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**Government and external risk
mitigation:**

Why was Singapore less affected by the Asian
financial crisis than its Southeast Asian
neighbours?

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TABLE OF CONTENTS

1. Introduction, *page 2*
2. The effects of the crisis in Singapore *vis-à-vis* its Southeast Asian neighbours, *page 3*
3. Reasons for Singapore's success in mitigating the effects of the crisis *vis-à-vis* its Southeast Asian neighbours, *page 5*
 - 3.1. Ex-ante reasons, *page 5*
 - Hypothesis 1. Less private capital inflows, *page 5*
 - Hypothesis 2. Existence of effective capital mobility restrictions, *page 8*
 - Hypothesis 3. Less risky and more efficient allocation of credit by financial intermediaries, *page 9*
 - Hypothesis 4. Higher banking disclosure, regulation and supervision standards, *page 11*
 - Hypothesis 5. Lower degree of currency and maturity mismatches of balance sheets, *page 12*
 - Hypothesis 6. Less leveraged corporations, *page 13*
 - Hypothesis 7. Higher foreign exchange reserves, *page 14*
 - Hypothesis 8. More flexible exchange rate policy, *page 16*
 - Hypothesis 9. Stronger macroeconomic fundamentals, *page 19*
 - Hypothesis 10. Lower contagion from the East Asian crisis-hit economies, *page 19*
 - Hypothesis 11. Longer political continuity and stronger state capacity, *page 23*
 - 3.2. Ex-post reasons, *page 25*
 - Hypothesis 12. More supportive policy responses to the crisis, *page 25*
 - Hypothesis 13. Better political environment and stronger popular support for government, *page 27*
 - Hypothesis 14. More dependence on high tech exports, *page 28*
4. Conclusion, *page 29*
5. Lessons for today's developing and emerging economies, *page 38*
6. References, *page 40*

1. INTRODUCTION

This paper aims to find out the main reasons why Singapore was less affected than its Southeast Asian neighbours by the 1997-98 Asian financial crisis and, to draw from this information some lessons for today's developing and emerging economies. The question we raise forms part of the broader question of how an open economy can successfully mitigate the external risk to which it is exposed, and what role the government can play in meeting this goal.

The Southeast Asian countries with which Singapore is compared are: Indonesia, Malaysia, Philippines and Thailand. These four countries, together with South Korea, were the most severely hit countries by the crisis. We have excluded South Korea from the comparison, not only because of not belonging to Southeast Asia, but also because its inclusion would have increased the complexity and dimension of the study unnecessarily. Throughout the paper we will refer sometimes to Singapore and the other four Southeast Asian countries as the ASEAN-5 countries¹.

The remaining part of this paper is organised as follows. Section 2 shows exactly how Singapore was hit by the crisis and how different this effect was compared to its neighbours. Section 3 analyses the ex-ante and ex-post reasons of why Singapore was less affected by the crisis than its neighbours. Sections 4 and 5 comprise, respectively, the conclusion of the analysis and the lessons that can be derived for today's developing and emerging economies.

¹ These countries are the five founding members of the Association of Southeast Asian Nations (ASEAN).

2. THE EFFECTS OF THE CRISIS IN SINGAPORE VIS-A-VIS ITS SOUTHEAST ASIAN NEIGHBOURS

The East Asian financial turmoil rocked the region's foreign exchange and stock markets since June 1997. Next we will see the effects on those markets in Singapore vis-à-vis its Southeast Asian neighbours.

Table 1 shows that the Singapore dollar (S\$) experienced the lowest depreciation during the second half of 1997 and also from 30 June 1997 to 8 May 1998.

Table 1. Exchange rates, 30 June 1997 to 8 May 1998

	<i>US\$ to 100 loc.currenc. 30/06/97</i>	<i>US\$ to 100 loc.currenc. 31/12/97</i>	<i>US\$ to 100 loc.currenc. 08/05/98</i>	<i>% change 30/06/97- 31/12/97</i>	<i>% change 31/12/97- 08/05/98</i>	<i>% change 30/06/97- 08/05/98</i>
<i>Indonesia</i>	0,04	0,02	0,01	-44,4	-53	-73,8
<i>Malaysia</i>	39,53	25,7	26,25	-35	2,1	-33,6
<i>Philippines</i>	3,79	2,51	2,54	-33,9	1,3	-33
<i>Singapore</i>	69,93	59,44	61,8	-15	4	-11,6
<i>Thailand</i>	4,05	2,08	2,59	-48,7	24,7	-36

Source: Goldstein, M. 1998

Singapore's stock market was similarly impacted. Table 2 shows that The Straits Times (ST) Index, Singapore's local index, was the one that experienced the lowest fall in the second half of 1997. In the first half of 1998, however, the ST Index was the one falling the most. The overall performance of ST Index from 30 June 1997 to 8 May 1998 was worse than the performance of the Philippine Index. However, it was similar to the performance of the Thai index and clearly better than the performances of Indonesia and Malaysia's indices.

Table 2. Stock markets, 30 June 1997 to 8 May 1998

	<i>local indices 30/06/97</i>	<i>local indices 31/12/97</i>	<i>local indices 08/05/98</i>	<i>% change 30/06/97- 31/12/97</i>	<i>% change 31/12/97- 08/05/98</i>	<i>% change 30/06/97- 08/05/98</i>
<i>Indonesia</i>	725	401,7	434,7	-44,6	8,2	-40
<i>Malaysia</i>	1077,3	594,4	580,1	-44,8	-2,4	-46,2
<i>Philippines</i>	2809	1869,2	2210	-33,5	18,2	-21,3
<i>Singapore</i>	1988	1529,8	1420,8	-23	-7,1	-28,5
<i>Thailand</i>	527,3	372,7	386,4	-29,3	3,7	-26,7

Source: Goldstein, M. 1998

So far we have seen effects on prices. Table 3 shows the effects of the crisis on the real side of the economy. In particular, it shows the evolution of real GDP growth from 1996 to 2000. There are three important observations to make. First, Singapore was the only country that grew more in 1997 than in 1996. In addition, in 1997 Singapore had, together with Malaysia, the highest growth rate. Second, in 1998 Singapore was the country experiencing the second lowest decline in GDP, after Philippines. Although it cannot be seen in the table, it is interesting to know that in 1998 Singapore had positive growth during the first six months, but in November the economy was technically in recession as it had already had two quarters of negative quarter-to-quarter growth. The third observation is that Singapore was also the country experiencing the strongest recovery. In both 1999 and 2000 Singapore had the highest growth rate.

Table 3. Real GDP growth, 1996-2000 (percentages)

	1996	1997	1998	1999	2000
<i>Indonesia</i>	8	5	-13,1	0,8	4,9
<i>Malaysia</i>	8,6	7,8	-7,4	6,1	8,3
<i>Philippines</i>	5,7	5,1	-0,6	0,8	4,9
<i>Singapore</i>	6,9	7,8	-0,9	6,4	9,4
<i>Thailand</i>	5,5	-0,4	-10,5	4,4	4,6

Sources: Goldstein, M. 1998; Asian Development Bank, Key Indicators 2003

From all this evidence we can derive three facts:

- a) The overall impact of the crisis was smaller in Singapore than in its neighbours.
- b) Singapore's real economy suffered later than those of its neighbours.
- c) Singapore's real economy recovered more strongly than those of its neighbours.

3. REASONS FOR SINGAPORE'S SUCCESS IN MITIGATING THE EFFECTS OF THE CRISIS VIS-A-VIS ITS SOUTHEAST ASIAN NEIGHBOURS

This section provides different hypotheses of the reasons explaining the facts described in the previous section. The reasons are not mutually exclusive, but they rather complement each other in explaining the above-mentioned facts. Each hypothesis is accompanied by evidence and by a final conclusion on whether the evidence supports the hypothesis.

The hypotheses are classified in two groups. The first set of hypotheses corresponds to those possible reasons that have to do with circumstances previous to the crisis. We call them ex-ante reasons. The second set of hypotheses corresponds to those possible reasons that have to do with circumstances after the start of the crisis. We call them ex-post reasons. The ex-ante reasons would account mainly for fact a), but some of them also for facts b) and c). The ex-post reasons would account for fact c).

3.1. EX-ANTE REASONS

Hypothesis 1. Less private capital inflows

Some economists such as Wade R. (2000) sustain the idea that the main reason behind the crisis are private capital inflows surges blowing up a credit boom.

So, our first hypothesis is that Singapore was less affected by the crisis because it received less private capital inflows and hence the credit boom had a smaller dimension.

Table 4 shows the ratio of external debt to GNI, which can be taken as a rough indicator of the importance of private capital inflows in the economy *vis-à-vis* other economies. Not only did Singapore have a much lower ratio before the crisis, but also Singapore was the country with the second highest reduction of the ratio, after Philippines, between 1990 and 1995. In that period, Indonesia maintained approximately the same ratio, whereas Malaysia and Thailand experienced an increase.

Table 4. External Debt (%GNI)

	1990	1995
<i>Indonesia</i>	64	63,4
<i>Malaysia</i>	36,4	40,6
<i>Philippines</i>	69,4	49,7
<i>Singapore</i>	12,4	9,8
<i>Thailand</i>	33,3	60,6

Source: Asian Development Bank, Key Indicators 2003

Table 5 shows the growth of bank credit to the private sector relative to GDP growth, which is an indicator of the extent of the credit boom. Between 1990 and 1996, Singapore had the lowest value of this indicator.

Table 5. Growth of bank credit to the private sector relative to GDP growth

	1990-1994	1995	1996
<i>Indonesia</i>	10,4	4,4	5,7
<i>Malaysia</i>	3,1	10,5	13,1
<i>Philippines</i>	10,7	27,4	31,5
<i>Singapore</i>	0,8	7,8	5,7
<i>Thailand</i>	10	11,1	5,8

Source: Goldstein, M. 1998

Therefore, this evidence corroborates our first hypothesis.

It might be also useful for our analysis to know why Singapore received less capital inflows. These are the main possible explanations: i) significantly lower growth rate during the mid-1990s (making the country relatively less attractive to foreign capital); ii) significantly higher domestic savings rate (making the country relatively less dependent on foreign capital); and iii) existence of capital inflows restrictions that limit the amount of foreign borrowing.

Tables 6 and 7 show, respectively, that before the crisis Singapore had the second highest growth rate and a much higher domestic savings rate *vis-à-vis* its neighbours.

Table 6. Real GDP growth (%), average 1994-96

Indonesia	7,9
Malaysia	9,1
Philippines	5
Singapore	8,8
Thailand	8

Source: Lee K.Y. 1998

Table 7. Gross Domestic Savings (%GDP)

	1990	1995
Indonesia	32,3	30,6
Malaysia	34,4	39,7
Philippines	18,7	14,5
Singapore	43,3	50,2
Thailand	34,3	37,3

Source: Asian Development Bank, Key Indicators 2003

Table 8 provides evidence on the capital management techniques retained by Singapore and Malaysia. This table is taken from a paper by Epstein, G. and Grabel, I. (2003) that studies cases of countries that used capital management techniques during the 1990s. Namely: Chile, Colombia, Singapore, Malaysia, India and China. By capital management techniques they refer to traditional private capital controls and domestic financial regulations.

In the table, we can observe that Singapore had in the 1990s some types of capital inflows controls and financial regulations affecting the *characteristics* of foreign borrowing. If those controls and regulations affected as well the *amount* of foreign borrowing (which is a likely scenario), then we could claim that the existence of capital inflows restrictions in Singapore is an explicative factor of the lower volume of capital inflows received by the country, relative to all the other ASEAN-5 countries. Although Malaysia had also strict foreign borrowing restrictions, they were introduced *after* the crisis and so they could not have helped reduce the volume of capital inflows prior to the crisis.

Table 8. Types, objectives and achievements of capital management techniques employed during the 1990's in Malaysia and Singapore

	<i>Types of Capital Management Techniques</i>	<i>Objectives and Achievements</i>
<i>Malaysia (1998)</i>	<u>Inflows:</u> -Restrictions on foreign borrowing <u>Outflows:</u> -Residents: exchange controls -Non-residents: 12-month repatriation waiting period, graduated exit levies, inversely proportional to length of stay. <u>Domestic Financial Regulations:</u> -Residents: encouraged to borrow domestically and invest. -Non-residents: restricted access to the Ringgit	<u>Objectives:</u> -Maintain political and economic sovereignty -Kill the offshore Ringgit market -Shut down offshore share market -Help reflate the economy -Help create financial stability and insulate economy from contagion <u>Achievements:</u> -Facilitated macroeconomic reflation -Helped to maintain domestic economic sovereignty
<i>Singapore</i>	<u>Inflows:</u> -Non-internationalisation of S\$ inflows (e.g. corporations cannot borrow offshore in S\$) <u>Outflows:</u> -Financial institutions can't extend S\$ credit to non-residents if they are likely to use for speculation. -Non-residents: if they borrow for use abroad, must swap first into foreign currency. <u>Domestic Financial Regulations:</u> -Restrictions on creation of swaps, and other derivatives that could be used for speculations against the S\$	<u>Objectives:</u> -Prevent speculation against S\$ -Support "soft peg" of S\$ -Help maintain export competitiveness -Help insulate Singapore from foreign financial crises <u>Achievements:</u> -Insulated from disruptive speculation -Protection of "soft peg" of S\$ -Financial stability

Source: Epstein, G. and Gabel, I. 2003

Therefore, from this evidence we can conclude that Singapore received less capital inflows than its neighbours mainly because of its higher savings rate, and to some extent because of the restrictions on capital inflows.

Hypothesis 2. Existence of effective capital mobility restrictions

Even strong proponents of capital account liberalisation have acknowledged that what differentiates the most and the least affected countries by the crisis is capital mobility. The most affected countries opened their capital accounts more or less fully by the mid 1990s,

due to domestic pressures but also due to the pressures of the world's core economies. The least affected countries restricted capital mobility by some type of capital control. Not only can capital restrictions control the amount of capital inflows and hence ameliorate a foreign-driven credit boom, but also they can generally help maintain financial and currency stability.

So, our second hypothesis is that Singapore had effective capital mobility restrictions.

Let's come back to table 8. There we can see that both Singapore and Malaysia applied different capital management techniques. On average Malaysia's restrictions were tougher than Singapore's. But there is an important distinction: Malaysia's controls were only applied after the crisis. We can also see that the restrictions were overall more effective in the case of Singapore than in the case of Malaysia, as Malaysia only met 2 out of the 5 objectives of its capital management techniques, whereas Singapore met 3 out of 4. Although it is well known that Malaysia's capital controls were indeed effective in assisting recovery, it is very important to stress that by effectiveness we understand the fact of meeting the objectives indicated in table 8.

Therefore, our second hypothesis might be another good reason of why the crisis affected Singapore less. Comparing Singapore to Indonesia, Philippines and Thailand, Singapore had significant and effective capital management techniques that the others did not have. Comparing to Malaysia, the capital controls that Singapore had were *overall* more effective than those of Malaysia.

Hypothesis 3. Less risky and more efficient allocation of credit by financial intermediaries

Another important cause of the financial crisis that has been argued is that financial intermediaries allocated credit to overrisky and/or unproductive activities, giving rise to high percentages of non-performing loans in their balance sheets.

So, our third hypothesis is that in Singapore credit was allocated in a less risky and more efficient manner, resulting in lower ratios of non-performing loans.

Table 9 shows that Singapore had from 1995 to 1997 the lowest ratio of non-performing loans, which corroborates our hypothesis.

Table 9. Non-performing Bank Loans as percentage of total loans

	1995	1996	1997
Indonesia	10,4	10,1	9,2
Malaysia	8	7	9,1
Philippines	7	8	5,3
Singapore	3	4	3,8
Thailand	7,7	8,9	18

Source: Kwack S.Y. 2000

It might be useful to know why Singapore had the lowest ratio of non-performing loans.

High ratios of non-performing loans have three possible main explanations. The first one is the concentration of lending on activities with a high component of speculation such as the property market. The second one is the lack of incentives for risk management. This lack of incentives has two origins: i) the fact that financial intermediaries were not always free to use business criteria in allocating credit, as sometimes the lending was reflecting the priorities of the ministries or political leader's families (i.e. crony capitalism); and ii) the fact that financial intermediaries were not expected to bear the full cost of failure, as there were government guarantees against losses (i.e. moral hazard). The third explanation is the low standards of bank disclosure, regulation and supervision.

In table 10 we can see that Singapore had, together with Thailand, the highest share of bank lending to the property sector in 1997. Singapore's banks were during the early and mid 1990s highly exposed to the property market, as Singapore is a city-state and a commercial hub with concentrated urban population.

Table 10. Estimates of the share of bank lending to the property sector (end 1997)

Indonesia	25-30
Malaysia	30-40
Philippines	15-20
Singapore	30-40
Thailand	30-40

Source: Goldstein, M. 1998

Regarding the second explanation, it is difficult to find evidence on the exact extent of crony capitalism in the different ASEAN-5 countries. So we will only look at evidence on government guarantees. Dekle R. and Kletzer K.M. (2001) compare for Thailand, Malaysia and Singapore the government's explicit and implicit guarantees of domestic and foreign loans to the domestic banking sector from 1992 to 1996. None of the three countries had any explicit deposit insurance system. In Malaysia and Thailand, depositors were always bailed-out, as banks were not allowed to fail and close. This was an implicit guarantee. In contrast, Singapore had a *selective* implicit guarantee of deposits, limited to deposits at domestic financial institutions. We do not have any evidence for Indonesia and Philippines.

The higher disclosure, regulation and supervision banking standards explanation has broader implications than its effect on credit allocation, and thus we will look at the evidence on this explanation in the next hypothesis. However, we can anticipate that the conclusion is that indeed Singapore had the highest banking standards among the ASEAN-5 countries.

Therefore, Singapore's less risky and more efficient allocation of credit is almost certainly mostly due to its higher banking standards, and compared to Thailand and Malaysia, it is very possibly also due to some extent to its *limited* implicit depositors guarantees.

Hypothesis 4. Higher banking disclosure, regulation and supervision standards

There is a lot of consensus among economists that one major cause of the crisis is the opening of financial systems quickly in the 1990s without strengthening banking disclosure,

regulation and supervision standards. Poor banking standards can lead to a risky and inefficient allocation of credit and can also be the origin of mismatches in the balance sheets of banks and firms.

So, our fourth hypothesis is that Singapore had higher banking standards.

According to Dekle R. and Kletzer K.M. (2001), both Singapore and Malaysia had between 1992 and 1996 a strict and well-enforced prudential supervisory and regulatory banking system, being the one of Singapore one slightly stronger than that of Malaysia. In contrast, Thailand had weak prudential supervisory system and lax prudential regulations. They also explain that Singapore's prudential regulations were drawn from foreign sources, primarily UK and US, and have been far more conservative than elsewhere in Asia. The prudential regulations in Singapore are comparable to those in the U.K.

Rajan R.S., Sen R. and Siregar R. (2001) rank different Asian countries according to their bank ratings in May 1996. For the ASEAN-5 countries, this is the ranking from best to worst: Singapore, Malaysia, Philippines, Thailand and Indonesia. So, Singapore's banking standards were higher also than those of Indonesia and Philippines.

Therefore, this evidence shows that indeed Singapore had higher banking standards.

Hypothesis 5. Lower degree of currency and maturity mismatches of balance sheets

Currency and maturity mismatches constitute another source of balance sheet weaknesses. These mismatches, combined with loss of confidence in the value of the country's currency and open capital accounts, can generate capital flight. As mentioned already, behind these balance sheet weaknesses there are mainly weak prudential banking regulation and supervision standards.

So, our fifth hypothesis is that Singapore's banks and corporations' balance sheets were less mismatched than those of its neighbours.

Tables 11, 12 and 13 present different indicators of currency and liquidity mismatches: ratio of broad money to international reserves, short-term debt as a percentage of total debt and ratio of short-term debt to international reserves. The lowest the values of these indicators, the less mismatched the balance sheets. We can see that for all these three indicators, Singapore has the lowest values, especially for the first and third indicators.

Table 11. Ratio of broad money to international reserves (June 1997)

<i>Indonesia</i>	6,2
<i>Malaysia</i>	4
<i>Philippines</i>	4,9
<i>Singapore</i>	1
<i>Thailand</i>	4,9

Source: Goldstein, M. 1998

Table 12. Short-term debt as a percentage of total debt

	1996	1997
<i>Indonesia</i>	25,0%	24,1%
<i>Malaysia</i>	27,9%	31,6%
<i>Philippines</i>	19,9%	25,8%
<i>Singapore</i>	20,1%	20,0%
<i>Thailand</i>	41,4%	37,2%

Source: Asian Development Bank, Key Indicators 2000

Table 13. Ratio of short-term debt to international reserves

	1996	1997
<i>Indonesia</i>	1,67	1,89
<i>Malaysia</i>	0,41	0,71
<i>Philippines</i>	0,20	0,26
<i>Singapore</i>	0,03	0,04
<i>Thailand</i>	0,97	1,30

Source: Asian Development Bank, Key Indicators 2000

Therefore, this evidence clearly corroborates our fifth hypothesis.

Hypothesis 6. Less leveraged corporations

There is an important aspect of non-financial firms that contributed to the severity of the financial crisis, namely their debt-to-equity ratios, also called leverage. Highly leveraged firms found cash flows insufficient to cover their much higher payment obligations, as the real value of debt increased due to a downward pressure on prices of both products and

assets. This phenomenon is what Wade R. (1998) calls *high-corporate-debt-followed-by-debt-deflation*.

So, our next hypothesis is that Singapore's corporations were less leveraged.

Table 14 shows that firms in Singapore were the least leveraged. Dekle R. and Kletzer K.M. (2001) explain that this is because Singapore's corporations have tended to rely more for their financing on corporate bond and equity markets.

Table 14. Total Debt-to-Equity Ratio for Firms (%)

	1994	1995	1996
<i>Indonesia</i>	166,1	211,5	187,8
<i>Malaysia</i>	99,1	110,3	117,6
<i>Philippines</i>	114,8	115	128,5
<i>Singapore</i>	86,2	103,7	104,9
<i>Thailand</i>	212,6	222,4	236,1

Source: Kwack S.Y. 2000

Therefore, this evidence supports our sixth hypothesis.

Hypothesis 7. Higher foreign exchange reserves

From banking and corporation vulnerabilities, now we turn into macroeconomic aspects of the crisis. Due to the increase of capital inflows and the devaluation of the yen, most currencies in Asia experienced an appreciation in real terms in the years prior to the crisis. Those Asian countries with currencies pegged to the US\$ had overvalued currencies. For different political reasons, the pegs were maintained and the currencies were not devalued in spite of the deterioration of the current account. This damaged the export competitiveness of those countries and ended up increasing their current account deficits. Speculators knew that if this situation was going to continue, the country with the overvalued currency sooner or later would not be able to defend its currency because of lack of foreign exchange reserves, and so they decided to attack those currencies.

So, our seventh hypothesis is that Singapore had enough foreign exchange reserves to defend its currency and hence to prevent or ameliorate any speculative attack.

Table 15 shows that Singapore had in the mid 1990s a volume of foreign exchange reserves well above the rest of its neighbours. In fact, Singapore had one of the highest per capita reserve holdings in the world. As we have seen in tables 11 and 13, Singapore's volume of foreign exchange reserves was also the highest in relative terms to broad money and short-term debt.

Table 15. Foreign exchange reserves (in US\$ billion)

	1994	1995	1996
<i>Indonesia</i>	12,1	13,7	18,2
<i>Malaysia</i>	25,4	23,7	27
<i>Philippines</i>	6	6,3	10
<i>Singapore</i>	58,2	68,7	76,8
<i>Thailand</i>	29,3	35,9	37,7

Source: Bustelo P. 1998

We might be interested to know the reason behind Singapore's abundant foreign exchange reserves. Table 16 shows that Singapore is the only country with current account surpluses in the years before the crisis. Moreover, those surpluses are quite large in relation to GDP. Thus, it is very likely that those surpluses, as well as previous ones, account to a large extent for the large stock of reserves that Singapore had.

Table 16. Current account balance as a fraction of GDP

	1994	1995	1996	Average annual change 1994-1996	Deterioration or Improvement
<i>Indonesia</i>	-0,016	-0,032	-0,034	53%	D
<i>Malaysia</i>	-0,062	-0,084	-0,052	-1%	I
<i>Philippines</i>	-0,046	-0,027	-0,048	18%	D
<i>Singapore</i>	0,173	0,169	0,159	-4%	D
<i>Thailand</i>	-0,056	-0,081	-0,081	22%	D

Source: Kwack S.Y. 2000

Therefore, Singapore was definitely less affected by the crisis because it was in a good position to defend its currency thanks to its previous large current account surpluses.

Hypothesis 8. More flexible exchange rate policy

As explained already, maintaining the domestic currency pegged to the US\$ led to the overvaluation of the currency and the deterioration of the current account balance, ultimately motivating speculative attacks. Moreover, market participants interpreted the currency pegs as implicit government guarantees against risk of currency volatility, and thus, they had fewer incentives to hedge their foreign currency borrowings. So, after the pegs collapsed, those borrowers who had not hedged their borrowings had difficulties serving their debts².

So, our eighth hypothesis is that Singapore's exchange rate policy was more flexible.

Singapore had in the 1990s and still nowadays has a relatively flexible but rather non-transparent exchange rate arrangement, which can be called *soft peg*. The S\$ central parity is based on a trade-weighted basket of currencies of the main trading partners. The S\$ is allowed to float within an undisclosed target band around that central parity. This is different from the rest of the ASEAN-5 countries, which had currencies pegged to the US\$.

So far so good, but we have still not proved that the *soft peg* actually resulted in a lower impact of the crisis in Singapore *vis-à-vis* its neighbours. Next we will explore the evidence on this.

If we go back to table 16 we will see that all the ASEAN-5 countries, including Singapore, experienced a deterioration of the current account as a fraction of GDP from 1994 to 1996 (Malaysia is the exception, but it did have a deterioration from 1994 to 1995). Considering the average annual change in that period, the deterioration experienced by Singapore is much smaller than those of its neighbours (of course, except Malaysia).

Tables 17 and 18 show that between 1994 and 1996 the S\$ was the currency that in nominal terms appreciated the most, whereas in real effective terms it was the currency

² However, contrary to anecdotal reports and existing theory, Allayannis, G., Brown G.W. and Klapper L.F. (2001 and 2003), using a unique dataset of East Asian non-financial companies, find no evidence that unhedged

appreciating the least.

Table 17. Nominal exchange rates (units of local currency per US\$)

	1994	1995	1996	% change 1994-95	% change 1995-96
<i>Indonesia</i>	2161	2249	2342	4,1%	4,1%
<i>Malaysia</i>	2,6243	2,5044	2,5159	-4,6%	0,5%
<i>Philippines</i>	26,4172	25,7145	26,2161	-2,7%	2,0%
<i>Singapore</i>	1,5274	1,4174	1,41	-7,2%	-0,5%
<i>Thailand</i>	25,15	24,92	25,34	-0,9%	1,7%

Source: Asian Development Bank, Key Indicators 2000

Table 18. Real effective exchange rates (1993=100)

	1994	1995	1996	% change 1994-95	% change 1995-96
<i>Indonesia</i>	103,9	110,8	125,5	6,6%	13,3%
<i>Malaysia</i>	98	98,7	103,2	0,7%	4,6%
<i>Philippines</i>	116,3	117,7	125,5	1,2%	6,6%
<i>Singapore</i>	104,7	106,2	109,7	1,4%	3,3%
<i>Thailand</i>	98,9	102,3	107,8	3,4%	5,4%

Source: Bustelo P. 1998

All this evidence may suggest that the fact that S\$ fluctuated slightly more flexibly in the years before the crisis prevented the S\$ real effective exchange rate from appreciating as much as in the case of its neighbours' currencies, and hence the loss of competitiveness of Singapore exports was smaller. However, we cannot take this for granted, as there might be other factors apart from the real exchange rate explaining the smaller deterioration of Singapore's current account balance relative to GDP (e.g. imports and GDP growth) and also other explanations apart from the *soft peg* behind Singapore's currency lower real appreciation (e.g. lower inflation rates). Moreover, the S\$ actually appreciated in nominal terms and thus this should have exacerbated (rather than ameliorated) the appreciation in real terms of the S\$. Finally, even if we accept that the more flexible exchange rate arrangement of Singapore accounts for the smaller deterioration of its current account, this would not really be any major justification of why the crisis affected less Singapore than its neighbours.

foreign currency debt is associated with significantly worse performance during the Asian financial crisis.

The reason being is that the main problem with the deterioration of the current account is the risk of a speculative attack on the country's currency, and this, for the reasons we have mentioned in hypothesis 7, could not affect seriously Singapore.

Table 19 provides evidence regarding the tendency to hedge foreign currency debt by the companies of the ASEAN-5 countries. Singapore has the highest percentage of hedged foreign debt. This might be an indication that indeed the more flexible exchange rate policy of Singapore, encouraged companies to hedge. However, this higher percentage could also perfectly be due to the fact that Singapore had a more developed derivative market. And it could even be due to the fact that Singapore corporations were prohibited to borrow offshore in domestic currency. Moreover, even if it is true that the *soft peg* created more incentives to hedge, it is not totally clear that the higher percentage of hedging in Singapore would have helped the Singaporean companies perform better than its neighbouring companies (see footnote number 2). Additionally, as table 19 shows, Singapore has one of the smallest corporation foreign debt percentages, meaning that any advantage that Singapore could obtain from its *soft peg* (i.e. in terms of more hedging) would have a smaller effect on its economy *vis-à-vis* its neighbours' economies.

Table 19. Debt structure for a sample of firms, 1996

	<i>Observations (firms)</i>	<i>Local debt/ Total debt</i>	<i>Foreign debt/ Total debt</i>	<i>Hedged foreign debt</i>
<i>Indonesia</i>	40	14,3%	85,7%	27,8%
<i>Malaysia</i>	41	79,4%	20,6%	17,1%
<i>Philippines</i>	40	63,2%	36,8%	7,3%
<i>Singapore</i>	40	73,5%	26,5%	45,6%
<i>Thailand</i>	29	31,3%	68,7%	21,3%

Source: Allayannis, G., Brown G.W. and Klapper L.F. 2003

Therefore, although it is true that Singapore had a slightly more flexible exchange rate arrangement than its neighbours, it is not clear that this arrangement contributed to reduce the effects of the crisis in Singapore *vis-à-vis* its neighbours.

Hypothesis 9. Stronger macroeconomic fundamentals

Not only a favourable current account balance can help ameliorate the effects of a financial crisis, but having good macroeconomic fundamentals in general can also provide a measure of insulation from the worst effects of a crisis.

So, our ninth hypothesis is that Singapore had better macroeconomic fundamentals than its neighbours.

It is clear from table 20 that Singapore had the strongest macroeconomic fundamentals in the ASEAN-5 region in the years prior to the crisis. The tight macroeconomic policy pursued by the government allowed the country to enjoy relatively non-inflationary high growth rates and an extraordinary positive fiscal balance.

Table 20. Macroeconomic fundamentals, average 1994-1996

	Growth (%)	Inflation (%)	Fiscal balance (%GDP)	Savings rate (%GDP)
Indonesia	7,9	8,6	0,8	29,5
Malaysia	9,1	3,6	1,3	34,9
Philippines	5	8,5	-1,1	18,6
Singapore	8,8	2,1	6,5	50
Thailand	8	5,6	2,2	35,1

Source: Lee K.Y. 1998

Therefore, this evidence corroborates our ninth hypothesis.

Hypothesis 10. Lower contagion from the East Asian crisis-hit economies

One important origin of the effects of the crisis is contagion from one affected East Asian economy to another. Contagion could take place in three ways: i) via trade and investment links with the crisis-hit economies; ii) via the competitive dynamics of devaluation (i.e. countries not devaluing lose competitiveness); and iii) due to the so-called *wake-up call* (i.e. the crisis in Thailand acted as a wake-up call for international investors to reassess creditworthiness of other East Asian borrowers).

So, our tenth hypothesis is that Singapore overall suffered less from the different sources

of contagion than the other Southeast Asian economies.

Regarding the first way of contagion, for reasons of prioritisation we are just going to look at trade-related channels.

Table 21 presents the export shares of each of the ASEAN-5 countries with different country groups. The first group, G1, comprises the five most affected countries by the crisis. G2 and G3 also suffered from the crisis, but much less than G1. G4 and G5 can be considered non-affected countries.

Singapore has the largest export share to G1, mainly due to its trade with Malaysia. Moreover, Singapore exported more than the other ASEAN-5 countries to the three *worst* crisis-hit economies (i.e. Indonesia, South Korea and Thailand). However, Singapore's export share to these three economies is only about 10% and for most of the other ASEAN-5 countries this export share is not far from 10%. On the positive side, Singapore has a much lower export share than its neighbours to Japan. This makes Singapore the country with the lowest export share to the least affected countries (i.e. G2 and G3 together). Finally, regarding exports to the non-affected countries, Singapore's total export share is 47,6%. In absolute value this is quite a high percentage, but relative to the rest of the ASEAN-5 countries, is about the average percentage.

Table 21. Export share to different country groups, 1996

	<i>Indonesia</i>	<i>Malaysia</i>	<i>Philippines</i>	<i>Singapore</i>	<i>Thailand</i>
<i>Indonesia</i>		0,0% - 2,4%	0,0% - 1,8%	2,0%	0,0% - 1,8%
<i>South Korea</i>	6,6%	3,1%	1,8%	3,8%	0,0% - 1,8%
<i>Malaysia</i>	0,0% - 2,4%		3,3%	18,0%	3,6%
<i>Philippines</i>	0,0% - 2,4%	0,0% - 2,4%		1,8%	0,0% - 1,8%
<i>Thailand</i>	1,8%	4,1%	3,8%	5,7%	
TOTAL G1	8,4% - 13,2%	7,2% - 12,0%	9,0% - 10,8%	31,3%	3,6% - 9,0%
<i>Hong Kong</i>	3,3%	5,9%	4,2%	8,2%	5,8%
<i>Japan</i>	25,8%	13,4%	17,9%	8,2%	16,8%
<i>Singapore</i>	9,2%	20,5%	6,0%		12,1%
TOTAL G2	38,2%	39,8%	28,0%	16,4%	34,7%
<i>China</i>	4,1%	2,4%	0,0% - 1,8%	2,7%	3,4%
<i>Taiwan</i>	0,0% - 2,4%	0,0% - 2,4%	0,0% - 1,8%	2,0%	0,0% - 1,8%
TOTAL G3	4,1% - 6,5%	2,4% - 4,8%	0,0% - 3,6%	4,7%	3,4% - 5,2%
<i>US</i>	13,6%	18,2%	33,9%	18,4%	18,0%
<i>France</i>	0,0% - 2,4%	0,0% - 2,4%	0,0% - 1,8%	0,0% - 2,3%	1,8%
<i>Germany</i>	3,0%	3,0%	4,1%	3,1%	2,9%
<i>Netherlands</i>	3,3%	3,0%	5,4%	2,3%	3,2%
<i>UK</i>	2,4%	3,4%	4,6%	2,8%	3,3%
TOTAL G4	22,3% - 24,7%	27,7% - 30,1%	48,0% - 49,8%	26,6% - 28,9%	29,2%
<i>Others</i>	20,8% - 27,0%	13,3% - 22,9%	7,8% - 15,0%	18,7% - 21,0%	21,9%-29,1%
TOTAL G5	20,8% - 27,0%	13,3% - 22,9%	7,8% - 15,0%	18,7% - 21,0%	21,9%-29,1%
OVERALL	100,0%	100,0%	100,0%	100,0%	100,0%

Source: Asian Development Bank, Key Indicators 2000

On the one hand, the fall in aggregate demand in Malaysia must have affected Singapore significantly, both in absolute terms and in relative terms to the rest of the ASEAN-5 countries. But on the other hand, the fall in aggregate demand in Japan must have affected Singapore significantly less than to the rest of the ASEAN-5 countries. Although Singapore exported more than its neighbours to the three worst hit economies, the differential was possibly not significant enough to generate a distinctive impact of the crisis in Singapore *vis-à-vis* its neighbours. Therefore, as Malaysia was more hit by the crisis than Japan, probably Singapore was *ceteris paribus* overall more affected than the other ASEAN-5 economies by the fall in demand from the crisis-hit countries.

According to Rodan G. (1998), Singapore's heavy orientation to markets outside Asia

provided a measure for insulation from the worst effects of the regional economic crisis. This statement might sound a priori contradictory with the evidence we have provided in table 21. There we saw that Singapore's export share to non-affected economies was about the average in Southeast Asia. However, as table 22 shows, we need to consider that Singapore is a much more open economy to trade than the other ASEAN-5 economies. Precisely because of this and because about half of Singapore's external markets were doing well, the effect of the crisis in Singapore must have been cushioned. The other ASEAN-5 economies depended much more than Singapore on domestic markets and because those domestic markets were *not* doing very well due to the crisis, they must have suffered more.

Table 22. Trade openness (%), 1995

<i>Indonesia</i>	43,7
<i>Malaysia</i>	161,4
<i>Philippines</i>	59,1
<i>Singapore</i>	281,1
<i>Thailand</i>	70,9

Source: Asian Development Bank, Key Indicators 2003

Tables 22 and 21 only made reference to exports of goods. But Singapore is a major service provider. It is the region's financial trading and transshipment centre. Hence, Singapore's economy was definitely more impacted than its neighbours by the decline in the regional demand of these hub-related service activities.

Singapore's competitiveness suffered from the devaluations of the currencies in Southeast Asia. As table 23 shows, the S\$ was the only currency appreciating in real effective terms from 1996 to 1997. However, many of Singapore's non-oil domestic exports are assembled in other Southeast Asian countries before reaching final destinations in US or EU and so the devaluations actually benefited some activities.

Table 23. Real effective exchange rates (1993 = 100)

	1996	1997
Indonesia	125,5	92,4
Malaysia	106,3	83,2
Philippines	124	107,4
Singapore	109,7	110,5
Thailand	107,8	81,5

Source: Bustelo P. 1998

We do not have any specific evidence regarding the exact effects of the *wake-up call* channel of contagion for the different ASEAN-5 countries. However, we know that those effects must have been proportional to the economic and financial weaknesses of the countries. As Singapore was on average the strongest in these aspects, thus we can expect Singapore to be the one suffering the least from this sort of contagion.

Therefore, although it is clear that Singapore did suffer from contagion, there is mixed evidence on whether it suffered less or more than its neighbours. On the one hand, there are several reasons why Singapore probably suffered more: being the region's service hub, the loss of competitiveness due to neighbouring currencies devaluations, and the geographical breakdown of its exports with the crisis-hit economies. On the other hand, there are two good reasons why Singapore very possibly suffered less: its much higher trade openness together with a similar export share to non-crisis countries, and the *wake-up call*.

Hypothesis 11. Longer political continuity and stronger state capacity

State capacity and politics are key factors for the government to be able to implement some of the policies and regulations necessary to prevent and ameliorate the effects of a financial crisis. The government needs to enjoy political continuity to be able to deal with current account deficits, prevent the build-up of short-term debt, etc. Moreover, the state needs to have political support and be autonomous enough to oppose vested interests (e.g. industrial interests against the strengthening of prudential regulations).

So, our eleventh hypothesis is that the government of Singapore enjoyed a longer political

continuity and had a stronger capacity.

Singapore indeed has enjoyed political continuity. Since the country became autonomous in 1959 until today there has been a hegemonic party system. The government has been always in hands of the Peoples' Action Party (PAP). From the second parliament (1968-1972) to today's parliament (2001-2004), the average percentage of elected members of parliament belonging to parties different from PAP out of the total elected members of parliament has been only 2%. Not only have the government and the parliament been controlled by a single political party from 1959 until this year, but also by just two prime ministers. The dominance of the PAP has rested on popular support won by economic growth and improved standards of living combined with unhesitating repression of opposition leaders.

Although its government has been a coalition party, Malaysia has also enjoyed political continuity since 1974, and it has had the same prime minister from 1981 to 2003. Indonesia had a dictator from 1965 to 1998 but in the 1990s this dictator did not have popular support and in 1998 he was forced to resign. The Philippines had three different presidents from 1990 to 1998. Thailand is the worst case of all. It changed government six times from 1993 to 1998.

Singapore has also had during the years prior to the crisis a very strong state capacity able to dominate vested interests. This is not only the case because of having a hegemonic party system with popular support during all its history, but also because the economy and the industry have been heavily managed and controlled by the government. This implies that the interests of the industry often coincided with the interests of the government. Nowhere else in the ASEAN-5 region state capacity was so strong as in Singapore.

Therefore, this supports our last hypothesis in this section.

3.2. EX-POST REASONS

Hypothesis 12. More supportive policy responses to the crisis

Timely decisive and supportive policy responses to a crisis can boost recovery.

So, our hypothesis is that Singapore's government undertook more supportive policies for recovery.

These are some examples of the policies implemented in Singapore as a response to the crisis:

- *Fiscal policy.* In June 1998 the government came out with a S\$2 billion package of measures aimed at cutting business costs and stimulating the economy. In November 1998 a new cost-cutting package of S\$10,5 billion was announced. These measures resulted in a budget deficit of about 1% of GDP for 1998. It was Singapore's first fiscal deficit in over a decade.

- *Monetary policy.* They applied an expansionary monetary policy with low interest rates. This was possible because they were not constrained by a rigidly linked exchange rate regime. The government refused to draw down its foreign exchange reserves, as it preferred to use fiscal policy and save the reserves for future rough weather.

- *Cost reduction measures.* In the framework of the above-mentioned fiscal packages, the government pushed several cost reduction measures (e.g. 10% reduction in the employer's contributions to the mandatory pension fund) to ensure that the city-state would be in a competitive position post-crisis *vis-à-vis* neighbouring economies.

- *Structural policies.* Further deregulation of financial, telecommunications and other tradable services was undertaken in 1998 in order to promote Singapore as Asia's premier financial hub and to increase capital inflows to the newly open sectors.

• *Strengthening of banking regulatory, supervisory and disclosure standards.* Although Singapore's banking standards were well above those in Southeast Asia before the crisis, the Monetary Authority of Singapore (MAS) started in August 1997 a fundamental review of its policies in regulating and developing Singapore's financial sector. The review introduced reforms such as the strengthening of the supervisory system and the raising of bank disclosure standards.

• *Development of bond market.* Another component of the 1997 MAS financial sector review was the development of a liquid bond market with the objective of reducing the overdependence of borrowers on the banking system and providing borrowers with a good alternative source to raising long-term capital for matching any long-term expenditure needs.

Now, the key question is whether these policies were better for the mitigation of the crisis ex-post than those implemented in the other ASEAN-5 economies. Comparing the policies of the five countries in the post-crisis period would deserve a separate study. However, there are a few simple facts that should help us decide upon the most likely answer to the above-mentioned question:

1.The rationale of all the policies implemented in Singapore goes clearly in the direction of recovery and also in the prevention of future financial crisis.

2.Singapore's government response to the crisis was diligent.

3.Some of the policies aimed to strengthen Singapore's competitive position with respect to its neighbours.

4.Singapore had a stronger macroeconomic basis than its neighbours (e.g. huge previous budget surpluses, more flexible exchange rate regime, abundant foreign exchange reserves) to implement some of the policies.

5.During the second half of 1997 and until May 1998 Thailand and Indonesia followed

the prescriptions of the IMF. The IMF imposed high real interest rates, fiscal restriction and Western measures of financial restructuring. This, according to many economists, aggravated the crisis.

6. The Philippine government was also forced to lift interest rates.

7. Malaysia was not under a formal IMF program but followed the IMF recipe. However, in September 1998 it decided to stop following the IMF and imposed exchange rate controls, which were effective in assisting recovery in the short-term.

Therefore, from these facts, we can conclude that the policies implemented in Singapore are very likely to account for, at least in part, the stronger recovery that the country experienced *vis-à-vis* Indonesia, Philippines and Thailand. The success of the exchange rate controls in Malaysia makes the comparison between Singapore and Malaysia not clear.

Hypothesis 13. Better political environment and stronger popular support for government

So that a government can choose and implement the necessary reforms for recovery after a crisis, it needs an adequate political environment (e.g. political certainty, electoral period not coming soon, strong state *vis-à-vis* opposition and interest groups, etc.) and popular support.

So, our hypothesis is that Singapore enjoyed a better political environment and stronger popular support since the start of the crisis.

We already explained that Singapore's government has had a strong capacity, political continuity and popular support all over its story. This was also the case during the financial crisis. Moreover, the PAP, Singapore's government political party, did not really have to worry much about the risk of not being re-elected as the last elections were held in early 1997.

Malaysia enjoyed similar circumstances as Singapore, although not as good. Thailand had

a new head of government in late 1997 because the previous one was forced to resign. He lasted until 2001. In Philippines, a new president was elected in 1998 but he was also forced to resign in 2001. In Indonesia, the worst case of all, the previous dictator was forced to resign in 1998 and in 1999 the country had its first democratic elections.

Therefore, this evidence seems to support our hypothesis.

Hypothesis 14. More dependence on high tech exports

The stronger recovery that Singapore experienced could be due not only to domestic policies and politics, but also to external factors. One of those external factors is the global high tech boom from mid 1998 until early 2000. Southeast Asian economies were and still are very dependent on exports, especially to the U.S., which takes about two-thirds of all Asian electronics exports.

So, our last hypothesis is that Singapore was more dependent on high tech products.

According to one article published in *Businessweek Online* in July 2000, Malaysia and Singapore were the countries in Southeast Asia benefiting the most from the global high tech boom. In 1999 exports of electronic equipment and components were 47% of GDP in Singapore and 65% in Malaysia, while the concentrations in Thailand, Indonesia, and the Philippines were far less.

Therefore, the stronger recovery of Singapore in 1999 and 2000 must definitely be due to a large extent to the stronger dependence of its economy on high tech exports (except when comparing with Malaysia). The fact that Malaysia's high tech exports were higher than those of Singapore and nevertheless Malaysia had a slightly smaller growth rate in 1999 and 2000 shows that there might be other factors explaining Singapore's stronger recovery *vis-à-vis* Malaysia. These could be Singapore's possible superior domestic policies and politics and/or other external factors that could have favoured more Singapore.

4. CONCLUSION

We have provided 14 potential reasons of why Singapore was less affected by the Asian financial crisis than its Southeast Asian neighbours and, in a higher or lower degree, the evidence supports most of them. But which are the most important ones? And is there any common denominator in all those reasons? In this section we are going to try to answer these questions.

The most important reasons must be those that, apart from being well supported by evidence, fulfil one or both of these criteria: i) it is a reason for which Singapore's outperforms its neighbours very remarkably; ii) it is a reason that constitutes one of the main explicative factors or aggravators of the effects of the Asian financial crisis. So, taking into consideration these two criteria, next we will try to figure out the main reasons behind each of the three outcome facts highlighted in section 2.

Fact a): The overall impact of the crisis was smaller in Singapore than in its neighbours

In the analysis of the ex-ante reasons, we have found clear evidence for the following explicative factors of the lower impact that the crisis had in Singapore *vis-à-vis* its neighbours:

1. Singapore received much less capital inflows than its neighbours and so the extent of the credit boom was much smaller. This was mainly due to its much higher domestic savings rate and possibly to its restrictions on foreign borrowing.

2. Unlike its neighbours, Singapore had prior to the crisis capital management techniques that were effective in creating financial stability.

3. Singapore's banking disclosure, regulation and supervision standards were above those of its neighbours. This is the main explanation why Singapore's banks and corporations had much stronger balance sheets: they were much less mismatched and banks enjoyed much

lower ratios of non-performing loans. In relation to Malaysia and Thailand, Singapore's lower ratio of non-performing loans can also be explained by the country's *limited* implicit depositors guarantee.

4. Singapore's corporations were much less leveraged.

5. Unlike its neighbours, Singapore had current account surpluses. This allowed the country to accumulate a much higher stock of foreign exchange reserves, in absolute terms and also in relation to short-term debt. This certainly helped prevent and/or ameliorate a currency speculative attack.

6. Singapore's macroeconomic fundamentals were overall stronger. The budget surplus, in particular, was much higher.

7. Singapore's economy much higher dependence on trade, together with a similar export share to non-crisis countries, made the country suffer less from trade-related contagion channels.

8. Singapore had a stronger state capacity and longer political continuity.

For most or all of these factors, the gap between Singapore and its neighbours was very high. So, using our first criterion, it becomes very difficult to do any ranking of the above-mentioned eight factors. However, we will dare to say that the external debt over GNI ratio, the amount of international reserves (in absolute and relative terms), the fiscal balance and the degree of trade openness are possibly the indicators in which Singapore stands out the most. This would make factors 1, 5, 6 and 7 the main ones.

So far so good as regards our first criterion. But the second criterion also matters for ranking the above-mentioned eight factors. This is not easy, either. The main origin of the crisis is a contested issue. Many economists argue that the underlying cause is the weak banking prudential regulations in the context of the opening of capital accounts. Others

argue that the crucial cause is not the regulations but the opening of the capital accounts, which together with other factors generated an increase in private capital inflows. There are also those who stress more the external economy weaknesses and how they, together with the pegged exchange rates, gave rise to currency speculative attacks. Etc. So, using our second criterion, the most important factors will be determined by the story or stories we believe the most.

In any case, no matter which are the explicative factors we consider are the most important ones as a result of combining both selection criteria, we cannot undermine the importance of the remaining factors of our list, as they also contribute significantly to explain fact a).

Fact b): Singapore's real economy suffered later than those of its neighbours

We have seen throughout the ex-ante reasons in section 3 that Singapore had vis-à-vis its neighbours strong macroeconomic fundamentals, an extraordinary stock of foreign reserves to prevent currency attacks, a robust financial system with solid prudential regulations, banks with low ratios of non-performing loans, not very mismatched balance sheets, not highly leveraged corporations, etc. In addition, Singapore used little foreign borrowing and it had some capital controls. These factors taken together suggest that Singapore's economy must have suffered little from the effects of capital outflows.

Then, as Rajan R.S., Sen R. and Siregar R. (2001) explain, contagion must have been the main factor explaining the negative effects that the crisis had on Singapore's real economy. As explained in section 3, contagion affected Singapore's economy adversely due to the fall in the region's outward investment and external demand of goods and services, due to the devaluations of the neighbouring currencies and also due to the *wake-up call*. Because of what we have argued in the previous paragraph, this third reason was certainly a minor one.

Therefore, if indeed the first two reasons were the main justification of Singapore's recession, it becomes easier to understand fact b). Singapore's economy suffered latter because it takes some time from the moment the crisis starts in a neighbouring economy until the effects of the drop in the demand coming from this economy are seen in your own economy. It also takes time from the moment a neighbouring currency is devaluated until the consequent loss of your competitiveness is reflected in your economy.

The crisis also brought negative effects to the other ASEAN-5 countries due to contagion via trade-related channels and via the effects of devaluations. However, in comparison to Singapore, those effects almost certainly constituted a smaller fraction over the total negative effects that they received. Their economies suffered proportionally more than Singapore's economy from the capital outflows shock and hence the effects of the crisis on their economies came earlier than in Singapore.

Fact c): Singapore's real economy recovered more strongly than those of its neighbours

In section 3 we found evidence supporting the three ex-post reasons of why Singapore was less affected by the crisis. This is a summary of the evidence we found on the factors accounting for Singapore's stronger recovery:

1.The recovery policies implemented in Singapore were the right ones to boost recovery and came on time. Moreover, they aimed to prevent future crisis.

2.Singapore's post-crisis macroeconomic policies were more suitable for recovery than those implemented immediately after the crisis by the other ASEAN-5 countries, which followed IMF's prescriptions. IMF's prescriptions regarding fiscal and monetary policy were just the opposite of the macroeconomic policies implemented in Singapore.

3.Some of Singapore's recovery policies aimed to strengthen the country's competitive position *vis-à-vis* its neighbours.

4. Singapore's political environment and popular support were more favourable for a right choice and a successful implementation of recovery policies.

5. Singapore enjoyed a more favourable external environment for recovery, given its higher dependence on high tech exports (except in comparison with Malaysia).

It is important to note that the fact that Singapore recovered more strongly does not only have to do with circumstances after the crisis but also with circumstances before the crisis. These are some examples that justify our statement:

1. Singapore's previous huge budget surpluses made it certainly easier for the government to launch diligently important packages of recovery measures without having to increase public debt.

2. Singapore's more flexible exchange rate regime allowed the country to implement a looser post-crisis monetary policy.

3. Singapore's stronger public support for policy implementation is mainly due to the government's reputation for previous economic success.

4. All the ex-ante reasons we have seen prevented Singapore in general from being severely affected by the crisis and hence the country did not have to be rescued from IMF and apply its crisis-aggravating prescriptions.

Like with fact a), it becomes difficult to say which of these factors is the most important in explaining Singapore's stronger recovery. Certainly Singapore's much stronger dependence on high tech exports must have given the country an important edge. But policies and the political environment surrounding those policies, as well as possibly other external factors which we have not considered, must have been also important determinants. Otherwise Malaysia, with a higher dependence on high tech exports than Singapore, would have not had lower growth rates in 1999 and 2000.

In the introduction we said that this paper's question was part of the broader question of how an open economy can successfully mitigate external risk and what the government's role is in meeting this goal. So next we will relate the analysis done so far to this broader question.

The financial crisis is the external risk. Our ex-ante and ex-post evidence-supported reasons constitute, respectively, the ex-ante and ex-post risk mitigation mechanisms. And Singapore is the open economy that successfully mitigates external risk. Success is measured in relation to the other Southeast Asian countries.

Now, what about the role of the government? Well, our claim is that behind all the financial crisis mitigation mechanisms we have seen, there are just two basic ingredients: government intervention and trade openness. Next we will justify this claim.

Behind the low amount of capital inflows there are mainly high domestic savings. Domestic savings can be public or private. Behind public savings (i.e. due to budget surpluses) there is *government* intervention. Behind private savings, there are, apart from cultural reasons, government's incentives and a poor social security system, which is also *government's* responsibility. Behind capital controls, although there are also the influences of the core economies of the world, ultimately there is the decision of the national *government*. Behind banking regulation and supervision standards, there is *government* intervention. Banking regulations are in turn behind non-performing loans ratios and balance sheet mismatches. Behind implicit guarantees there is *government* intervention. Behind the low leverage of corporations there are possibly also *government* regulations and a strong *government*-developed equity market. Behind current account surpluses and abundant reserves, there is government intervention (e.g. export incentives, reserves management). Behind a tight macroeconomic policy resulting in good economic fundamentals, there is the

government, too. Behind a low contagion from the fall in external demand, there are a high degree of *trade openness* and a very significant export share to non-crisis countries. Geographical trade diversification in a government-led economy is greatly determined by *government*. Behind successful recovery policies there was, in the case of the Asian financial crisis in Southeast Asia, the national *government* rather than the IMF. And last but not least, behind the benefits received from the global high tech boom, there is a high degree of *trade openness* and a *government*-led bet on high tech specialisation of the economy.

Now, if this justification is convincing in a higher or lower degree, then we are ready to launch the key question: why were those two basic ingredients different in Singapore vis-à-vis its neighbours in such a way that the effects of the financial crisis were mitigated more successfully in Singapore?

Let's start first with trade openness. Singapore had the highest trade openness among the ASEAN-5 countries and this, as we have explained, combined with other factors, accounts for the lower impact of the crisis and the stronger recovery that Singapore experienced. This higher trade openness is mainly due to the fact that it is a small city-state that needs to rely very much on the external economy to be able to consume a wide variety of goods and services at a low cost. It is very important to emphasise that high trade openness alone did not constitute a risk mitigating mechanism in Singapore. Two more things were needed: government intervention (i.e. promoting geographical diversification of the economy and betting on high tech specialisation) and favourable external conditions (i.e. US and EU markets in good shape and global high tech boom). Next we will talk about the former. The latter is something random. It may or may not occur.

Let's move now to government intervention. Those attentive readers will have realised that two very important risk mitigation mechanisms have not been mentioned in the previous

justification, namely those that have to do with politics and state capacity. The reason being is that they are main determinants of government intervention. The government of Singapore has been able to intervene so strongly and *ad libitum* in the economy thanks to its unique political and governmental framework³. However, it is not only an issue of *getting politics and state capacity right*. Singapore's government's success in mitigating the effects of the financial crisis relies very much on *choosing* those ex-ante and ex-post interventions that are the best for the economy. This was the case in Singapore very possibly because of policy-makers' *competence*. But most importantly, this was the case because those policy-makers had strong incentives to take the right interventions, and those incentives must almost certainly come from Singapore's *vulnerability*. The fact that it is a tiny country in a region with intense rivalry, and the fact that it is highly dependent on other economies precisely because of being tiny, make Singapore very vulnerable to the external environment *in general*. This almost certainly motivated the government to take the risk mitigation interventions we have been describing all along this paper. Vulnerability may possibly have also acted as a legitimising element of Singapore's unique political and governmental framework. Furthermore, vulnerability may have stimulated to some extent Singapore's policy-makers' competence.

Summing up, government intervention in Singapore is the key explaining the better mitigation of the Asian financial crisis of this country *vis-à-vis* its neighbours. This government intervention has been strong and has had freedom to decide thanks to a unique political and governmental framework. This government intervention has been definitely competent and has had stronger incentives to ameliorate external risk. *All* these attributes of Singapore's government's intervention in mitigating external risk are very possibly due, exclusively or in part, to the country's higher vulnerability to the external environment. But

³ For details, see hypothesis 11 in section 3.

curiously enough, Singapore's higher exposure to the external environment, and in particular its higher trade openness, has also served, together with government intervention and favourable external conditions, as a risk mitigating mechanism.

Rodrik D. (1998) also gets to a similar conclusion as ours: more open economies have bigger governments because those governments play a risk-reducing role. However, there are some fundamental differences between our study and Rodrik's. First, the risk he considers is not the risk of a financial crisis but the terms-of-trade risk. Secondly, he measures government intervention as government consumption, which does not include any non-budgetary intervention. And finally, although he is based on a much larger sample of countries and does a rigorous regression analysis, he does not investigate the exact risk-reducing mechanisms that governments use.

As directions for future research, it would be interesting to study the *terms-of-trade risk* mitigating mechanisms used by the government of Singapore. Singapore is an example of an extremely vulnerable country to the external environment, and also an example of a successful economic performer. So, it provides an excellent potential case study for effective external risk-mitigating mechanisms, which should be further exploited. Moreover, the proposed study would complement Rodrik's paper by providing examples of terms-of trade risk reducing mechanisms used by a government. It would also be interesting to do a Rodrik-style regression analysis for *financial crisis risk*, but incorporating as well non-budgetary dimensions of government intervention. This *could* definitely enhance the validity of our findings.

5. LESSONS FOR TODAY'S DEVELOPING AND EMERGING ECONOMIES

What lessons can today's developing and emerging economies learn from Singapore, if they want to enjoy the benefits of borrowing abroad for development purposes, and at the same time be in a good position to mitigate the risks (i.e. financial crisis) associated with borrowing abroad?

Well, the very simple answer would be that their governments should intervene more in order to implement all those ex-ante and ex-post financial risk mitigating mechanisms mentioned in the conclusion. For example: use capital controls, stimulate domestic savings, encourage current account surpluses and accumulation of foreign reserves, follow a tight fiscal and monetary macroeconomic policy, generate budget surpluses, impose strong banking regulation and supervision standards, open more the economy to trade and encourage a good geographical diversification of exports, implement loose macroeconomic recovery policies, etc.

However, we have to be very cautious when generalising the case of Singapore to other countries.

First of all, because behind the success of Singapore's risk mitigating mechanisms *vis-à-vis* those of its neighbours, there are features that are very specific to Singapore. Namely: the fact of being a small city-state in a region with intense rivalry, and the fact of having a unique political and governmental framework. If those elements do not exist, it will not be possible to apply the above-mentioned mechanisms, at least in the same degree as in Singapore. Then the lesson should be trying to apply those mechanisms as much as possible given the domestic political and geographical characteristics.

Secondly, there is a need of congruence between exposure to risk and the ability to bear it. Singapore's external risk exposure is very high and hence it needs extreme mechanisms to

ameliorate this risk. Congruence must always exist. The strength of the risk-mitigating mechanisms must be always in accordance to the country's exposure to risk. For example, it would not make much sense for a relatively closed economy to try to generate the same huge budget surpluses of those of Singapore in view of being prepared to external adversities.

And last but not least, we have to be very cautious when drawing a lesson from Singapore saying that today's developing and emerging economies should open more their economies to trade. Singapore benefited *vis-à-vis* its neighbours from having a much more open economy during the financial crisis thanks to government intervention and thanks to favourable external conditions. If the external conditions would have been unfavourable and/or the government intervention would have been different, then having a more open economy could have actually not mitigated the financial crisis, but instead aggravated it. Indeed, due to the global high tech bubble burst in 2000, Singapore was in 2001 the most severely hit economy in Southeast Asia.

Coming back to our broader question, this paper's study shows the importance of government in mitigating external risk. But even if the developing and emerging economies are aware of this, can they do anything about it? The required government's strength, freedom, competence and incentives to implement the right risk-mitigating mechanisms are many times beyond the control of anyone in the country. However, if it is indeed the case that from inside the country there is little that can be done to enhance the role of government in mitigating external risk, there is something that can be done from outside the country, namely from the world's core economies' governments and from the international institutions. They should try to press and constraint governments as little as possible so that they can ex-ante and ex-post manage external risk effectively. The story of the financial crisis in Southeast Asia illustrates this very well. Singapore's macroeconomic recovery

policies were designed by the national government whereas the rest of the ASEAN-5 countries followed at the beginning IMF's macroeconomic recipes. Without doubts, Singapore's policies were more suitable for recovery. The post-crisis recovery-enhancing capital controls that Malaysia established opposing the international *guidelines* constitutes another good example, too.

Finally, the example of Singapore shows that government intervention does not come without costs. Although we have not made any explicit reference to this issue along the paper, the limitations that government intervention in Singapore has put on individual freedoms are well known. This trade-off between effective risk mitigation and individual freedoms is something that those developing and emerging economies willing to open further their economies should be aware of.

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