



<http://economix.u-paris10.fr/>

# Document de Travail

## Working Paper

### 2010-12

# Sovereign Wealth Funds as domestic investors of last resort during crises

Hélène Raymond



FRE 3257

Université de Paris Ouest Nanterre La Défense  
(bâtiments K et G)  
200, Avenue de la République  
92001 NANTERRE CEDEX

Tél et Fax : 33.(0)1.40.97.59.07  
Email : [secretariat-economix@u-paris10.fr](mailto:secretariat-economix@u-paris10.fr)

université  
**Paris | Ouest**  
  
Nanterre La Défense

## **Sovereign Wealth Funds as domestic investors of last resort during crises**

Hélène Raymond, University of West Paris – Nanterre

Mai 2010

### **Abstract:**

Usual definitions of Sovereign Wealth Funds (SWFs) put emphasis on their foreign investments. But after September 2008, some Sovereign Wealth Funds refrained from foreign investments and intervened to support their home economies during the crisis. We show that the interventions of Sovereign Wealth Funds as domestic “investors of last resort” are far from marginal and that they are not a passing innovation of the last global crisis. We review first the cases of interventions of SWFs as “shareholders of last resort” and differentiate interventions targeted on banks, from more general interventions designed to support non financial firms. We also run some regressions to quantify the impact of Gulf SWFs’ interventions on their home Stock returns and volatility. We find that the interventions of the Kuwaiti SWF were unsuccessful, whereas the Qatari intervention of October 2008 managed to rise effectively the Stock market return in the short run. We then turn to the interventions of SWFs as “lenders of last resort” and insurance funds against major crises. In some cases (Russia, 2009; Australia, 2007-2008) the lending by SWFs is targeted on the home banking sector. SWFs can provide medium term financing to ease the liquidity constraints of banks, whereas Central Banks’ loans are mostly at short term. But the intervention of Saudi Arabian SWF in 2008 was of a different kind, as the lending was targeted on non financial firms to make up for banks’ reluctance to lend and stimulate the economy. Lastly we discuss the role of Sovereign Wealth Funds as insurance funds against major crisis. SWFs may be used for government spending during crises or even intervene on Stock markets to counter speculative attacks, as was illustrated by the interventions of the Singaporean SWF GIC and of the HKMA.

### **Résumé en français :**

Les définitions usuelles des fonds souverains insistent sur leur mission d’investissement à l’étranger. Mais après septembre 2008 un certain nombre de ces fonds s’est détourné des investissements étrangers pour intervenir dans le soutien de leur économie d’origine. Nous montrons que ces interventions des fonds souverains comme « investisseurs en dernier ressort » sont loin d’être marginales et qu’elles ne sont pas une innovation éphémère liée à la dernière crise. Nous étudions en premier lieu les interventions des fonds souverains comme « actionnaires en dernier ressort », en distinguant les interventions spécifiquement ciblées sur les banques, des interventions plus générales. Nous quantifions l’impact des interventions de fonds souverains du Golfe sur les rendements et la volatilité des bourses locales à travers des régressions économétriques. Nous trouvons que les interventions du fonds souverain du Koweït ont été inefficaces, tandis que l’intervention du fonds qatari en octobre 2008 est effectivement parvenue à impacter positivement les rendements boursiers. En second lieu, nous étudions les interventions des fonds souverains comme prêteurs en derniers ressort et fonds d’assurance pendant les crises. Dans certains cas les prêts des fonds souverains pendant les crises sont ciblés sur le secteur bancaire national. En effet, contrairement aux banques centrales, les fonds souverains peuvent facilement fournir des financements à long terme. L’intervention de 2008 de fonds souverains saoudiens a toutefois eu un objet très différent, dans la mesure où il s’agissait de prêter directement à des entreprises non financières pour pallier l’insuffisante offre de crédits du secteur bancaire. Enfin, nous envisageons le rôle des fonds souverains comme fonds d’assurance pendant les crises. Les fonds souverains peuvent être utilisés pour financer des dépenses publiques pendant les crises, voire même pour repousser des attaques spéculatives sur le marché boursier, ainsi que l’ont notamment illustré les interventions des fonds souverains de Singapour en 2009 et de Hong Kong en 1998.

## Section 1: Introduction

Sovereign Wealth Funds are long term government controlled investment funds, at least partially invested in foreign assets (IMF, 2008; IWG, 2008). Most of them are based in emerging countries and derive from persistent trade surpluses. As a result, the bulk of the Sovereign wealth managed by these funds is located in oil exporting countries (Gulf countries, Norway, Russia, ...) and in Asian countries (China, Singapore, Hong-Kong, South Korea, Malaysia, ...) holding excess Foreign Exchange Reserves. The assets managed by Sovereign Wealth Funds (SWFs) have increased from US\$ 500 billion in 1990 to US\$ 3000-4000 billion in 2008. This is more than the assets under the management of hedge funds, but about eight times less than the size of pension funds (Raymond, 2009). Besides the dramatic increase in their overall size, SWFs have attracted a lot of attention by taking a few impressive stakes in the banking sector in 2007-2008. The rescue of major Western banks by these white knights symbolized the rising economic power of emerging countries (Santiso, 2009) and the failure of Western financial institutions. The publicity around Sovereign Wealth Funds' foreign investments has spurred an intense debate, as these government-owned funds "challenge the received notions of practice and governance embodied in [...] Western" economies (Monk, 2009). However, with the worsening of the crisis in September 2008, a number of Sovereign Wealth Funds retreated from foreign risky investments and were used to support their home economies. The new French SWF (FSI) was even created specially to the purpose of supporting domestic firms

Despite its depressing effects on commodity prices and on Asian exports, the recession of 2008-2009 did not stall the establishment of new SWFs (Maslakovic, 2009). But the crisis raises some new questions about the objectives behind the foundation of these State-owned Funds. Before the crisis, SWFs were described as funds designed to provide commodity exporters and Asian countries with an avenue by which they could invest abroad their growing external surpluses. They were often presented as an alternative to the accumulation of liquid and safe foreign assets in the Foreign Exchange Reserves of the Central Bank. The record level of Foreign Exchange (FX) Reserves in Emerging countries was largely debated long before the crisis. As FX Reserves are mostly in the form of low-yielding foreign Treasury bonds, holding Reserves entails an opportunity cost (Rodrik, 2006). A high level of Reserves can however be motivated by a self insurance objective (Aizenman and Lee, 2007): countries with large liquid foreign assets can better withstand sudden stops in foreign capital inflows. But, according to Aizenman (2007) the self insurance motive falls short of explaining the hoarding of FX Reserves in Asia in the 2000s. Therefore the rapid development of the overall size of Sovereign Wealth Funds' assets in the 2000s can be interpreted as a by-product of excessive FX Reserves. When the net foreign assets of a country become large and the government chooses to retain control of a significant part of the foreign assets, FX reserves quickly reach record levels. The high opportunity cost associated with the low yield of FX reserves is then a strong incentive to establish a Sovereign Wealth Fund, in pursuit of higher returns (Aizenman and Glick, 2008). But this framework, in which SWFs are established with the objective of enhancing the yield on net foreign assets, cannot account for the domestic "investor of last resort" part played by SWFs during the crisis. The domestic interventions of SWFs were far from marginal: over 40% of deals by SWFs were targeted towards their domestic markets in Q4 2008.<sup>1</sup>

---

<sup>1</sup> "Sovereign Wealth Fund Analysis, SWFs Take Passive Approach in Cross-Border Investment", *Corporate Financing Week*, 5 March 2010.

There are two opposite views of the support provided by Sovereign Wealth Funds to their domestic economies during the crisis. The first one is that it is anecdotal and ephemeral: SWFs will soon return to their objective of seeking optimal returns. The second one is that SWFs have more complex objectives than is apparent at first sight: their use as domestic investors of last resort is not just another passing symptom of the exceptional magnitude of the crisis in 2008-2009 and of the panic that surrounded it. Investing Sovereign wealth abroad is, indeed, far from being the sole purpose of the establishment of SWFs. Some Sovereign Wealth Funds were initially designed to hold stakes in domestic firms. This is the case for TEMASEK, a Singaporean SWF, which holds the State's shares in the Government Linked Companies (GLCs).<sup>2</sup> According to Santiso (2009), most Sovereign Wealth Funds can be considered as development funds, as they contribute to development in their homelands through their domestic investments. Interestingly, during past crises, SWFs have already been used to provide an exceptional support to their home economies. In this paper we take the second view of SWFs' interventions as investors of last resort: we argue that the investments of SWFs to alleviate the consequences of the 2008-2009 period of crisis on their domestic economies did not happen by chance.

The objective of this paper is to look into episodes of crises during which SWFs were investors of last resort for their home economies. To our knowledge the literature on this subject is very scarce or even inexistent, with the notable exception of the paper by Clark and Monk (2009). Clark and Monk (2009) focus on the case of the Government of Singapore Investment Corporation (GIC) and take an institutional approach. We try a more comprehensive (though not exhaustive and less detailed) treatment of cases of SWFs acting as domestic investors of last resort. We review cases of domestic interventions of SWFs from oil exporting countries (Kuwait, Qatar, Saudi Arabia, Russia), from Asia (China, Singapore, Hong-Kong) and from Western countries (France), with a special emphasis on Middle East countries. The Gulf countries have been amongst the first to set up SWFs and account for about 40% of the total assets under SWFs' management. Some of the interventions reviewed here occurred during past crises (the Middle East Stock market crisis of 2006, the Asian crisis of 1997-1998). They illustrate the fact that SWFs interventions as domestic investors of last resort are not an innovation imputable to the last crisis of 2008-2009.<sup>3</sup> In this study we take a more quantitative view than Clark and Monk (2009): we assess the impact of Gulf SWFs interventions on domestic Stock market prices and volatility by means of EGARCH-X models. We also emphasize an important specificity of SWFs, comparatively with traditional Foreign Exchange Reserves funds and Central Banks: their ability to take long term stakes in companies and therefore to recapitalize domestic firms.

The rest of the paper is organized as follows. Section 2 presents the interventions of Sovereign Wealth Funds as "Shareholders of last resort" for the domestic banking sector. It recalls the rationale behind the State's interventions to recapitalize banks, reviews interventions of Chinese and Qatari SWFs in 2008-2009 and quantifies the effect of the Qatari intervention on the Stock market. Section 3 discusses again the interventions of Sovereign Wealth Funds as Shareholders of last resort, but this

---

<sup>2</sup> Since the 1990s there has been a programme of privatization (often partial) of the GLCs. But initially the Singaporean State has played a major part in the industrialization and the development of Singapore, through the GLCs and TEMASEK (Feng, Sun and Tong, 2004). The GLCs now play an important part in Singapore's foreign direct investment.

<sup>3</sup> The financial crisis began earlier, during the summer of 2007, but its persistence and the ensuing recession became apparent only in 2008.

time for domestic non financial firms. It reviews interventions of SWFs before 2007 and after September 2008 and tries to assess empirically the effects of interventions of the Kuwaiti SWF on its home Stock market during two different crises. Section 4 presents and discusses the interventions of Sovereign Wealth Funds as lenders of last resort and insurance funds against major crises.

## **Section 2: Sovereign Wealth Funds as “shareholders of last resort” for the domestic banking sector**

The first stage of the 2007 Subprime crisis was characterized by a form of liquidity trap (Levintal, 2009). The interest rate cuts and the liquidity injections of the Central Banks were not sufficient to restore the stability of the financial system. When banks experience major losses, their capital quickly falls below the minimum regulatory level and they need to raise funds. But the uncertainty about the value of banks assets and the prospects for recovery deter investors. The government may have to step in to recapitalize banks. The question of the recapitalization of damaged financial institutions is not new: the conditions under which banks should be recapitalized have been studied by Diamond (2001). In practice, recapitalizing banks in a systemic crisis is always a complex process (Garcia et al., 2001). Using a Sovereign Wealth Fund (SWF) to recapitalize banks does not overcome this complexity and it can be inconsistent with the other objectives of the SWF. The appropriateness of using SWFs to recapitalize banks - and more generally to recapitalize domestic firms during crises - is debatable. However, SWFs have been used – and are currently used (China, Qatar) – to that purpose. SWFs are tailored to take stakes in companies and they have experience in asset management. This gives them an advantage over traditional FX Reserves funds and Central Banks, which can provide emergency liquidity, but are – in theory – not designed for the purchase and the management of equity stakes. In the following paragraphs we will present some interventions of SWFs to recapitalize domestic banks during crises.

There are at least two cases in which SWFs openly intervened to recapitalize the banking sector of their home economies. These two cases involve emerging countries: China and Qatar. After the turmoil triggered by Lehman Brothers’ Failure in September 2008, both countries used their SWFs to take stakes in ailing local banks.

### **2.1 The rescue of Chinese banks by China Investment Corporation in 2008-2009**

The Chinese SWF - China Investment Corporation (CIC) - was established in September 2007, six months after it was announced, with the objective to improve the yield on Chinese holdings of Foreign Assets. Until then China had held its Foreign Assets mostly in the form of low-yielding FX Reserves. The Chinese FX Reserves swelled from US\$ 165.6 billion in 2000 to US\$ 1433.6 billion in September 2007.<sup>4</sup> The considerable opportunity cost of these huge Reserves motivated the establishment of CIC to diversify the Chinese Sovereign wealth into high-yielding foreign securities. The Chinese approach was cautious: at the beginning CIC was endowed with US\$ 200 billion<sup>5</sup>. It allowed him to rank amongst the ten main SWFs, but was a relatively low amount compared with the huge level of China’s FX Reserves. This caution was *ex post* justified by the heavy losses incurred by CIC on some of its first overseas investments, after the failure of Lehman Brothers and the collapse of

---

<sup>4</sup> At the end of March 2010 Chinese FX Reserves reached the new record level of US\$ 2447.1 billion (Source: S.A.F.E.). The crisis did not stop the hoarding of Reserves by the People's Republic of China, but it slowed down their average rate of increase from +112% /year, over December 2000 - September 2007, to +68% / year, over September 2007- March 2010.

<sup>5</sup> The capital of its wholly owned subsidiary Central Huijin was part of the initial endowment of CIC.

Stock markets in September 2008. In October 2008 the US\$ 3 billion stake of CIC in the private equity fund Blackstone Group had lost 2/3 of its initial value. CIC also suffered a nearly 80% (unrealized) loss on its five-billion-dollar investment in the bank Morgan Stanley. In September 2008 the fund faced severe criticism at home for its bad foreign investments and had to adjust its strategy.<sup>6</sup> The economic situation in China was deteriorating, local Stock markets tumbled – the Shanghai Composite Index had already lost 52% before the failure of Lehman Brothers and was to lose 18% more after - and the vulnerability of Chinese banks put them at danger. CIC then refrained from making more overseas investments, turned to cash and came to rescue to Chinese banks on its home Stock markets.

The recapitalization of Chinese banks – riddled by non-performing loans - began long before September 2008. The State-owned company Central Huijin Investment – now a domestic investment arm of the CIC – was established to that purpose in 2003. However, the operations launched on local Stock markets by the CIC in the aftermath of Lehman Brothers' failure were clearly rescue interventions, carried out in reaction to the crisis. The first interventions did not, strictly speaking, recapitalize the Chinese banks, as they did not allow them to raise new capital, but they were intended to preserve the market value of existing capital.

On the 16<sup>th</sup> September 2008, just after the failure of Lehman Brothers, the CIC stated (through its subsidiary Central Huijin) that it was going to buy stakes in three Chinese banks - the Industrial and Commercial Bank of China, the Bank of China and the China Construction Bank - on the local Stock Exchanges and had already begun to do so. The objectives were to stabilize the banks' Stock prices, support the steady operation of these major State-controlled lenders and ensure the government's interest in the three banks. A China Securities Regulatory Commission spokesman said that "the decision was important for a stable operation of the capital market".<sup>7</sup> The same day, two other actions were taken by Chinese authorities to support Stock prices. The director of the State-owned Assets Supervision and Administration Commission encouraged the centrally-administered State-owned enterprises to buy more stocks of their listed subsidiaries.<sup>8</sup> Besides, China decided to suppress the stamp tax on stock purchase to stimulate investments in the local Stock markets.

These three coordinated moves were clearly part of a prompt action taken by the Chinese government to halt the slump in the Chinese Stock markets and signal forcefully the commitment of China to support its banking system. Indeed the Shanghai Stock market bust was relatively short: it lasted from November 2007 to November 2008, whereas the trough of the SP500 was only reached in March 2009. The ending of the Chinese Stock market bust only two months after the first interventions of the Sovereign Wealth Fund CIC might of course be a coincidence. If the interventions of the CIC played a part in this recovery, they are probably only one factor amongst many others: a thorough specific study would be needed to unravel the determinants of the early recovery of the Chinese Stock Market.

The purchases by the Chinese Sovereign Wealth Fund – through Central Huijin - of shares in the same three major Chinese commercial banks continued over a long period. New purchases were

---

<sup>6</sup> See the statements of the vice executive President and of the CEO of CIC, reported in the AFP news of January 5, 2009: "China's sovereign wealth fund to slow investment: report" (AFP, Shanghai).

<sup>7</sup> Source: "China cancels stamp tax on stock purchase to support equities market", 2008-09-18, Xinhua, available on [http://news.xinhuanet.com/english/2008-09/18/content\\_10075566.htm](http://news.xinhuanet.com/english/2008-09/18/content_10075566.htm).

<sup>8</sup> Source: China supports strategic SOEs to buy more stocks of listed subsidiaries, 2008-09-18, Xinhua, available on [http://news.xinhuanet.com/english/2008-09/18/content\\_10075965.htm](http://news.xinhuanet.com/english/2008-09/18/content_10075965.htm).

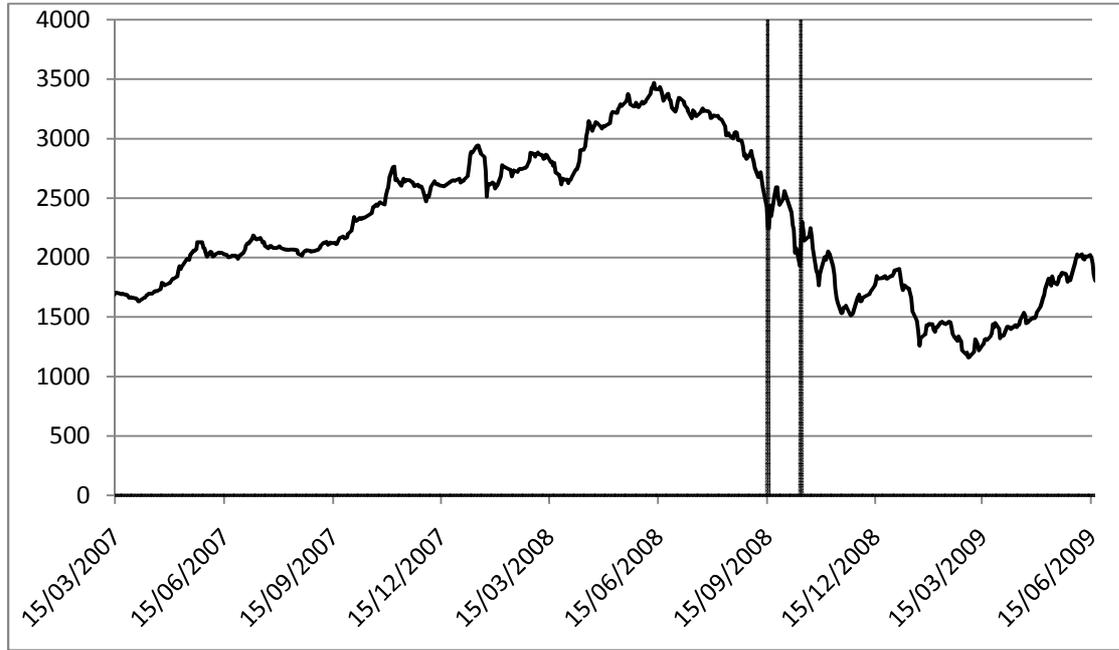
announced in January 2009 and October 2009. The motivation put forward in October 2009 was to reassure investors and stabilize the Stock market. In November 2008, the Agricultural Bank of China had also received a massive capital injection of \$19 billion from the CIC and the ministry of finance, in order to strengthen the bank and prepare its initial public offering. But commercial banks were not the only financial institutions to be supported by the Sovereign Wealth Fund. In October 2009 again, the International Far Eastern Leasing Company was recapitalized for an amount of US\$ 160 million, by a consortium comprising China International Capital Corporation, a company controlled by the Chinese State through a subsidiary of Central Huijin. The stated objective of the recapitalization was to develop financial leasing in China. At the end of 2009, half to two-thirds of CIC consisted of assets of Central Huijin, which purpose is to recapitalize and restructure local financial institutions. Far from being marginal tasks of the Chinese Sovereign Wealth Fund CIC, the recapitalization of Chinese financial institutions and the stabilization of the local Stock markets appear as major assignments of the Fund during the crisis.

## **2.2 The rescue of Qatari banks by QIA in October 2008: the impact on Qatar's Stock market return and volatility**

Qatar's national income relies heavily on its exports of natural gas. The Qatari Sovereign Wealth Fund - Qatar Investment Authority (QIA) - was founded in 2005 to help the country to diversify its sources of income and to isolate its economy from the volatility of gas price. Its assets under management amount to about US\$ 60 billion, which allows QIA to rank amongst the ten first SWFs by size, though far behind the Chinese SWF (CIC). QIA was one of the SWFs which played white knights to distressed Western banks during the Subprime crisis, between July 2007 and July 2008 (Raymond, 2009). It contributed to the recapitalization of Credit Suisse in February 2008 and of Barclays in June 2008 for, respectively, US\$ 600 million and US\$ 2800 million, at a time when Gulf countries seemed well preserved from the crisis and the Qatari Stock Index (Figure 1) still boomed. But after the failure of Lehman Brothers in September 2008 the Gulf Stock markets plummeted. The Qatari Stock market price index had begun to recede since June 2008, with the drop in energy prices, but the turmoil set off by the failure of Lehman Brothers the 15th September 2008 accelerated its descent. The Qatari DSM Stock price index lost 25% over the short period 11/09/2008-12/10/2008 (just before QIA's intervention) and it became quite apparent that Qatar, as well as the others Gulf countries, would not be spared by the crisis.

The Qatari government then took action through its Sovereign Wealth Fund QIA and launched a US\$ 5.3 billion plan to buy local bank shares on Monday the 13th October 2008. This action was sustained in the long run: at the end of 2009 QIA was still buying local bank shares. At its beginning, in October 2008, QIA's intervention was in fact coordinated with two monetary policy moves by United Arab Emirates (UAE) and Saudi Arabia. A few hours before the news of QIA's intervention, the UAE announced a plan to guarantee deposits, including foreign units, and the Saudi Central Bank surprised the markets by cutting its benchmark repo rate by 50 basis points.

**Figure 1: Qatar's Stock Price Index (DSM Index)**



Source: Bloomberg.

The first Vertical line represents the day of the announcement of Lehman's Brothers Failure. The second vertical line represents the day when QIA's plan was launched.

To assess the impact of QIA's intervention<sup>9</sup> on its home Stock market in October 2008, we estimate models for the conditional mean and variance of the Stock return. The data is described in detail in the appendix.

The conditional mean of the daily Stock return is modeled as follows:

$$r_t^Q = c_m + \sum_1^4 d_{m,i} Day_i + \beta_1 r_t^W + \beta_2 r_{t-1}^G + \sum_1^p \alpha_j r_{t-j}^Q + \mu_m^L Dum^{Leh1} + \mu_m^Q Dum^Q + \varepsilon_t^Q \quad (1)$$

Where  $r_t^Q$  is the Stock return for Qatar, defined as the first difference of the logged Stock price index,  $Day_1, Day_2, Day_3, Day_4$  are day of the week dummies for, respectively, Sunday, Monday, Tuesday, Wednesday,  $r_t^W$  is the World Stock return,  $r_{t-1}^G$  is the lagged Gulf Stock return,  $Dum^{Leh1}$  is a dummy for announcement of the failure of Lehman Brothers on the 15<sup>th</sup> September 2008,  $\varepsilon_t^Q$  is the error term.  $Dum^Q$  is the dummy for the intervention of QIA, which is set equal to 1 on the first day of the news and on the following day and is zero otherwise.<sup>10</sup>

To allow for a lasting change of regime in the conditional variance and/or the conditional mean return after Lehman's Failure, we also tried a variant of the dummy for this event ( $Dum^{Leh2}$ ) that takes a zero value before the 15<sup>th</sup> September 2008 and the value one from the 15<sup>th</sup> September and onwards. But this variant was not supported by the data in the case of Qatar.

Equation (1) is a simple model for the conditional mean of stocks returns, derived from the well known market model. In its basic form it would only include the constant ( $c_m$ ) and the World Stock

<sup>9</sup> More exactly we test here for the effect of the common intervention of QIA together with Saudi Arabia and UAE, as the three moves were approximately simultaneous.

<sup>10</sup> Setting this dummy equal to 1 on these two consecutive days allows for a more lasting effect of the news of QIA's move. According to the first releases of the news of the intervention, the market was still expected to react on the day after.

return ( $r_t^W$ ). Here we add dummies for days of the week effects ( $Day_i$ ), the failure of Lehman Brothers ( $Dum^{Leh1}$ ), the intervention of QIA ( $Dum^Q$ ) and lagged values of Qatar's return ( $r_{t-j}^Q$ ) to allow for time dependency. We also add the Gulf Stock return ( $r_{t-1}^G$ ) to account for the imperfect integration of Qatar's Stock Market - and of Gulf Stock markets in general - with the rest of the World. We lag this variable to allow for its endogeneity: Qatar's Stock Price is a significant part of the more general Gulf index.

Testing for the effect of QIA's intervention on Qatari Stock returns is very simple in the framework of equation (1). It amounts to test if  $\mu_m^Q = 0$  (no effect), against  $\mu_m^Q > 0$  (positive effect) or  $\mu_m^Q < 0$  (negative effect). If  $\mu_m^Q > 0$  then the intervention succeeds in raising stock prices, at least in the short run.

To assess the impact of QIA's intervention on Stock returns volatility we estimate an Exponential GARCH model (Nelson, 1991). It is well known that daily Stock returns are heteroskedastic and that their conditional variance displays an autoregressive pattern with a negative asymmetry. Therefore we estimate the following asymmetric EGARCH(1,1)-X Model:

$$\ln(h_t^Q) = c_h + a \frac{|\varepsilon_{t-1}^Q|}{\sqrt{h_{t-1}^Q}} + b \ln(h_{t-1}^Q) + d \frac{\varepsilon_{t-1}^Q}{\sqrt{h_{t-1}^Q}} + \mu_h^L Dum^{Leh1} + \mu_h^Q Dum^Q \quad (2)$$

Equation (2) is a variant of the Exponential GARCH model of Nelson (1991), where  $h_t^Q$  is the conditional variance. If  $d < 0$  (which is expected for stocks), then negative errors in equation (1) increase more the conditional variance (with a lag), than positive ones. Here we have an EGARCH-X instead of a simple EGARCH, because we introduce dummies as additional explanatory variables, besides the lagged conditional variance and the (absolute) lagged standardized error.

Testing for the effect of QIA's intervention on the volatility of the Qatari Stock Market returns in the framework of equation (2) amounts to test if  $\mu_h^Q = 0$  (no effect on Stocks volatility), against  $\mu_h^Q > 0$  (positive effect) or  $\mu_h^Q < 0$  (negative effect).

Equations (1) and (2) are estimated over the period going from the 29<sup>th</sup> June 2006 to the 31<sup>st</sup> December 2008. The estimation period begins after the ending of the 2006 Stock Market crisis of the Gulf countries (March 2006) to avoid any interference between the two crises.

To get plausible initial estimates for both equations and select lags (in equation 1) we first estimate equation (1) and (2) separately in two steps. In the first step we estimate equation (1) by Least Squares using Heteroskedasticity-Consistent Eicker-White Standard Errors. We select the lags on Qatar's Stock return so as to ensure that the residuals are not auto-correlated. We eliminate the lags that do not enter significantly in the regression to get a parsimonious specification, checking that the autocorrelation of residuals stays not significant. We retrieve the residuals from the estimation of equation (1) and use them in a second step to get initial estimates for equation (2). Equation (2) is then estimated using maximum likelihood.

The estimates obtained in the separate estimations of equations (1) and (2) are used as initial estimates for the joint estimation of equations (1) and (2) by maximum likelihood. The result of this final estimation is displayed in Table 1 hereafter.

**Table 1: The impact of the intervention of QIA on its home Stock market**

<i>Equation (1), Conditional mean</i>			<i>Equation(2), Conditional Variance</i>		
$c_m$	-0.0001	(0.0004)	$c_h$	-0.6906***	(0.1628)
$d_3$	0.0015*	(0.0009)	$a$	0.3472***	(0.0610)
$\beta_1$	0.0927**	(0.0371)	$b$	0.9504***	(0.0149)
$\beta_2$	0.0752*	(0.0424)	$\mu_h^L$	1.9720**	(0.8188)
$\alpha_1$	0.2470***	(0.0427)	$\mu_h^Q$	-0.0770	(0.4439)
$\alpha_8$	0.0723**	(0.0306)	<i>(Standard Errors between brackets)</i>		
$\mu_m^L$	-0.0639	(0.0750)			
$\mu_m^Q$	0.0803***	(0.0272)			
Log Likelihood: 1845.94. Estimation period: 29/6/ 2006 -31/12/ 2008.					
Number of usable observations: 631.					

\*Significance level at 10%, \*\* sign. level at 5%, \*\*\* sign. level at 1%.

According to the results displayed in Table 1, the news of the intervention of QIA in October 2008 had a positive and significant effect of about +8% on Qatar's stock return, but no significant effect on its volatility. The coordinated moves of Saudi Arabia and the UAE together with the credibility of QIA's long term commitment to support the local banks can explain this remarkably large and positive effect on the Stock index return. The other coefficients all display the expected signs and are different from zero at 10%, 5% or 1% significance levels. The only exception involves the coefficients of the dummy for Lehman's failure. Their signs are as expected, as the dummy decreases the return and increases the volatility. But the estimate of  $\mu_m^L$  in the equation for the mean return is not significantly different from zero, though it stays close to its initial value (-0.05), which was significant in the first step estimation. We have no explanation for this, except, perhaps, the difficulty to obtain precise estimates for all parameters when equation (1) and (2) are jointly estimated by maximum likelihood or the dominance of the impact on the volatility over the impact on the return. Besides, the news of Lehman's Brothers failure is also transmitted to Qatari Stock returns through their dependence on World's Stocks returns.

### **Section 3) Sovereign Wealth Funds as shareholders of last resort for (non financial) domestic firms**

In this section we present cases of Sovereign Wealth Funds taking stakes in domestic firms to support them during crisis. The interventions reviewed here differ from those studied in section 2 because they are not specifically targeted on the banking sector.

The interventions of State-owned funds to buy shares in banks can be defended on the ground that the failure of banks or their malfunctioning can freeze credit and cause systemic risk. Interventions to support domestic non financial firms are much more debatable, as the failure of non financial firms entails much less systemic risk than the failure of a bank. However, supporting banks is not always sufficient to defreeze credit and restore the access of non financial firms to external financing. It takes some time to restore confidence and a sound business climate. Meanwhile, non financial businesses can be irreversibly damaged and closed, while with a normal access to markets and credit they would have continued operating. Fears of such damages, together with the lobbying of investors and firms, have persuaded some governments to use their Sovereign Wealth Funds to take stakes in domestic non financial firms during crises. However the freeze of credit is not the only motive for intervention. Governments may be tempted to use SWFs as their investment arms to prevent foreign

takeovers of companies deemed of strategic relevance for the domestic economy. And when the Sovereign Wealth Fund is managed by the Central Bank, it can also be used to intervene on the Stock Exchange to counter speculative attacks on the FX Regime and the financial markets.

Sovereign Wealth Funds interventions as domestic shareholders of last resort are not an innovation ascribable to the crisis of 2008-2009: in section 3.1 we will study two interventions of SWFs that occurred during past crises. We will then turn in section 3.2 to more recent interventions of SWFs to buy domestic stocks during the last crisis.

### **3.1) Two cases of interventions before 2007**

In the following paragraphs we will study the intervention of the Hong Kong Monetary Authority during the Asian Crisis and the intervention of the Kuwaiti SWF (KIA) during the Gulf Stock market crisis of 2006. The impact of this last intervention will be quantified using the same methodology than in section 2.2.

#### *The 1998 intervention of the Hong Kong Monetary Authority on its home Stock Market:*

The Hong Kong Monetary Authority (HKMA) was established in 1993. It is the authority responsible for maintaining monetary and banking stability in Hong Kong: in other words it is the Central Bank of Hong Kong. But as Hong Kong's Foreign Exchange Regime is a currency board, the monetary policy is not independent. Therefore the main function of the HKMA is to manage Hong Kong's official Reserves and to "maintain currency stability, within the framework of the linked exchange rate system, through sound management of the Exchange Fund, monetary policy operations and other means deemed necessary".<sup>11</sup> The Exchange Fund managed by HKMA is divided into three distinct portfolios: the Backing Portfolio, the Strategic Portfolio and the Investment Portfolio. The Backing Portfolio provides full backing of Foreign Assets to the Monetary Base, as required under the Currency Board arrangements. It fits the usual definition of FX Reserves as it is invested in highly liquid US dollar-denominated securities. The Strategic Portfolio holds shares in Hong-Kong Exchanges and Clearing Limited acquired for "strategic purposes", to be kept in the long term. The balance of the Fund's assets constitutes the Investment Portfolio, which is considered as Hong Kong's Sovereign Wealth Fund. In 2006 there was no strategic Portfolio and the Investment Portfolio was invested primarily in the bond and equity markets of OECD countries. The Investment Portfolio and the Strategic Portfolio are much less liquid than the Backing Portfolio and do not really fit the definition of FX Reserves. The Investment Portfolio is used to invest in the long term the excess of FX Reserves (over what is necessary to back the Monetary Base), in order to earn a higher yield. Accordingly, the Investment Portfolio of the HKMA is considered as a Sovereign Wealth Fund (Truman, 2008). As the amount of the Strategic portfolio is relatively marginal and is not disclosed separately, the size of the Sovereign Wealth Fund of Hong-Kong can be approximated as the total size of the investment portfolio and the strategic portfolio of the HKMA, which is US\$ 144 in March 2010, of which 32% are equities. The size of this Sovereign Investment Fund allows Hong Kong to rank amongst the ten main SWFs, not very far from China and Russia.

In August 1998 Hong Kong was under a speculative attack, during which speculators used, as usual, futures and currency markets to bet on the delinking of the Hong Kong dollar from the US\$ and also

---

<sup>11</sup> Extract of the HKMA official website in April 2010.

massively shorted the Hang Seng Stock Index. The bet was that the bubbles in the Stock and property markets would burst out under the pressure of speculators and that the crash of Stock prices and other Hong Kong assets would make it too costly for the government to maintain the linked exchange rate. If delinking from the US\$ and devaluation occurred, speculators would win their bet: they could then purchase back the shorted stocks for a much lower price in US\$. But on the 12 August 1998, the HKMA made a surprise move to counter speculation: it launched a massive intervention on the Stock Exchange, which lasted two weeks. It spent a total of US\$ 15 billion on Hong Kong blue chips. In the short run, the intervention succeeded in raising the Stock price index by 8.5% and inflicted heavy losses on some speculators (Nip, 2007). In the longer term, Hong Kong managed to preserve its currency board. However, this rather unusual mean of intervention for a Central Bank was criticized on the ground that it interfered with the free functioning of the Singaporean Stock market. Then there was also the question of the management of the portfolio of the acquired stakes in Hong Kong blue chips. There seemed to be no point in keeping them in a free market economy, but selling them too abruptly would produce a Stock market crash (Cruz, 1998). The Hong Kong Monetary Authority committed to sell them progressively and effectively succeeded to do so ... up to a point.

In fact, the Sovereign Wealth Fund of Hong Kong still holds a relatively high percentage of Hong Kong equities: 40% of its Equity portfolio are Hong Kong equities. And even if, to our knowledge, there have been no other reported interventions of the same kind, they are far from being waived. On the 12<sup>th</sup> October 2008 a government official threatened to use once more the Exchange Fund to stabilize Hong Kong's financial markets (Leung, 2008). The stress on economic and financial conditions was again very high: the Hong Kong Stock market plummeted 29 percent since September 2008 and there had been a brief bank run on Bank of East Asia. To our knowledge the Hong Kong Monetary Authority did not carry out this threat of intervention. But, interestingly, the intervention of the Sovereign Wealth Fund on Hong Stock Market stays an option to confront speculation during crises, even if it is very seldom used.

#### *The 2006 intervention of the Kuwait Investment Authority on its home Stock Market: the impact on Kuwait's Stock market return and volatility*

The Kuwait Investment Authority (KIA), established in the 1950s, is the most senior Sovereign Wealth Fund. It is a saving fund designed to invest proceeds of oil exports in the long term, for future generations. Normally, ten percents of the annual oil revenue of the Kuwaiti government accrue to KIA. Its size is about US\$ 200, close to the size of the Chinese SWF.

In March 2006 Gulf Stock markets plummeted, after a six- to seven-fold rise since 2001. After a protest by hundreds of small investors, the Kuwait Investment Authority promised to inject cash into the Stock market. According to the market news the effect was positive, but small and short-lived. A few days later Saudi authorities also intervened to support their Stock Market, but did not publically acknowledge doing so.

To quantify the effect of KIA's intervention on Kuwait Stock market in March 2006, we estimate models for the conditional mean and the conditional variance of the daily Stock return following the same methodology as in section 2.2. As the Gulf Stock Index which we use in section 2.2 is not available over all our estimation period 4/6/2005-22/5/2007, we use instead the Abu Dhabi ADX index as a proxy. In addition to the dummy for KIA's intervention, we introduce a dummy for the

intervention of Saudi authorities, which might have an effect on Kuwait's Stock Exchange. The results of the final estimation are displayed in Table 2.

**Table 2: The impact of KIA's 2006 intervention on its home Stock market**

<i>Equation (1), Conditional mean</i>		<i>Equation(2), Conditional Variance</i>	
$c_m$	0,0007** (0,0003)	$c_h$	-0,7131*** (0,1087)
$d_1$	-0,0011*** (<0,0001)	$a$	0,1752*** (0,0465)
$\beta_1$	0,0744* (0,0420)	$b$	0,9413*** (0,0110)
$\beta_2$	0,0821*** (0,0189)	$d$	-0,1892*** (0,0324)
$\alpha_1$	0,0927** (0,0406)	$\mu_h^S$	0,9375 (1,2105)
$\alpha_2$	0,1416*** (0,0391)	$\mu_h^K$	0,4700 (0,9437)
$\alpha_3$	0,0230 (0,0394)		
$\alpha_4$	0,0321 (0,0266)		
$\alpha_5$	0,0548* (0,0344)		
$\mu_m^S$	0,0565* (0,0335)		
$\mu_m^K$	0,0096 (0,0158)		
<i>(Standard Errors between brackets)</i>			
Log Likelihood: 1705.96 Estimation period: 4/6/2005- 22/5/2007			
Number of usable observations: 491.			

\*Significance level at 10%, \*\* Sign. level at 5%, \*\*\* Sign. level at 1%.

According to the results displayed in Table 2, KIA's intervention has no statistically significant effect on the conditional mean return ( $\mu_m^K = 0$ ) and no effect either on the conditional volatility ( $\mu_h^K = 0$ ). But the Saudi intervention<sup>12</sup> has a positive effect ( $\mu_m^S = 0.0565$ ) on Kuwait's Stock market, at 10% Significance level, without impacting the volatility.

Overall, KIA's March 2006 intervention to support the Kuwaiti Stock market seems to have been rather unsuccessful, even in the very short run. But it did not deter KIA from intervening openly again in 2008.

### 3.2) Sovereign Wealth Funds' Interventions on Stock Markets since 2008

Since September 2008, there have been at least three acknowledged interventions of Sovereign Wealth Funds on their home Stock markets: in Kuwait, Russia and France.

<sup>12</sup> As this intervention is not acknowledged by Saudi authorities and does not clearly entail the intervention of a SWF we do not try to check its impact on the Saudi Stock Market.

*The 2008 intervention of the Kuwait Investment Authority on its home Stock Market: the impact on Kuwait's Stock market return and volatility*

In September 2008, following a request from the government, the Sovereign Wealth Fund KIA announced it would invest as much as US\$ 1 billion to support sinking Kuwait Stock prices. The objectives put forward by the government were to protect small investors (as in 2006) and take action to save the Stock Exchange. KIA took stakes of as much as 20% in numerous investment funds to support the Kuwaiti Stock prices. A few days after, the United Arab Emirates Central Bank announced it may inject as much as Dh50 billion into the money markets of the UAE to ease liquidity concerns.

To quantify the effect of KIA's intervention on Kuwait's Stock market in September 2008, we estimate models for the conditional mean and the conditional variance of the daily Stock return following again the same methodology as in section 2.2. and 3.1. Here we use the two variants of the dummy for Lehman Brothers failure - defined in section 2.2 – as they both enter significantly in the mean equation. In the variance equation we use only the second variant of the dummy for Lehman Brother's failure ( $Dum^{Leh2}$ ), as this choice is supported by the data. In addition to the dummy for KIA's intervention, we introduce a dummy for the intervention of the United Arab Emirates, which might have an effect on Kuwait's Stock Exchange. The results of the final estimation are displayed in Table 3.

**Table 3: The impact of KIA's 2008 intervention on its home Stock market**

Equation (1), Conditional mean			Equation(2), Conditional Variance		
$c_m$	0.0010***	(0.0003)	$c_h$	-1.1869***	(0.3420)
$d_1$	-0.0014**	(0.0005)	$a$	0.2283***	(0.0613)
$\beta_1$	0.0359*	(0.0212)	$b$	0.9011***	(0.0308)
$\beta_2$	0.0895***	(0.0201)	$d$	-0.1336***	(0.0286)
$\alpha_1$	0.0979**	(0.0385)	$\mu_h^{L2}$	0.1815**	(0.0736)
$\alpha_5$	0.0784**	(0.0371)	$\mu_h^{UA}$	-0.8602	(1.1970)
$\mu_m^{L1}$	-0.0276**	(0.0116)	$\mu_h^K$	1.7772*	(0.9221)
$\mu_m^{L2}$	-0.0064***	(0.0019)			
$\mu_m^{UA}$	0.0048	(0.0138)			(Standard Errors between brackets)
$\mu_m^K$	0.0222	(0.0310)			
Log Likelihood: 2213.54 Estimation period: 30/06/2006- 31/12/2008					
Number of usable observations: 620					

\*Significance level at 10%, \*\* Sign. level at 5%, \*\*\* Sign. level at 1%.

According to the results displayed in Table 3, the intervention of KIA's has no statistically significant effect the conditional mean return ( $\mu_m^K = 0$ )<sup>13</sup>, but it increases significantly the conditional volatility ( $\mu_h^K = 1.7772$ ) at a 10% significance level. The UAE's intervention has no statistically significant effect on the conditional mean ( $\mu_m^{UA} = 0$ ) or the conditional variance ( $\mu_h^{UA} = 0$ ). Otherwise, the other coefficients have the expected signs and are statistically significant. The failure of Lehman Brothers has both a transitory (through  $\mu_m^{L1}$ ) and a lasting (through  $\mu_m^{L2}$ ) negative effect on the

<sup>13</sup> It was however significantly positive in the first step estimation.

conditional Stock mean. It has also, as expected, a lasting positive effect on the conditional variance ( $\mu_h^{L2} = 0.1815$ ).

Overall, KIA's October 2008 intervention to support the Kuwaiti Stock Market does not seem much more successful than the previous intervention in March 2006.

*Some interventions also in Russia and France:*

In 2004 Russia established its Sovereign Wealth Fund, the Oil Stabilization Fund, to save in the long term some of its oil exports receipts and to insulate in the short term its economy from transitory shocks on Oil Price. In February 2008 this SWF was split into two funds: the Reserve Fund and the National Welfare Fund. The Reserve Fund plays the part of a stabilization fund: when oil price increases, the Russian government saves its fiscal surplus in the Reserve Fund, whereas when there is a negative shock on oil price, the Reserve Fund finances the federal budget deficit. The Reserve Fund can only be invested in safe foreign assets. The National Welfare Fund is a long term Saving Fund and therefore is allowed to invest in riskier assets - such as corporate bonds and equities- than the Reserve Fund. It has about US\$ 89 billion of assets under management. The National Welfare Fund was first designed to be invested abroad, but since September 2008 it has been largely redesigned to participate in the State plan to rescue the country's financial markets and banks.

On October 31 the Russian Prime Minister Vladimir Putin signed a ruling to allow the government to invest the National Wealth Fund on the Russian Stock market. According to the finance minister, the objective was to support the country's financial markets by buying shares in Russian companies. The Russian state bank VEB got US\$ 5.9 billion from the National Wealth Fund on deposit to support the Stock market. The efficiency of this move is difficult to assess, as not much is known about the amount spent on the Stock market and the timing of the purchases. This financial support was available from October 2008 to December 2009: in December 2009 the deposit was closed ahead of schedule and some remaining money of this plan was transferred to be lent to banks (Section 4.2).

The move of France to support local firms during the crisis was rather of a dramatic sort, as it entailed the establishment of a new Sovereign Wealth Fund - the Strategic Investment Fund (FSI) - specially designed to recapitalize firms operating in France. The establishment of the FSI was announced by the French President on October 23, 2008. Though it holds only domestic assets and therefore does not fit the IMF definition of a Sovereign Wealth Fund, it was announced as one. The purpose put forward by the President was to protect strategic French firms from foreign takeovers. Existing stakes of the State in French companies and the Fund *France Investissement* - which provides financing for small to medium firms - were included in the FSI. It was initially endowed with EUR 20 billion, of which EUR 14 billion were existing stakes of the French State. The FSI started operating in December 2008 and communicates continuously on its deals through its website. In practice, most of the capital provided by the FSI is granted after a request of the firm, either to increase an insufficient capital ratio or to finance the growth of the company. No risk of foreign takeover bid has ever been mentioned as a motive for a stake taken by the FSI. The FSI helps firms of very different sizes, ranging from small family businesses to major companies, such as Veolia. Their business lines are various and often do not seem very sensitive in terms of new technologies transfers or of National safety. But the FSI insists on its website on the workforce these firms employ in France. Preserving employment in France is indirectly put forward as an important strategic motivation for helping these firms. The

other criteria - mentioned in reported deals - include the firm's capacity to innovate, its growth projects and its future prospects.

#### **Section 4: Sovereign Wealth Funds as lenders of last resort and insurance funds during crises**

At first sight a Sovereign Wealth Fund does not seem fit to play the part of the lender of last resort or to be used as an insurance fund during crises. Contrary to Central Banks and Foreign Exchange Reserves funds, SWFs invest in the long run. Their long term illiquid assets might be difficult to cash in during crises: they are not tailored to react quickly in case of bank runs or foreign capital outflows. But when there is a worldwide systemic crisis of the magnitude of the turmoil experienced after September 2008, the Central Bank's intervention is not enough to restore liquidity. Sovereign Wealth Funds interventions as lenders of last resort or insurance funds might then help to provide the long term financing needed by the economy, without direct monetary creation. In practice there have been a number of interventions of SWFs as lenders of last resort since September 2009.

##### **4.1 The March 2009 intervention of Saudi SWFs as lenders of last resort**

In March 2009 the Saudi government announced the use of State investment funds to extend credit to local companies. The Public Investment Fund (PIF) - a huge State investment vehicle that controls shares in some of the leading Saudi companies - stepped up its level of lending, extended the maturing of its loans and provided borrowers with a five-year grace period. As the PIF can lend only to companies in which it owns shares, the Industrial Development Fund and a government-owned bank also increased their funding for small and medium-sized companies. The objective put forward for this plan was to make up for banks' reluctance to lend and stimulate the economy. This move came in addition of a US\$ 400 billion five-year investment programme and a record budget deficit in 2009. It allowed the finance Minister to claim that Saudi Arabia had the "largest" stimulus package among G20 countries (Khalaf, 2009).

The status of the Public Investment Fund is unclear. It was originally established in 1971 to help the development of the Saudi economy. Like the French FSI, the PIF is only invested domestically and therefore does not fit the IMF definition of a Sovereign Wealth Fund. Until recently most foreign assets of the Saudi Arabian State were held by the Central Bank (the SAMA) and it was difficult to differentiate the Sovereign Wealth Fund from the FX Reserves. But in 2008 Saudi Arabia announced the establishment of a separate Sovereign Wealth Fund to be managed by the PIF. The crisis seems to have delayed that project and the SAMA still holds the bulk of Saudi Sovereign foreign assets: about US\$ 430 billion. However, the PIF can already invest abroad, indirectly, through the Saudi companies it owns.

##### **4.2 Other cases of SWFs acting as home lenders of last resort in Russia and Australia**

In December 2009 the Russian government closed ahead of schedule a deposit at the Russian VEB bank, through which some money of its Sovereign Wealth Fund (the National Welfare Fund) was spent to support the Stock market (section 3.2). Instead, it took action to finance Russian banks by lending them money from the National Welfare Fund. In January 2010 a foreign currency deposit was opened at the VEB, on which the government deposited US\$ 2 billion from the National Welfare Fund, at an interest rate of LIBOR +2.75%. This loan must be returned by the VEB on the 1<sup>st</sup> July

2011.<sup>14</sup> The objective put forward for this loan is to finance the infrastructure projects of the Russian bank VEB. It is difficult to assess the reasons behind this policy change, from using the Russian National Welfare Fund as a “shareholder of last resort” (section 3.2), to using it, now, as “lender of last resort” to banks. Whether it is the relative inefficiency of the previous programme to support the Stock market, or on the contrary the relative recovery of the Russian Stock market (following the world trend) that motivated this move, remains an open question. Obviously the loan to the VEB was deemed more useful than to continue to support the Stock market. It allowed to strengthen the financing of the VEB and to launch a kind of stimulus plan, as the emphasis on the infrastructure projects to be financed suggests.

Emerging countries are not the only ones to use their SWFs as lenders of last resort. According to Ziembra (2008), Australia’s Sovereign Wealth Fund has also intervened to support the Australian banking system. This is confirmed by the 2007-2008 Annual Report of Australia’s Future Fund, which states that “a little over AU\$ 1,803 million has been invested in various longer term debt securities of Australian banking institutions (beyond short term bank bills)”. However, the objective of supporting the Australian banks is not acknowledged in the Report, as the motives put forward are the attractive commercial terms and the exceptional health of the Australian banking sector.

In these two cases (Russia and Australia) the Sovereign Wealth Fund is used to provide lending to local banks during a crisis. This move is consistent with the view developed in section 2, according to which the banking system deserves specific support to counter the systemic risk. It is very different from the motivation put forward by the Saudi government (section 3.1) for the intervention of its SWF as a lender of last resort. The Saudi move was not designed to increase lending to local banks (which had already be done by the Central Bank), but to lend directly to non financial firms. The Saudi Arabian Sovereign Wealth Fund acted as a substitute to a malfunctioning banking system.

#### **4.3 Sovereign Wealth Funds as insurance funds against major crises**

It is not unusual for Sovereign Wealth Funds to play the part of insurance funds. Sovereign Stabilization Funds (IMF, 2008) are designed to that purpose. As explained in section 3.2 in the presentation of Russia’s Sovereign Wealth Funds, stabilization funds act to smooth down the economic effects of price shocks on exported commodities. For instance, as the price of oil is extremely volatile, the revenue of oil exporting countries booms with a high oil price and is depressed by a low price. The State’s Budget is also pro-cyclical because collected taxes tend to follow the price of oil exports. A Sovereign Wealth Fund, such as the Russian Reserve fund, can then be usefully established to smooth down the effects of oils shocks on the State’s budget and on the economy: when the oil price is high, part of the taxes coming from oil exports are saved in the Stabilization Fund, whereas when the oil price is low, the Stabilization Fund finances the fiscal deficit. Sovereign Wealth Funds which are stabilization funds insure commodity exporting countries against negative shocks on the price of the exported commodity. To achieve this goal, when the price of the exported commodity is high, the government must be able to save a part of the exports proceeds in the SWF.

It is however very different for a SWF to act as an insurance fund against a systemic crisis. Stabilization funds are not designed to that purpose. When the cost of borrowing the money needed

---

<sup>14</sup> Source: The Moscow Times, 1/13/2010 , “VEB Gets Welfare Fund Cash for Infrastructure”.

for a recovery package exceeds the cost of using money from the Stabilization Fund, it is rational to tap the fund. But, there is always a risk of spending too much of the Stabilization fund and then having to close it later (Davis *et alii*, 2001).

In April 2009 the Finance Minister of Russia warned that the Reserve Fund would be "practically exhausted" in 2010. According to the information released by Russia this not yet the case, as its current size is still about US\$ 50 billion. But the Russian budget deficit was around 7.4% in 2009 and the continuation of such a deficit would quickly exhaust the Reserve Fund.

Some Asian Sovereign Wealth Funds, backed by large FX Reserves, might be more adequate insurance funds during crises than Stabilization Funds. According to Clark and Monk (2009), the Singaporean Sovereign Wealth Fund (GIC) is rather well designed to finance a recovery package or other emergency measures during a major crisis. The Government of Singapore Investment Corporation (GIC) was founded in 1981 to invest the rapidly growing Foreign Exchange Reserves of Singapore in more high-yielding foreign assets. GIC has about US\$ 240 billion of assets under management, comprising foreign Treasury bills and bonds, along with a variety of riskier assets, including equities. Singapore's Constitution allows the government to draw down on only the Foreign Exchange Reserves accumulated during its term of office. Singapore's past FX Reserves - managed by the Sovereign Wealth Fund GIC - can however be spent in exceptional circumstances, if both the government and the President agree to do so. "Reserves cannot be used in any situation that is not a "dire circumstance," requiring Reserves to ward-off catastrophe or prevent irreparable damage to the economy" (Clark and Monk, 2009). In January 2009, drawing on past Singaporean Reserves was decided for the first time since the foundation of GIC. It took only a few days to reach that decision: an informal Proposal to tap past FX Reserves to finance a Recovery Package in 2009 was discussed the 9th January and the final approval was given the 21st January. On the 22<sup>nd</sup> January 2009 the Singaporean minister of finance announced a recovery package of US\$ 13 billion to confront the worst economic recession the country ever faced. This large Recovery plan was designed to support employment and investment, but also lending and liquidity in Singapore's economy.

## **Section 5: Conclusion**

This paper gives an overview of the expanding role of Sovereign Wealth Funds as domestic "investors of last resort" during crises.

Usual definitions of Sovereign Wealth Funds put emphasis on their foreign investments. Sovereign Wealth Funds' growth, between 2000 and 2008, relied on the accumulation of Foreign Assets by governments of Asian countries and Oil exporting countries. But after September 2008, some Sovereign Wealth Funds refrained from foreign investments and invested at home. Contrary to their foreign investments, these investments were not based on their risk-return prospects, but were intended to support the SWFs' home economies during the crisis. The interventions of Sovereign Wealth Funds as domestic "investors of last resort" are far from marginal. They concern Sovereign Wealth Funds from Qatar, Kuwait, Saudi Arabia, China, Singapore, Russia, Australia and France. They probably involve also a few other Sovereign Wealth Funds, which managed less publicized interventions.

The interventions of SWFs to support their home economies are not a passing innovation of the last global crisis. There have been similar interventions during the Asian crisis of 1997-1998 and during

the Gulf Stock market crash of 2006. Besides, following Clark and Monk (2009), some Sovereign Wealth Funds have been designed from the beginning to allow them to provide exceptional support to their home economy during major crises. At least this seems to be the case for the Singaporean Sovereign Wealth Fund GIC.

In this paper we review first the interventions of SWFs as “shareholders of last resort”. During crises some SWFs take stakes in domestic firms to support the market value of their stocks or to recapitalize them. We differentiate interventions targeted on banks, from more general interventions designed to support non financial firms. We review cases of such interventions and try to quantify the impact of Gulf SWFs’ interventions on their home Stock markets. We find that the interventions of the Kuwaiti SWF in 2006 and in 2008 were unsuccessful in the short run (or produced positive effects too marginal to be statistically significant), whereas the Qatari intervention of October 2008 managed to rise effectively the Stock market price in the short run. This last intervention was coordinated with monetary policy moves of Saudi Arabia and the UAE. It probably explains why it succeeded so well to boost stock prices in the short run. We then review the interventions of SWFs as “lenders of last resort” and insurance funds against major crises. SWFs lend money to support local firms during crises. In some cases (Russia, 2009; Australia, 2007-2008) these interventions are targeted on the banking sector. SWFs can provide medium term financing to ease the liquidity constraints of banks, whereas Central Banks’ loans are mostly at short term. But the intervention of Saudi Arabian SWFs in 2008 was of a different kind, as the lending was targeted on non financial firms to make up for banks’ reluctance to lend and stimulate the economy. Lastly we discuss the role of Sovereign Wealth Funds as insurance funds against major crisis. SWFs can (and have been) used to finance recovery plans or exceptional government spending during crises. We conjecture that stabilization funds are not well suited for this role, as they are tailored to face shocks on commodity prices and not to face systemic shocks. To insure the financing of rescue and stimulus packages during major crises, a SWF must be backed by a large pool of assets, comprising safe assets easy to cash in. The GIC, which manages Singaporean FX Reserves, meets this request and is designed to allow the financing of such rescue packages.

#### **References :**

Aizenman, J. (2007), “Large Hoarding of International Reserves and the Emerging Global Economic Architecture,” NBER Working Paper No. 13277.

Aizenman, J. and R. Glick (2008), “Sovereign Wealth Funds: Stylized Facts about their Determinants and Governance”, NBER Working Paper No. 14562, December.

Aizenman, J. and J. Lee (2007), “International Reserves: Precautionary versus Mercantilist Views, Theory and Evidence,” *Open Economies Review*, 18:191–214.

Australian Government Future Fund (2008), Annual Report 2007/2008, available on <http://www.futurefund.gov.au> .

Clark, G. L. and A. H. B. Monk (2009), “Government of Singapore Investment Corporation: Insurer of Last Resort and Bulwark of Nation-State Legitimacy”, *The Pacific Review*, Forthcoming. Available at SSRN: <http://ssrn.com/abstract=1397713>.

Cruz, B. (1998), “We will hold on to blue-chip shares”, *The Standard*, August 29.

Davis J., Ossowski R., Daniel J., Barne S. (2001), "Stabilization and savings funds for nonrenewable resources: experience and fiscal policy implications", IMF Occasional Paper, n°205, April.

Diamond, D. W. (2001), "Should Banks Be Recapitalized?", Federal Reserve Bank of Richmond, Economic Quarterly, Volume 87/4, Fall.

Garcia, G., C. Enoch and V. Sundararajan (2001), "Recapitalizing Banks with Public Funds", IMF Staff Papers, Vol. 48, No. 1.

Feng, F., Q. Sun, W.H.S. Tong (2004), "Do government-linked companies underperform?", Journal of Banking & Finance, 28, 2461–2492.

IMF (2008), "Sovereign Wealth Funds – A Work Agenda", 29 February.

IWG (2008), "Sovereign Wealth Funds Generally Accepted Principles : Santiago Principles", International Working Group of Sovereign Wealth Funds, October, available at: <http://www.iwg-swf.org>.

Leung, W. (2008), "Hong Kong May Use Foreign Reserves to Prevent Financial Crisis", Bloomberg 10/12. <http://www.bloomberg.com/apps/news?pid=20601083&sid=alfYzGgWdOqM&refer=currency>

Khalaf, R. (2009), "World in recession: Saudis tap state funds to boost lending", Financial Times, 14 March.

Levintal, O. (2009), "Financial Crisis, Equity Capital and the Liquidity Trap", February 26, 2009, Available at SSRN: <http://ssrn.com/abstract=1304548>.

Maslakovic, M. (2009). "Sovereign Wealth Funds 2009". International Financial Services London Research Report, March.

Mitchell, O.S., J. Pigott, C. Kumru (2008), "Managing public investment funds: best practices and new questions", Journal of Pension Economics and Finance , 7 : 321-356 Cambridge University Press.

Nelson, D. B. (1991), "Conditional heteroskedasticity in asset returns: A new approach", Econometrica 59, 347–370.

Nip, A. (2007), "Soros manager regrets attack on HK dollar", The Standard, July 5.

Raymond (2009), "Les fonds souverains", Chapter 5 in « L'économie Mondiale 2010 », Editors: Agnès Bénassy-Quéré and Agnès Chevallier, CEPII, La Découverte, Paris.

Rodrik, D. (2006) "The Social Cost of Foreign Exchange Reserves." International Economic Journal, 20, 3.

Santiso, J. (2009), "Sovereign Development Funds: Key financial actors of the shifting wealth of nations", Revue d'Economie Financière,.

Truman, E. M. (2008), "A Blueprint for Sovereign Wealth Fund Best Practices", Policy Brief of the Peterson Institute for International Finance, Number PB08–3, April.

Ziemba, R. (2008), "My Say: Where are the SWFs?", The Edge Singapore, 22 September.

## **Appendix: The Data**

The World Stock market price Index series used in the paper is the MSCI World Price Index extracted from *Datastream*.

The Stock Exchanges of Gulf countries are closed on Friday but opened on Sunday. To account for this specificity we extracted 7 days per week daily series from *Bloomberg* for all Gulf Stock Indices. Then we checked for days of zero returns (when the market is closed) and eliminated these days from the database constructed for each Gulf country. This eliminates the noise in the estimated relationships deriving from the fact that a Stock return can, of course, not react to news when the market is closed. It concerns Fridays but also Thursdays for some Gulf countries, as well as holidays during which the Stock Exchange can be closed for a few days. As these days differ according to Gulf countries we constructed a separate daily database for each Gulf country. The Stock price indices extracted from Bloomberg are the Kuwait SE Price Index, the DSM Index for Qatar, the Abu Dhabi ADX index and the Bloomberg GCC 200 index for the Gulf Region. This last Stock Price Index is a capitalization weighted index of the top 200 equities of the GCC Region, available from 31/12/2005.

For the dating of the SWFs interventions we used *Factiva* and the SWF Institute Website. We confronted each day of event with the daily database constructed, to check if the market was opened when the first news of the intervention was released.