same group data. However, the weighted average data could mis-lead the result. Before 1997, Hong Kong was one of British's Colonies, some data have not been properly reported and are not available. For example, the data in Hong Kong's Balance of Payment are not available before 1997, the earliest BOP report can only be found from 1998. As mentioned by Goodstadt (n.d.) that until 1997 Hong Kong's reunification there is no formal report on Hong Kong's BOP report.

The missing data in this study caused problems in examining the result for the whole selected time period.

Thirdly, the limited measurements and test models are used in this study. There are many methods to measure capital flight in previous literature, however this study used only three methods to measure capital flight in Hong Kong. It is possible that other capital flight measurement methods in the literature could provide better estimation for capital flight, for example, BIS (1984) as the direct measurement method, Dooley (1986), Hermes & Lensink (1992), Erbe (1985), and Morgan Guaranty (1986) used the indirect measurement method. For the capital flight determinants, this study used the OLS model to test seven commonly identified capital flight factors in the literature. There could be other determining factors such as transaction cost, tax rate, exchange rate and impact political uncertainty on Hong Kong capital flight. One can also use the VAR model to estimate Hong Kong capital flight. For the round-tripping, this study used only the round-tripping FDI to estimate the round-tripping capital flight between Hong Kong and China which might not be an accurate estimation for the round-tripping capital flight between Hong Kong and China. This is because the actual amount of round-tripping capital flight might not follow the same round-tripping FDI percentages.

Fourthly, this study only focuses on the capital flight phenomenon in Hong Kong market. It is reasonable to believe that the capital flight phenomenon is an entity that cannot be separated. The capital flight phenomenon happens between countries and regions, it is necessary to study the capital flight phenomenon between different countries and regions.

Lastly, the capital flight measured in this study might not be the total capital flight in Hong Kong. As discussed in previous chapter, the funding for illegal activities that cross into other nations are also considered as capital flight. However, this part of

capital flight cannot be estimated as there is no recorded information. Hence, the result in this study is only a portion of the total capital flight in Hong Kong.

#### **5.4 Contribution**

First, this study used three methods to measure Hong Kong's capital flight. The three methods covered the narrowest to the broadest measurements for capital flight, which exhibit a range of Hong Kong capital flight. There is a gap in the literature where previous studies concentrate on measuring capital flight in China, Thailand and other fast developing countries. The studies of China's capital flight phenomenon either exclude Hong Kong or combine Hong Kong with China as a whole, but there is no study on capital flight exclusively in Hong Kong. This study is the first study to use three different measurement methods to measure capital flight in Hong Kong.

Second, this study estimated the round-tripping capital flight between Hong Kong and China. Previous studies on the round-tripping capital flight focus on measuring the round-tripping capitals from China's point of view. There is no study that focuses on measuring the round-tripping capital flight from Hong Kong's point of view.

The result from the trade mis-invoicing method covers the time period from 1970 to 2009, which gives a relatively long time to observe the changes of capital flight in Hong Kong market. This study extends Xiao's (2004) study of round-tripping between Hong Kong and China for another seven years, from 1998 to 2009, and provides a longer period for measuring the round-tripping phenomenon between Hong Kong and China.

## 5.5 Recommendation for Future Research

Based on the limitations of this study, there are some recommendations for future research. In future, we suggest the use of monthly data to study capital flight phenomenon in Hong Kong. Future studies could also use other methods to measure Hong Kong's capital flight, such as the Mirror Statistic (BIS, 1984) direct method and the indirect measurement methods of Dooley (1986), Hermes & Lensik (1992), Erbe (1985) and Morgan Guaranty (1986). The time length of the data for other methods might be longer and other methods might provide a better measurement for Hong Kong's capital flight and also might provide a benchmark to check the findings.

Secondly, the OLS model is a simple model to test the capital flight determinants in Hong Kong. There are other models in literature to test the capital flight determinants such as summarizing the determining factors into push and pull factors and analyze the effect on capital flight; using the VAR model to test the determining factors; or using panel data approach. Those models might provide a different result for Hong Kong's capital flight determining factors. Furthermore, according to Hong Kong's role in the global economy, it is necessary to test some of the factors from other countries or regions, to check how those external factors affect Hong Kong capital flight.

Thirdly, this study focuses only on Hong Kong market. In future, researchers could view the capital flight as a whole global entity and link the capital flight phenomenon with different countries and regions. This study only studies the round-tripping phenomenon between Hong Kong and China, it does not focus on round-tripping phenomenon between Hong Kong and other countries and future studies could research on the round-tripping phenomenon between Hong Kong and its other major trade partners.

## 5.6 Conclusion

Capital flight study has attracted a new discussion after the 1997 Asian financial crisis. Many Asian countries suffered huge amount of capital outflows after the 1997 Asian financial crisis which further burdened their economy recovery. Capital flight is considered bad for a country's economy and it can have negative impact on the affected country's economy as it takes away capitals that could be used for the nation's development. There are studies on capital flight in Asian developing countries in the literature, for example studies on China, Thailand, and the Philippine etc. countries. However, there are limited studies on capital flight in Hong Kong. As the Asian financial hub and one of the leading financial centers in the world, Hong Kong plays a significant role in the global financial market. Therefore, the objective of this study is to analyze capital flight in Hong Kong and its determining factors as well as to investigate the round-tripping capital flight between Hong Kong and China from Hong Kong's point of view.

This study used hot money, the World Bank and the trade mis-invoicing methods to measure capital flight in Hong Kong and determine if there is a stable increasing trend in Hong Kong capital flight from 1998 to 2009 (see Figure 4.2). For the whole study period, the result from the trade mis-invoicing method shows that the overall Hong Kong's capital flight exhibited a decreasing trend.

This study used the OLS to examine the determinants of Hong Kong capital flight, and the results show currency overvaluation, current account deficit, and China's announcement of Open Door Policy in 1979 have significant impact on capital flight in Hong Kong, While financial incentive, changes in inflation, and government budget deficit have no impact on capital flight in Hong Kong.

For the round-tripping capital flight between Hong Kong and China, this study revealed that round-tripping phenomenon between Hong Kong and China takes about

1/3 of China's total recorded FDI from Hong Kong and more than half of Hong Kong reported FDI to China. According to literature, the amount of round-tripping FDI represents about 40% of the total capital flight round-tripping amount.

There are certain limitations in this study such as the data and model limitation; however, this study is useful for other studies relating to Hong Kong capital flight phenomenon. Due to the limitations of this study, further studies are left to future or other studies.

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