The behaviour pattern of foreign equity investors during the financial crises of the late 1990s[1]

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1. Introduction

In a recently concluded research project on 'Enhancing the Flow of Private Capital Towards Low-Income Countries'[2], we have examined how investment funds, pension funds and international banks make their investment and lending decisions. For that purpose we have done theoretical and empirical work.[3] The latter included a series of interviews with international financial players based in London, New York, Chicago and other US financial centres.

A preliminary finding of this project has been that investor behaviour may not be so homogeneous as we had initially believed. Apparently, diversity may be found among investors, between investors and lenders, and among lenders as well, both in the way they manage risk and in how they allocate their assets in developing countries over time (Gottschalk, 2003). However, this finding, based on interview information, could not be empirically confirmed at the time due to lack of data information on investors' and banks' behaviour.

The purpose of this paper is to draw on recently available data on international and global emerging market funds to find out how investors behave before and during a financial crisis, and whether their behaviour bears a significant degree of diversity.[4] We aim to address questions such as: do momentum investors pull out massively in the period immediately before a crisis? Do contrarians really stick to their assets in times of uncertainty and even crisis?

If through data analysis we find evidence that at least some investors behave differently, this means that there is an economic rationale supporting such behaviour against the alternative of just following herds. The data set will also allow us to analyse investors' behaviour over time, and therefore to see whether their behaviour pattern changed as financial crises occurred.

Advances in research in this area may certainly prove very beneficial to developing countries, as through appropriate policy recommendations based on careful data analysis, it may be possible to effectively encourage more stable capital flows to these countries, thereby reducing the occurrence of costly financial crises.

The data set available comprises time series of investors' asset holdings and their distribution across countries. Analysing investors' behaviour though looking at trends in their asset holdings and how these are allocated across different markets imposes a difficulty, however. This is because the value of their asset holdings may vary not just as a result of their buying and selling decisions - the quantity effect -, but of changes in the

[2] This project, led by Professor Stephany Griffith-Jones, was undertaken as part of DFID's Globalisation and Poverty programme.

[3] For their main findings and policy recommendations, see for example: Griffith-Jones (2003); FitzGerald and Krolzig (2003); Gottschalk (2003); Kimmis, Gottschalk, Armendariz and Griffith-Jones (2002); Griffith-Jones and Spratt (2002).

[4] We discovered this database at the time we were finishing our DFID funded project.

prices of the assets. To tackle this problem, we analyse trends in asset holdings deflated by the dollar index of the countries' stock exchanges where investors have assets. This assumes, of course, that investors' asset portfolio composition of a specific country is the same as the composition of the country's stock exchange index. This is a fairly strong assumption and should therefore be borne in mind when deflated trends are examined.

The data analysis will show that in aggregate foreign equity investors did pull out heavily from countries where a crisis erupted, although they did not have a major role in causing the crises. It will also be seen that investors' behaviour pattern converged over time towards herding, and that the smaller funds based in small jurisdictions tended to be the most speculative ones.

2. Method

The analysis undertaken by this study covers a critical period – 1996-1999 – when a series of major financial crises took place in developing countries. In a second stage, we intend to provide an analysis for the years 2000-2003, when other major EM financial crises occurred.

The data provider is the Emerging Portfolio Fund Research, a US-based consultancy firm.[5] The data set comprises monthly information on the value of asset holdings of equity funds (and on the distribution of their assets by regions and countries) both for international and global emerging market funds. International funds are those funds that invest globally, both in developed and emerging market (EM) countries. Global emerging market funds, in turn, are those funds that invest only in emerging markets across different regions of the world.

Historical monthly series is provided back to the year 1996. The study focuses mainly on global emerging market funds. For this type of fund, information is available for around 30 funds on average between 1996 and 1998. From early 1999 onwards, the number of funds for which monthly information is available increases rapidly, initially to around 40 funds and then to over 50 funds by the end of 1999. However, in order to undertake a trend analysis, we first focus on a group of 25 funds for which data are available on a continuous basis between February 1996 and December 1998. Moreover, in order to extend the analysis further on until the end of 1999, the group of 25 funds is later reduced 18 funds, as only for these latter funds continuous data are available between February 1996 and December 1999. This thus permits us to undertake an analysis of trends in the aggregate asset holding values and asset portfolio allocation patterns of a sample and sub-sample of investors, which we believe are representative of the whole universe. Analysis of the individual behaviour patterns of each fund is also provided.

The study also analyses the data set for international funds. However, for this group of funds information available on a continuous basis for the period under analysis - 1996-1999 - is limited to 8 funds. Moreover, of these, 6 funds are from the same investment house. Therefore, the analysis of international funds will be provided only at the end of the study, with the purpose of having just a very preliminary indication of their behaviour, and bearing in mind that their behaviour may not be representative of the whole universe.

With this data set, it is possible to detect equity funds' behaviour both before and during the financial crises of the late 1990s, and how much or not their behaviour patterns differed among themselves. More specifically, it is possible to identify and also quantify those investors that followed herds just before and during crisis episodes – and those that instead opted for sticking to their developing country assets in times of uncertainty and contagion. Moreover, it is possible to detect whether their behaviour converged or not over time.

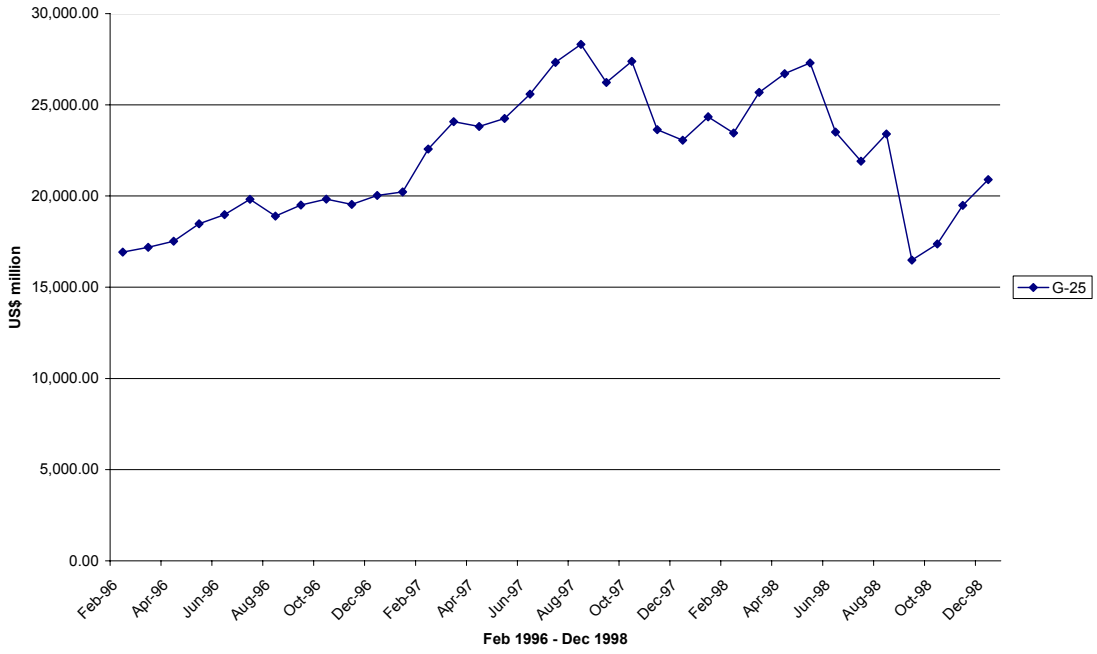
[5] See www.emergingportfolio.com

3. Preliminary empirical findings

We start the analysis with the group of 25 (G-25) global emerging market funds for which continuous data on a monthly basis are provided for the period between February 1996 and December 1998. These funds are of different sizes (from big to very small) and based in a wide range of countries - the US, UK, Ireland, Switzerland, Luxembourg and other financial centres. The period under analysis covers the East Asian crisis of the second half of 1997 and the Russian crisis of mid-1998. As a subsequent step, we will analyse data from a group of 18 global emerging market investors covering the period between February 1996 and December 1999. The latter data set will allow us to analyse the Brazilian crisis of early 1999 as well.

Chart 1 shows how the G-25 total asset holdings evolved between February 1996 and December 1998. From a starting point of nearly US$ 17 billion in February 1996, these increased very rapidly to a maximum of over US$ 28 billion at the beginning of August 1997, when the East Asian crisis had just broken out. Between then and December 1997 a significant decline of US$ 5 billion can be observed, followed by a recovery to near pre-crisis levels by May 1998. At that point, a new phase of decline set in, assumedly in connection with the Russian crisis that unfolded in July-August 1998. This time, the decline was much more dramatic, reaching a minimum of US$ 16.5 billion in early September 1998, followed by a slight recovery thereafter.

Chart 1. G-25 Total Asset Holdings in Emerging Markets

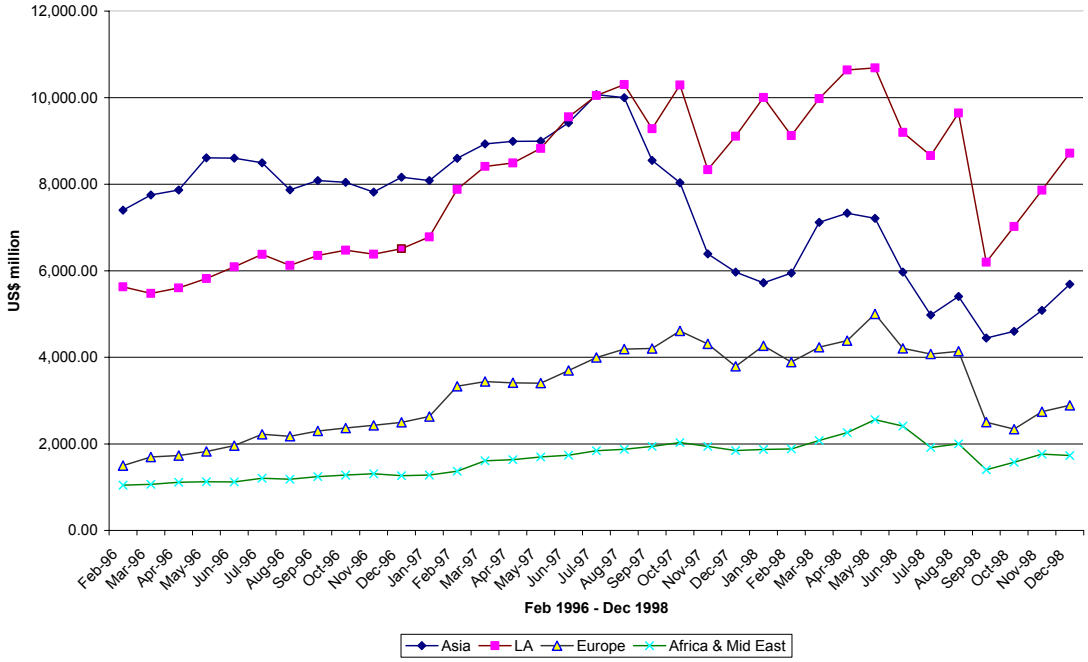


Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research.

3.1. The Asian Crisis: Trends and Facts

Looking at Chart 2, it can be observed that trends in asset holdings differ across the main EM regions. In fact, the general decline observed in the second half of 1997 (see Chart 1) reflects mainly a sharp drop in asset holdings in East Asia, which started a bit earlier, in late June-early July 1997. Latin America (LA) was the other EM region where a (though much less strong) decline took place. In Europe and Africa & the Middle East, asset holdings actually picked up.

Chart 2. G-25 Asset Holdings by Regions



Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research.

As can be seen in Table 1, the sharp decline in investors' asset holdings in Asia was reflected in a fall in the region's share in their total asset holdings.

Table 1. Asset Holdings by EM Regions

Share % in total (selected months)

	Asia	Latin America	Europe	Africa & Mid East
Feb 1996	**43.7**	**33.3**	**8.9**	**6.7**
Jun 1996	**45.3**	**32.1**	**10.3**	**5.9**
Dec 1996	**40.7**	**32.5**	**12.5**	**6.3**
Jun 1997	**36.8**	**37.3**	**14.4**	**6.8**
Dec 1997	**25.9**	**39.5**	**16.5**	**8.0**
Jan 1998	**23.5**	**41.1**	**17.5**	**7.7**
Jun 1998	**25.4**	**39.1**	**17.9**	**10.3**
Dec 1998	**27.2**	**41.7**	**13.8**	**8.3**

Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research.

Table 1 also shows that the share of Asian assets in total assets started to decline during the second half of 1996, suggesting that the enthusiasm for EM Asia was on decline much before the crisis broke out in the region. But to what extent did global EM investors contribute to the East Asian crisis, given that, in value terms, their asset holdings in the region started to decline only just before the crisis broke out?

To really know whether, or not, global EM investors played a role in the East Asian crisis, two things are important: first, to look at the trends in their asset holdings in the crisis countries and, second, to look at the trends not in nominal values but in values deflated by the dollar index of the individual countries' stock exchanges, given that investors' assets are in the form of portfolio equities. If such values are not deflated as suggested, variations in the value of investors' asset holdings may reflect solely price movements in the EM country stock exchanges rather than their decision to buy or sell assets.

Focusing on the Asian countries most strongly hit by the 1997 crisis that engulfed the region, Table 2 displays an index of the G-25 asset holdings (deflated by the dollar stock exchange indexes) in Indonesia, Korea, Malaysia and Thailand (Asia-4).

Table 2. G-25 Asset Holdings in Asia-4

Deflated by Dollar Stock Exchange (selected months)

DATA AS OF	INDONESIA	KOREA	MALAYSIA	THAILAND
01-Feb-96	100	100	100	100
01-Jun-96	93.8	126.2	115.8	105.7
01-Jul-96	91.6	134.6	117.8	101.2
01-Sep-96	93.4	146.6	114.7	104.4
01-Nov-96	88.1	158.8	118.5	98.2
01-Dec-96	90.1	158.9	122.1	104.4
01-Jan-97	92.6	159.5	121.8	100.1
01-Feb-97	95.8	178.1	120.5	104.2
01-Mar-97	96.5	183.3	125.1	110.1
01-Apr-97	96.5	195.0	126.9	122.6
01-May-97	95.4	199.2	120.5	130.3
01-Jun-97	94.1	222.9	116.1	119.4
01-Jul-97	94.9	241.3	115.1	125.2
01-Aug-97	91.0	247.0	116.0	132.6
01-Sep-97	108.4	250.7	109.2	129.2
01-Oct-97	125.4	257.9	105.6	139.9
01-Nov-97	142.6	188.6	92.5	141.5
01-Dec-97	154.5	220.0	92.9	158.5

Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

Table 2 shows that in all cases (except for Thailand), investors sold assets when the crisis unfolded. The falls were of 4% for Indonesia, 6% for Malaysia and 27% for Korea. The relevant months are July 1997 for Thailand and Indonesia, August-September 1997 for Malaysia and October 1997 for Korea.

Charts 3A, 3B, 3C and 3D amplify the focus on a six-month period that includes the month when the crisis unfolded in each country. It can be seen that in the months immediately preceding the crisis investors seem to have sold their stocks in Indonesia and Malaysia, but not for Thailand and Korea.

Chart 3A. G-25 Asset Holdings in Thailand (Index Deflated by Dollar Stock Exchange)

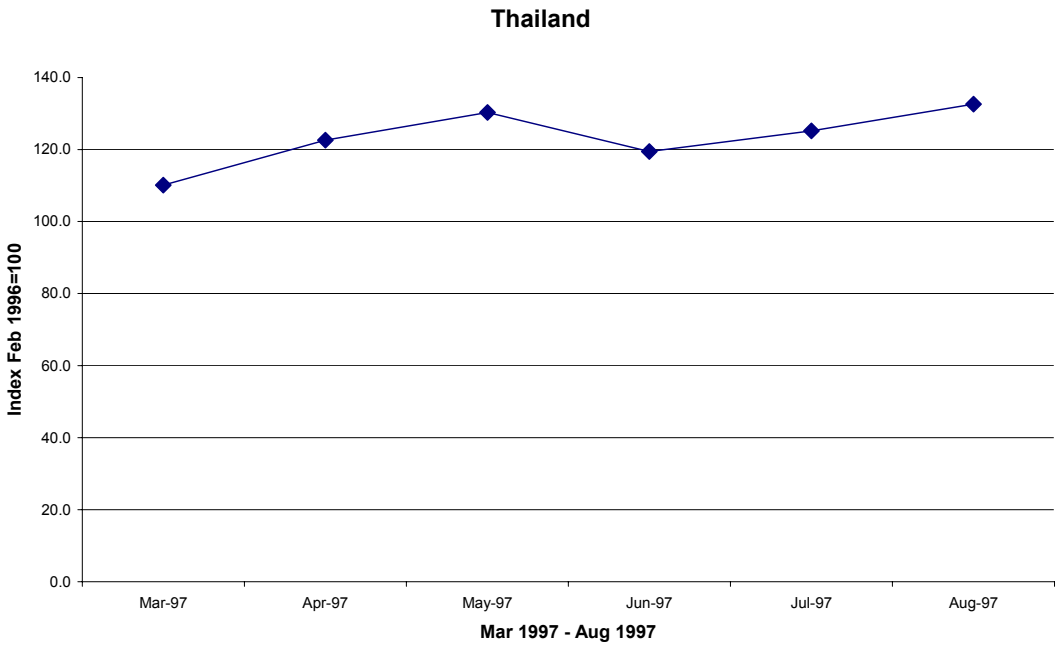


Chart 3B. G-25 Asset Holdings in Indonesia (Index Deflated by Dollar Stock Exchange)

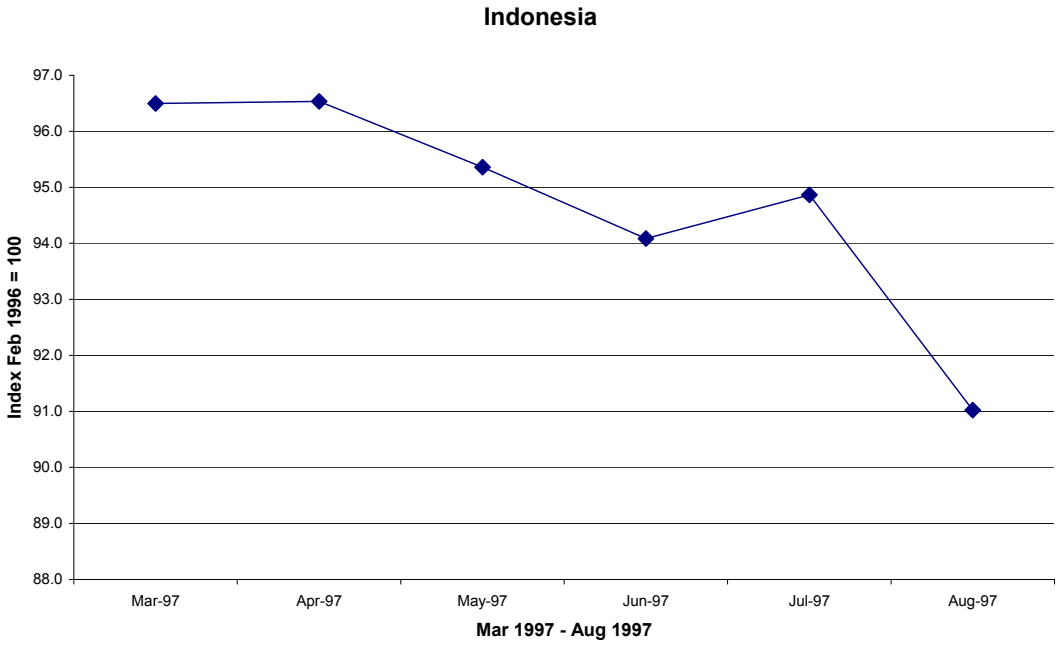


Chart 3C. G-25 Asset Holdings in Malaysia (Index Deflated by Dollar Stock Exchange)

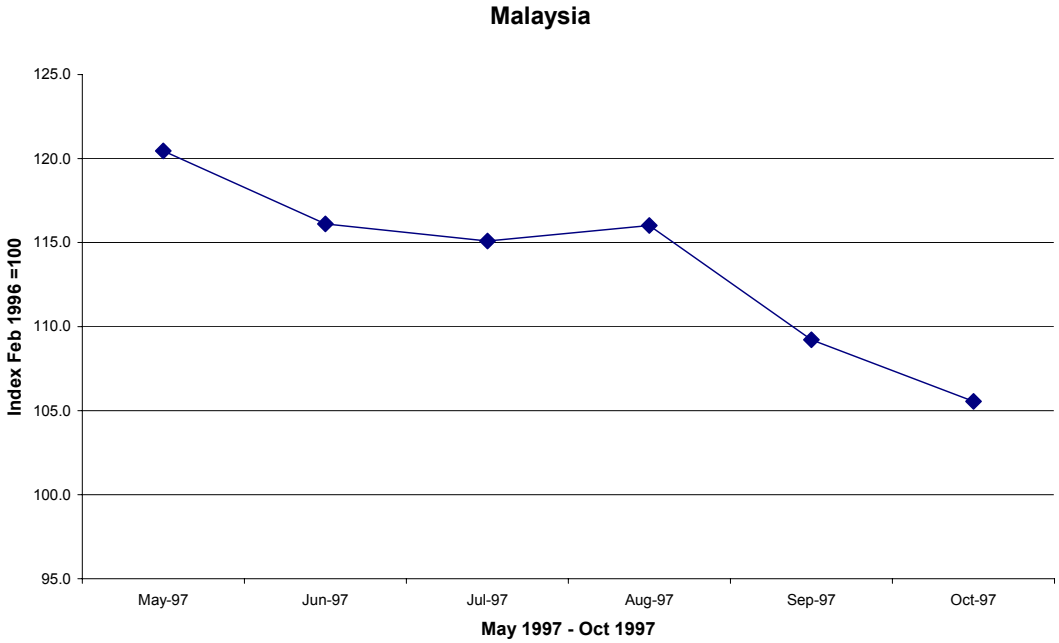
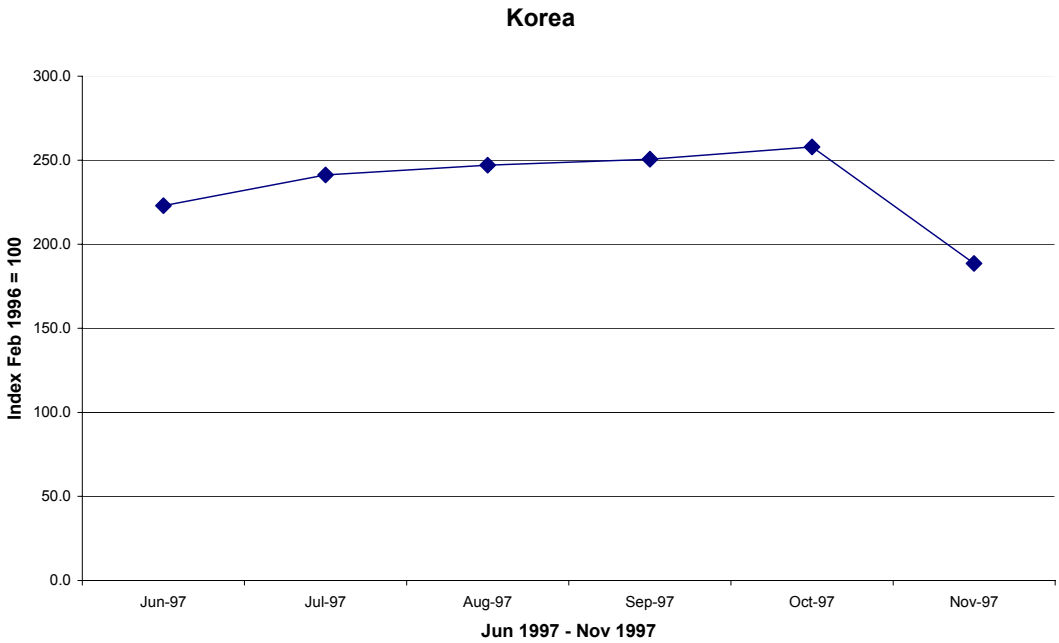


Chart 3D. G-25 Asset Holdings in Korea (Index Deflated by Dollar Stock Exchange)



The greater role of global emerging market investors in the period preceding the crisis in Indonesia and Malaysia seems related to their greater presence in these countries' stock exchanges, especially in the case of Malaysia, which confirms previous evidence (see Jomo, 2003, for Malaysia). For Korea, the trend observed confirms Park and Park (2003) findings that although foreign equity investors did not play a major role in the months preceding the Korean crisis, they nonetheless pulled out heavily when it broke out, in October 1997.

Taking the fact that the East Asian crisis started in Thailand, the figures suggest that global equity investors did not, in aggregate, play a major role in triggering the crisis in the region, although once it started they contributed to its deepening. Moreover, Table 3 shows that they contributed to spreading it out through contagion, though the latter was not generalised. Among the countries that did not suffer a crisis, in the sense that they managed to sustain their fixed exchange rate regimes, data suggests that China and Hong Kong suffered from contagion effects through such players' actions, and these seem to have been quite strong. For example, between July and early December 1997 investors' asset holding in China fell by the impressive amount of 38%, and in Hong Kong, by 27% (and between early June and December, by 35% - see Table 3). Table 3 also shows that contagion across regions is not clear cut.

Table 3. G-25 Asset Holdings in Selected Countries

Deflated by Dollar Stock Exchange (selected months)

DATA AS OF	CHINA	H.KONG	INDIA	TAIWAN	ARG	BRA	CHIL	MEX	C.REP	POL	RUSS	TUR
Feb-96	100	100	100	100	100	100	100	100	100	100	100	100
Jun-96	87.9	87.9	118.4	120.5	90.8	99.7	114.4	112.2	123.2	122.3	129.5	106.3
Dec-96	47.3	92.8	133.8	112.6	96.7	92.1	143.5	120.4	119.4	117.2	144.1	105.8
Jan-97	64.0	91.2	137.3	117.8	92.5	65.9	153.5	123.1	124.3	119.3	152.5	104.8
Feb-97	55.9	85.3	133.8	133.0	114.7	96.1	157.3	126.0	127.3	111.0	144.0	108.1
Mar-97	54.2	70.3	138.1	149.0	115.0	93.5	192.6	128.4	134.9	102.0	128.5	112.9
Apr-97	43.5	65.8	156.1	172.4	117.2	91.5	197.3	130.3	130.2	95.1	137.1	111.9
May-97	40.5	62.3	158.8	183.9	120.1	88.6	206.2	130.1	128.5	92.5	139.9	113.4
Jun-97	48.1	61.1	167.1	212.5	117.7	86.1	217.6	132.8	121.8	108.2	142.8	120.1
Jul-97	51.3	54.2	162.8	237.1	107.9	84.1	225.9	128.3	115.1	119.7	133.5	123.8
Aug-97	53.2	48.4	160.4	230.1	113.4	80.0	242.1	125.6	113.5	130.8	123.2	124.5
Sep-97	44.3	47.4	155.9	233.9	112.1	80.8	253.1	126.0	118.6	136.2	130.4	129.1
Oct-97	38.1	39.3	164.0	199.0	123.3	82.9	266.4	129.6	128.9	145.6	129.7	130.2
Nov-97	32.2	37.1	170.0	169.3	131.9	82.9	234.1	128.7	128.7	147.7	134.6	130.8
Dec-97	31.8	39.5	169.0	190.0	144.2	92.7	229.1	130.6	118.3	147.9	135.5	132.1

Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

In sum, global equity investors did not seem to have played a major role in the period preceding the East Asian crisis, but pulled out heavily from the Asian region when it started. Moreover, their actions were not limited to the crisis countries, as they pulled out very heavily from China and Hong Kong as well. Although these latter two countries did not suffer a currency crisis, Hong Kong experienced a deep recession as a result.

So far, we have looked at investors' behaviour as a group. To what extent has their behaviour been different?

3.1.1. Thailand: where the crisis started

As we have seen, the G-25 asset holding values (deflated by the dollar Thai stock exchange index) in Thailand was on the rise during the months that preceded the crisis (except during May 1997).

Having looked at the aggregate picture, the question we now turn to is: have all the funds behaved similarly, or, instead, some have stuck to their assets while others have pulled out? Table 4 displays a number of indicators for each of the 25 funds under examination, in order to help us identify which funds increased their asset holdings in Thailand before the crisis, thus contributing to the aggregate trend, and which ones pulled out before the crisis unfolded.

Table 4. Individual investors' asset holdings in Thailand[1,2]

Deflated by Dollar Thai Stock Exchange

	Annual variation % up to July 1997	Annual variation % (in relation to fund average) up to July 1997	Var % Jul 97/Mar97	Var % Aug97/Jul 97	Fund size (in relation to average size in Feb 1996)[3]	Fund Location
Fund 1	73.6	38.8	31.7	-2.5	Small	UK
Fund 2	-100.0	-100.0	-100.0	Na	Small	Ireland
Fund 3	-100.0	-100.0	-100.0	Na	Below ave	UK
Fund 4	133.3	86.5	99.9	4.5	Below ave	UK
Fund 5	100.9	60.6	46.6	56.8	Below ave	Ireland
Fund 6	27.1	1.6	7.3	5.8	Small	UK
Fund 7	124.9	79.8	92.9	11.9	Above ave	UK
Fund 8	0.23	-19.9	-3.86	0.9	Big	USA
Fund 9	106.0	64.7	65.4	8.6	Below ave	USA
Fund 10	261.8	189.2	246.3	-78.3	Below ave	Luxembourg
Fund 11	-26.1	-40.9	-13.5	-15.7	Below ave	Luxembourg
Fund 12	-24.8	-39.9	-28.4	30.9	Above ave	USA
Fund 13	-100.0	-100.0	-100.0	Na	Below ave	Cayman I.
Fund 14	-100.0	-100.0	Na	Na	Small	Bermuda
Fund 15	-87.1	-89.7	-86.8	Na	Small	Luxembourg
Fund 16	-15.7	-32.6	-13.8	-3.7	Above ave	Luxembourg
Fund 17	18.8	-5.0	-33.6	2.9	Small	Luxembourg
Fund 18	88.6	50.7	39.4	-20.7	Above ave	Switzerland
Fund 19	-100.0	-100.0	-100.0	Na	Small	Ireland
Fund 20	-100.0	-100.0	-100.0	Na	Small	Luxembourg
Fund 21	14.0	-8.9	1.5	-4.6	Below ave	Luxembourg
Fund 22	Na	Na	Na	Na	Below ave	Canada
Fund 23	636.4	488.7	1379.6	19.2	Below ave	USA
Fund 24	127.0	81.4	70.4	10.7	Big	USA
Fund 25	-22.6	-38.4	-24.6	31.2	Big	USA

Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

[1] Beginning of period.

[2] Funds that increased their asset holdings before the crisis and during the first crisis month.

[3] Small: below US$ 165 million; below average: between US$ 165 million and US$ 676 million; above average:
between US$ 678 million and US$ 999 million; big: above US$ 1,000 million. These ranges were chosen arbitrarily.

Of the 25 funds under examination, 10 funds clearly increased their asset holdings in the months preceding the Thai crisis. Of these, 7 funds (those shaded in Table 4) continued to acquire Thai assets during July, when the crisis broke out, therefore acting as contrarians both before and also at least at the initial phase of the crisis.[6] These 7 funds are of all sizes, and based in the UK, US and Ireland. If the 10 funds are considered, then

[6] It should be remarked that funds 5 and 23 had decreased their asset holdings quite heavily long before, building up asset holdings in the six months preceding the crisis; and fund 6 pulled fairly heavily in June, apparently as a downward adjustment to its heavy exposure to Thai assets.

Switzerland and Luxembourg should be included on the list of countries of origin as well. Thus, these findings indicate that no particular fund size or country location can be identified with those funds that acted as contrarians or, at least, did not actively contribute to triggering and deepening Thailand's crisis, initiated in early July 1997.

At the same time, nine other funds clearly reduced their asset holdings significantly both in the period preceding the crisis, thus acting against the trend, and in the first crisis month. They are of different sizes, but the ones of small and below average size predominate; they are based in small countries and off-shore centres. None of them is based in the UK or the US. Thus, there is some evidence supporting the fact that the most speculative funds were smallish and often based in off-shore centres.

Overall, the picture that emerges is that funds behaved fairly differently in the Thai crisis. This can be seen in column 2 of Table 4, which shows funds' behaviour in relation to the average behaviour; that contrarians can be of all sizes and be based in any country (except off-shore centres), while the speculative ones tend to be of smaller size and be based either in small jurisdictions and/or off-shore centres.

These findings are based on how the 25 funds under examination behaved in Thailand. To what extent was their behaviour pattern the same, or not, in relation to Indonesia, Malaysia and Korea?

3.1.2. The crisis in Indonesia, Malaysia and Korea

Given that the Thai debacle happened first, we could suppose that some investors were caught by surprise and, once they learned a crisis in Asia was possible, they quickly pulled out from the other Asian countries. However, if even after the Thai crisis they kept holding their other countries' assets, then this strongly suggests that they in fact behaved as contrarians.

To check this hypothesis with the information available, we look at how each of the 25 investors behaved not just until the Thai crisis broke out, but until the Asian crisis hit Indonesia, Malaysia and Korea.

Table 5. Individual investors' asset holdings in Indonesia, Malaysia and Korea[1,2]

Deflated by Dollar Thai Stock Exchange

	Indonesia			**Malaysia**			**Korea**			Fund size (in relation to average size in Feb 1996)[3]	Fund Location
	Annual % up to July 1997	Annual % (in rel. to fund ave) up to July 1997	Var% Aug97/ Jul97	Annual % up to Sep 1997	Annual% (in rel. to fund ave) up to Sep 1997	Var% Oct97/ Sep97	Annual % up to Oct 1997	Annual % (in rel. to fund ave) up to Oct 1997	Var% Nov97/ Oct97		
Fund 1	-24.6	-26.4	54.1	-13.4	-3.4	4.7	-5.6	-41.6	-12.3	Small	UK
Fund 2	2.8	0.4	-20.7	-77.2	-74.6	-100.0	-39.4	-62.5	-100.0	Small	Ireland
Fund 3	Na	Na	-13.3	-100.0	-100.0	Na	-77.7	-86.2	4.1	Below ave	UK
Fund 4	18.8	15.9	13.2	0.5	12.0	13.6	60.2	-0.9	-24.6	Below ave	UK
Fund 5	-46.3	Na	-6.7	-33.2	-25.5	-24.2	2.6	-36.6	-54.3	Below ave	Ireland
Fund 6	24.3	21.3	17.5	5.6	17.8	29.1	-44.0	-65.3	60.3	Small	UK
Fund 7	-6.2	-8.4	5.1	42.4	58.8	-14.4	-1.4	-39.0	18.0	Above ave	UK
Fund 8	14.9	12.2	1.2	28.6	43.3	1.0	104.4	26.4	-28.3	Big	USA
Fund 9	-11.6	-13.7	0.2	Na	Na	-60.9	27.7	-21.1	-11.4	Below ave	USA
Fund 10	63.4	59.5	-39.3	-10.3	0.1	-2.3	119.5	35.7	-36.9	Below ave	Luxembg
Fund 11	-23.9	-25.7	-3.6	-48.9	-43.0	3.5	37.9	-14.7	-28.7	Below ave	Luxembg
Fund 12	-96.2	-96.3	14.5	5.0	17.1	32.7	23.4	-23.7	-34.4	Above ave	USA
Fund 13	-26.6	-28.3	-33.4	-100.0	-100.0	Na	-61.2	-76.0	-41.8	Below ave	Cayman I.
Fund 14	-16.2	-18.2	-11.5	-98.6	-98.4	-100.0	282.9	136.8	-100.0	Small	Bermuda
Fund 15	-46.6	-48.1	8.8	-0.1	11.4	-89.0	-31.0	-57.3	-14.5	Small	Luxembg
Fund 16	-2.8	-5.2	1.4	18.0	31.6	1.3	117.4	34.4	-26.2	Above ave	Luxembg
Fund 17	Na	Na	23.8	-12.3	-2.2	40.7	-39.9	-62.8	9.0	Small	Luxembg
Fund 18	21.1	18.2	-33.8	-20.3	-11.1	10.9	-26.2	-54.4	-7.1	Above ave	Swiss
Fund 19	28.1	25.0	-34.8	-100.0	-100.0	Na	-52.5	-70.6	-100.0	Small	Ireland
Fund 20	-17.9	-19.9	-2.2	-39.7	-32.8	-21.9	-32.5	-58.3	-16.2	Small	Luxembg
Fund 21	46.6	43.1	-19.3	4.8	16.9	-12.6	-37.9	-61.6	-100.0	Below ave	Luxembg
Fund 22	-16.0	-18.0	-70.3	-91.0	-90.0	275.8	87.3	15.8	-100.0	Below ave	Canada
Fund 23	383.9	Na	16.1	173.8	205.4	-23.7	8.7	-32.8	-58.7	Below ave	USA
Fund 24	-8.9	-11.0	-0.1	Na	Na	-61.3	46.1	-9.6	-11.3	Big	USA
Fund 25	-29.4	-31.1	-12.9	-45.4	-39.1	-22.5	-25.3	Na	-19.5	Big	USA

Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

[1] Beginning of period.

[2] Funds that increased their asset holdings before the crisis and during the first crisis month.

[3] Small: below US$ 165 million; below average: between US$ 165 million and US$ 676 million; above average: between US$ 678 million and US$ 999 million; big: above US$ 1,000 million. These ranges were chosen arbitrarily.

Table 5 shows that, among the funds that acted as contrarians in the lead up to and during the Thai crisis, two funds – 4 and 6 – clearly kept their Indonesian and Malaysian assets before as well during the most critical periods. Although the data from Table 5 is not clear, by looking more carefully at the trends, we can see that funds 7 and 9 also acted as contrarians (see Table 6). Fund 7, for example, had its assets kept at a fairly constant level during the first half of 1997, which then moved up; in the case of Malaysia, although asset holdings went down in September, they went up afterwards; in the case of Korea, although the accumulated annual variation up to October is slightly negative – by

1.5% - it is positive when other months are taken as a basis for comparison. Even though less clear for Fund 9, trends were also on the rise in the second half of 1997. More careful analysis also shows that fund 8, whose evidence as a contrarian was not clear at first look in the Thai case, can also be taken as such, once its behaviour in the other Asia-4 countries is taken into account (see Table 6).

Table 6. Funds' asset holdings in Indonesia, Malaysia and Korea

Index Feb 1996 = 100 (deflated by the dollar stock exchange index)

	Fund 7			**Fund 8**			**Fund 9**		
Months[1]	Indonesia	Malaysia	Korea	Indonesia	Malaysia	Korea	Indonesia	Malaysia	Korea
Dec96	140.9	126.6	139.4	80.0	126.8	140.1	99.9	Na	541.8
Jan97	161.7	115.2	266.8	82.3	129.1	145.2	106.1	Na	556.6
Feb97	158.3	122.3	248.2	85.9	128.7	168.8	120.9	Na	608.8
Mar97	162.2	121.2	242.9	86.7	138.3	183.2	119.8	Na	631.9
Apr97	158.1	118.0	245.5	93.1	150.4	202.5	94.6	167.3	618.0
May97	169.7	121.7	239.3	94.8	150.3	217.5	94.0	157.5	505.0
Jun97	156.9	121.6	240.1	94.4	153.3	251.5	95.4	150.6	581.5
Jul97	151.6	126.4	245.2	94.6	155.7	270.3	93.8	141.9	651.8
Aug97	159.4	128.9	239.3	95.7	163.7	280.8	94.0	156.5	630.0
Sep97	240.1	164.1	225.9	123.5	165.9	288.0	89.5	119.3	605.9
Oct97	176.4	140.5	263.1	138.8	167.6	296.7	104.2	46.6	710.6
Nov97	208.2	185.0	310.4	152.3	148.6	212.8	114.8	167.7	629.6
Dec97	176.9	175.7	234.6	171.8	142.2	267.9	133.1	450.8	514.5

Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

[1] Beginning of period.

Among the funds that pulled out heavily in the Thai case, 6 funds[7], all either of below average or small size and nearly all based in small jurisdictions (including one from Cayman Island) also pulled out heavily from Indonesia, Malaysia and Korea.

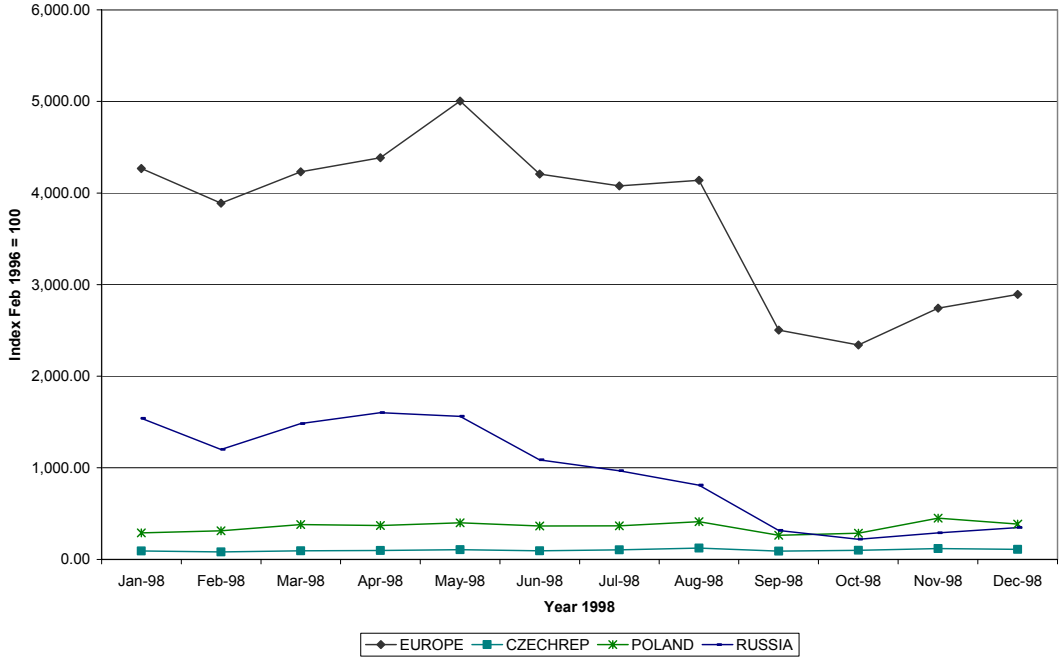
The questions that now arise are: how has the G-25 behaved in the Russian crisis? Has their behaviour pattern converged in light of their experience with the Asian crisis?

[7] These are: funds 2, 3, 13, 15, 19 and 20.

3.2. The Russian Crisis

Looking again at Chart 1, we can see that the G-25 asset holdings in the emerging markets declined sharply in the months leading up to the Russian crisis, and even more so than during the period preceding the Asian crisis. Turning to Chart 2, it is possible to see that, unlike in the Asian crisis, asset holdings fell sharply from May 1998 onwards for all regions, which suggests a strong cross-region contagion took place this time. Europe witnessed the biggest fall of all: 53% between May1998 and October 1998 (see also Chart 4), against 38% in Africa and the Middle East, 37% in Asia and 34% in Latin America (see Chart 2 again).

Chart 4. G-25 Asset Holdings in Europe

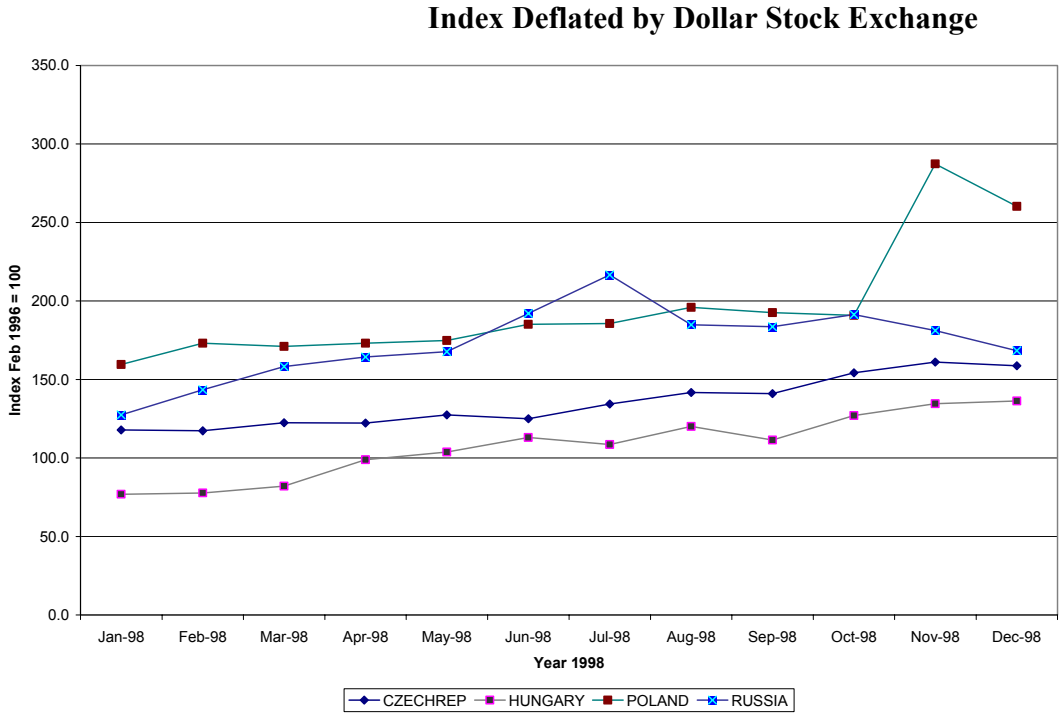


Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research.

Chart 4 shows that G-25 asset holdings declined sharply in Europe as a whole and in Russia in particular during 1998, but not in other European countries, such as the Czech Republic and Poland, suggesting that contagion within Europe caused by the Russian crisis was weak or even absent. To take account of the dollar and stock exchange effects and therefore have a better idea of how the G-25 as a whole behaved in the months before and during the Russian crisis (initiated in August 1998), Chart 5 shows the G-25 asset holdings' trends in selected European countries, deflated by the dollar stock exchange

index. We can see that in Russia G-25 investors built-up assets in the leading up to the crisis, and sold them by the time it broke out.

Chart 5. G-25 Asset Holdings in Selected European Countries



Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

Asset holdings in other European countries went up, before and during the crisis. A possible explanation on why contagion was not observed in neighbouring countries is that these are EM funds and therefore and in a way limited to the EM universe. This might have resulted in the opposite effect, of building-up assets in neighbouring countries as a response to the crisis in Russia, as the trends displayed in Chart 5 suggest. An additional, and perhaps more plausible explanation, is that the Czech Republic, Hungary and Poland are countries in the process of joining the European Union, which implies access to the EU markets, macroeconomic convergence under the Maastricht treaty, and ultimately monetary union.

Table7. Individual investors' asset holdings in Russia[1,2]

Deflated by Dollar Thai Stock Exchange

	Annual variation % up to August 1998	Var % Sep 98/ Aug98	Var % Oct98/ Sep98	Fund size (in relation to average size in Feb 1996)[3]	Fund Location
Fund 1	613.3	-14.4	-19.3	Small	UK
Fund 2	1864.1	-3.7	121.0	Small	Ireland
Fund 3	218.4	-59.3	7.5	Below ave	UK
Fund 4	21.4	-7.9	7.2	Below ave	UK
Fund 5	34.0	-44.1	-100.0	Below ave	Ireland
Fund 6	68.3	-28.3	1.2	Small	UK
Fund 7	382.0	-3.0	-20.9	Above ave	UK
Fund 8	27.4	4.9	2.5	Big	USA
Fund 9	-36.8	-20.7	-14.1	Below ave	USA
Fund 10	38.9	28.9	12.8	Below ave	Luxembourg
Fund 11	66.7	31.4	19.6	Below ave	Luxembourg
Fund 12	5.3	3.2	-11.0	Above ave	USA
Fund 13	257.1	37.7	46.9	Below ave	Cayman I.
Fund 14	71.9	31.6	-27.7	Small	Bermuda
Fund 15	92.9	-56.4	-31.4	Small	Luxembourg
Fund 16	92.8	16.5	-3.6	Above ave	Luxembourg
Fund 17	-0.5	23.5	-24.3	Small	Luxembourg
Fund 18	210.0	-27.6	20.3	Above ave	Switzerland
Fund 19	602.5	15.3	32.4	Small	Ireland
Fund 20	-15.5	-8.2	-39.4	Small	Luxembourg
Fund 21	40.1	-8.2	-7.1	Below ave	Luxembourg
Fund 22	265.3	60.3	69.7	Below ave	Canada
Fund 23	32.2	-63.8	4.9	Below ave	USA
Fund 24	24.3	-23.3	3.0	Big	USA
Fund 25	Na	Na	Na	Big	USA

Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

[1] Beginning of period.

[2] Funds that increased their asset holdings before the crisis and during the first crisis month.

[3] Small: below US$ 165 million; below average: between US$ 165 million and US$ 676 million; above average:
between US$ 678 million and US$ 999 million; big: above US$ 1,000 million. These ranges were chosen arbitrarily.

Turning to the behaviour of the individual funds, Table 7 shows that most funds acquired Russian assets in the lead up to the Russian crisis, and then sold them heavily when the crisis unfolded. They were of all sizes and from different localities. Moreover, a higher degree of similarity in their behaviour seems to have been the case during this crisis, when compared with the Asian crisis. This suggests an increase in convergence in funds' behaviour over time.

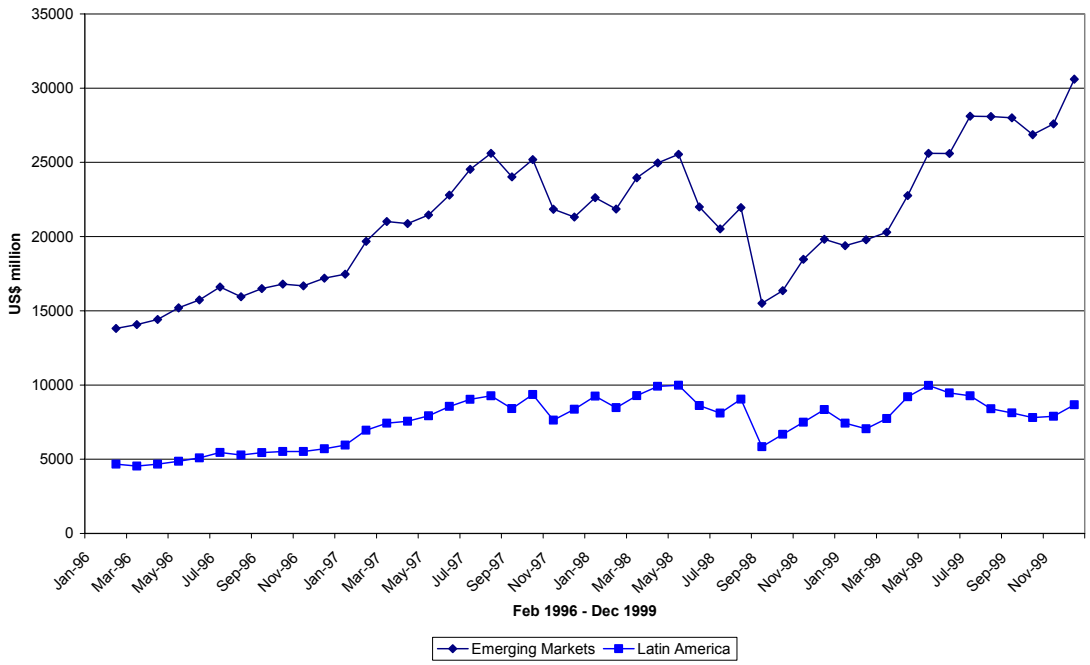
It is clear from the data that global emerging market equity funds did not contribute to the Russian crisis, but certainly contributed to its deepening, along with bond investors (both domestic and international), who in fact played a crucial role.

More generally, the evidence that emerges both from the Asian and Russian crisis is that global emerging market equity investors had a limited role in triggering these crisis, a fact possibly associated with their constraints on investing outside the emerging markets, given their mandates. When a crisis unfolds, although they tend to pull out from the crisis country, the tendency seems to migrate to other EM countries rather than pulling out altogether from the emerging markets. Still, the fact that they do pull out from the crisis country means they can cause it a lot of harm. In the last section we look at how international funds – the ones that invest in EM assets among other asset categories – behaved during financial crises in EM, in order to see whether their behaviour is markedly different from that of EM funds, or not. But before that, we turn to the role global EM investors played in the Brazilian crisis.

3.3. The Brazilian Crisis

To analyse the behaviour of Global EM investors in the Brazilian crisis, we draw on data from those funds for which information is available for the year 1999, when the crisis occurred. These are in total 18 funds (G-18).[8]

Chart 6. G-18 Total Asset Holdings in Emerging Markets and Latin America

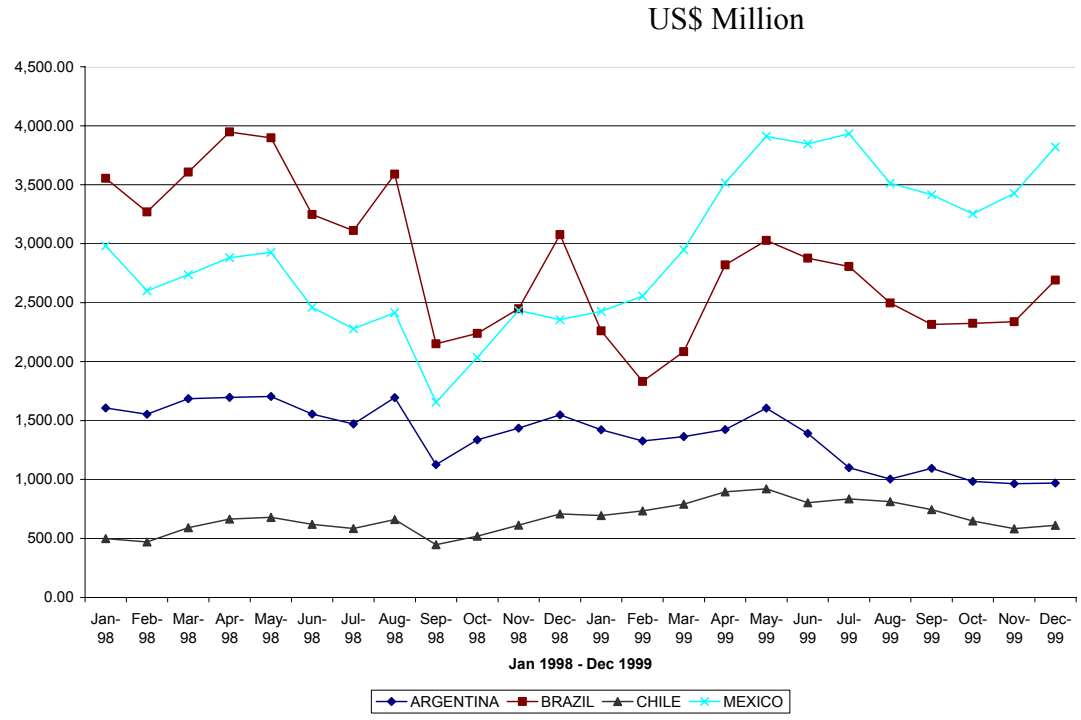


Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research.

[8] In February 1996, the G-18 total asset holdings corresponded to nearly 82% of the G-25 total asset holdings; and in December 1998, nearly 95%.

As can be seen in Chart 6, funds' asset holdings in EM were on the rise just before the Brazilian crisis, had a small decline – of 2.2% - in January 1999, the month the crisis started, and went up again thereafter. Asset holdings in Latin America follow a similar trend, but unlike the general one, the recovery was not sustained towards the end of 1999. A first fact that emerges is that the Brazilian crisis had little effect on the funds' asset holdings in the emerging markets as a whole. What about the funds' asset holdings in Latin American countries?

Chart 7. G-18 Asset Holdings in Selected Latin American Countries



Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research.

Chart 7 shows that the reversal in trend towards the end of 1999 is generalised. We turn now to the deflated trends for each LA country. Interestingly, as can be seen in Charts 8A, 8B, 8C and 8D, on the one hand funds did not pull out in the period preceding the crisis, even in the case of Brazil, the crisis country. On the other hand, asset holdings in all countries declined during 1999, suggesting a loss of faith in Latin American emerging markets following the Brazilian crisis.

Chart 8A. G-18 Asset Holdings in Argentina

Index Deflated by Dollar Stock Exchange

Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

Chart 8B. G-18 Asset Holdings in Brazil

Index Deflated by Dollar Stock Exchange

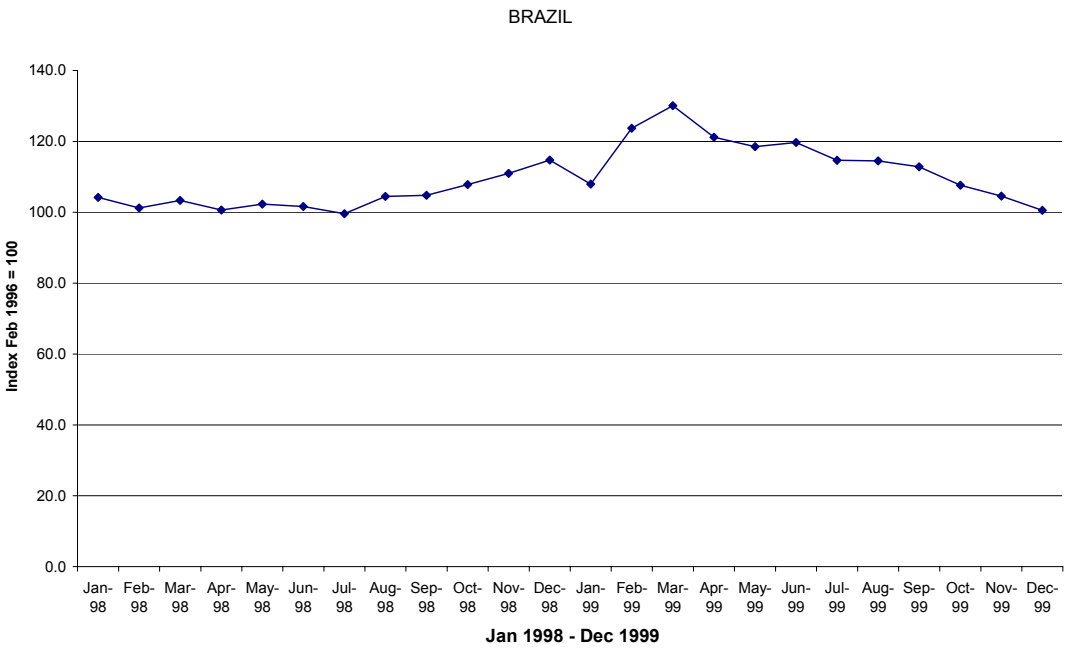


Chart 8C. G-18 Asset Holdings in Chile

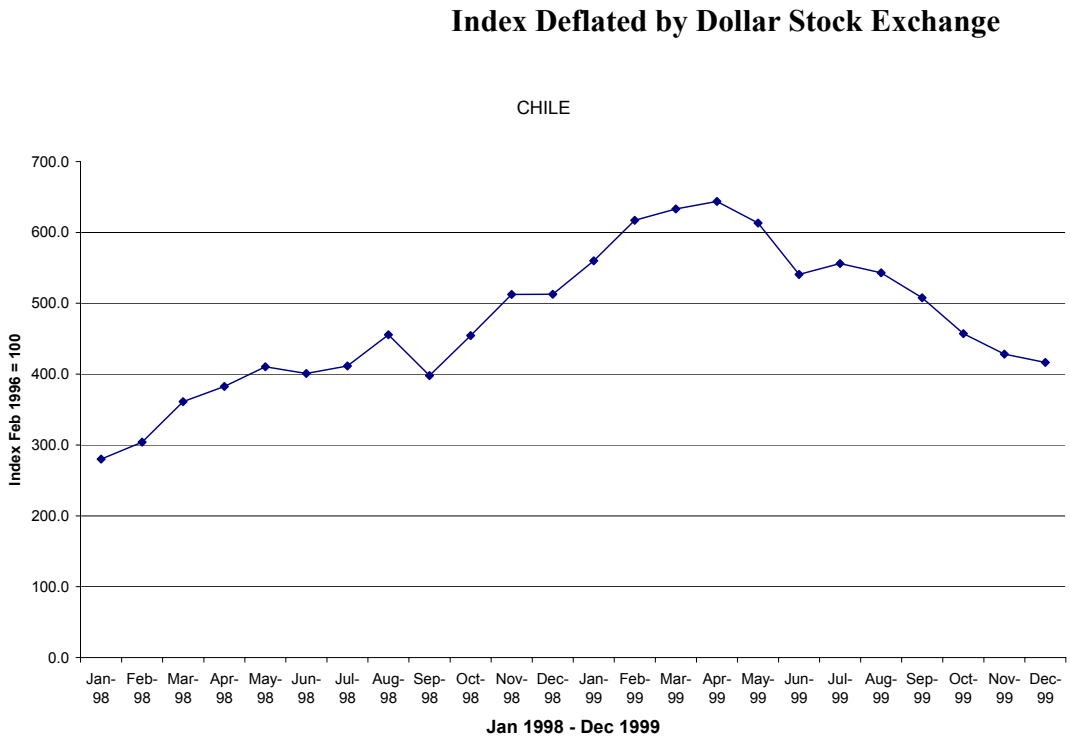
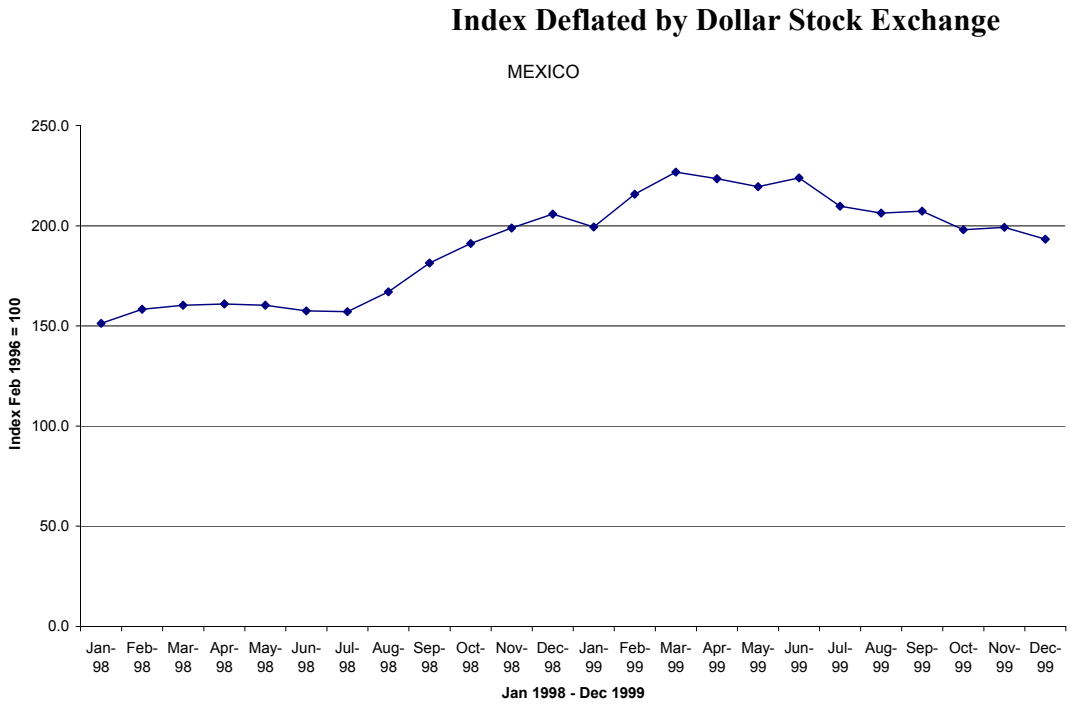


Chart 8D. G-18 Asset Holdings in Mexico



Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

Table 8. Individual investors' asset holdings in Brazil[1,2]

Deflated by Dollar Thai Stock Exchange

	Variation % Jan 99/ Jul 98	Var % Feb 99/ Jan99	Var % Mar99/ Feb99	Fund size (in relation to average size in Feb 1996)[3]	Fund Location
Fund 1	-17.2	-12.8	-5.1	Small	UK
Fund 2	Na	Na	Na	Small	Ireland
Fund 3	24.4	-14.9	-4.8	Below ave	UK
Fund 4	-32.7	-25.1	4.4	Below ave	UK
Fund 5	Na	Na	Na	Below ave	Ireland
Fund 6	-1.0	24.0	14.1	Small	UK
Fund 7	20.3	1.5	-3.0	Above ave	UK
Fund 8	17.3	9.1	6.6	Big	USA
Fund 9	-46.9	71.3	-3.3	Below ave	USA
Fund 10	Na	Na	Na	Below ave	Luxembourg
Fund 11	26.0	42.1	-16.6	Below ave	Luxembourg
Fund 12	7.0	20.0	4.9	Above ave	USA
Fund 13	-35.2	-28.0	1.4	Below ave	Cayman I.
Fund 14	-53.6	-19.7	-16.9	Small	Bermuda
Fund 15	-43.0	-17.9	-12.6	Small	Luxembourg
Fund 16	16.3	37.2	7.1	Above ave	Luxembourg
Fund 17	-16.3	0.7	24.9	Small	Luxembourg
Fund 18	33.8	61.3	-0.3	Above ave	Switzerland
Fund 19	Na	Na	Na	Small	Ireland
Fund 20	-49.7	-24.0	47.2	Small	Luxembourg
Fund 21	-29.7	1.8	-12.4	Below ave	Luxembourg
Fund 22	Na	Na	Na	Below ave	Canada
Fund 23	Na	Na	Na	Below ave	USA
Fund 24	-62.0	55.3	1.4	Big	USA
Fund 25	Na	Na	Na	Big	USA

Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research and Datastream.

[1] Beginning of period.

[2] Funds that increased their asset holdings before the crisis and during the first crisis month.

[3] Small: below US$ 165 million; below average: between US$ 165 million and US$ 676 million; above average: between US$ 678 million and US$ 999 million; big: above US$ 1,000 million. These ranges were chosen arbitrarily.

Finally, looking at the behaviour of the individual funds, of the 18 funds for which information is available, we can see that 11 funds went against the general trend by pulling out of Brazil before the crisis broke out in early 1999. Of these, six funds continued pulling out at least during the first month of the crisis (January 1999). These funds were from different countries of origin, mostly of small and below average size. Among the funds that followed the general trend by building up assets before the crisis and sticking to them when the crisis unfolded, most were either of above average or big sizes. This pattern is similar to the one observed in the East Asian crisis: smaller funds are more likely to pull out, while the bigger ones, to stay in. However, although

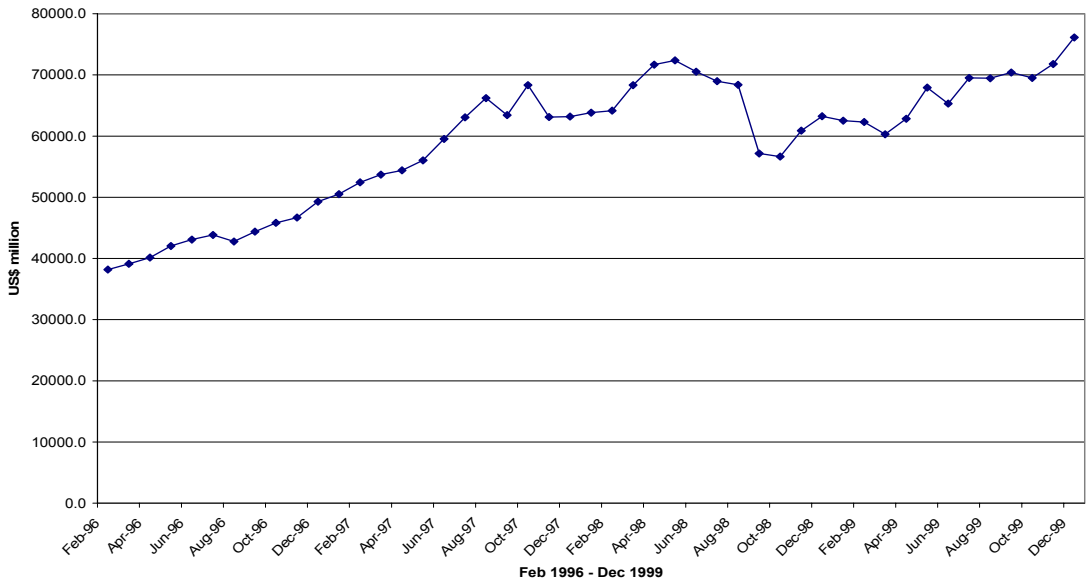
divergence in behaviour was detected (which contrasts with the Russian crisis), this was less marked than in the East Asian crisis.

4. The Behaviour of International Equity Funds

How have the international equity funds[9], the ones that invest in EM among other asset classes, behaved during the EM crises of the late 1990s?

Unfortunately data for international funds in the late 1990s are very limited: continuous monthly series for just 8 funds are available, all based either in the US or in Canada. Of these, 6 funds are from the same investment house. Yet, in what follows we analyse the behaviour of these funds in aggregate in relation to the 6 crisis countries we examined so far: Thailand, Indonesia, Malaysia, Korea, Brazil and Russia. The aim is to have at least a preliminary indication of their behaviour, and to see how similar, or different, they behaved as compared to the global emerging market funds. Future research focusing on the crises from 2000 onwards will revisit their behaviour, as data for more funds are available for this more recent period.

Chart 9. International Funds' Asset Holdings in Emerging Markets



Source: Authors' elaboration, based on data from Emerging Portfolio Fund Research.

Chart 9 shows that asset holdings of international funds in emerging markets between February 1996 and December 1999 increased steadily until the Asian crisis, when it declined slightly to recover again until the Russian crisis. Asset holdings declined during the Russian crisis again, this time more strongly, to resume an upward path again until

[9] Referred to as international funds only from now on.

the end of the period under analysis. Overall, the trend is very similar to the one of the global emerging market investors G-18, although the declines are less strong.

Charts 10A-F display international investors' asset holdings (deflated by the dollar stock exchanges indexes) in each of the Asia-4, plus Russia and Brazil, between February 1996 and December 1999.

Chart 10A. International Investors' Asset Holdings in Thailand

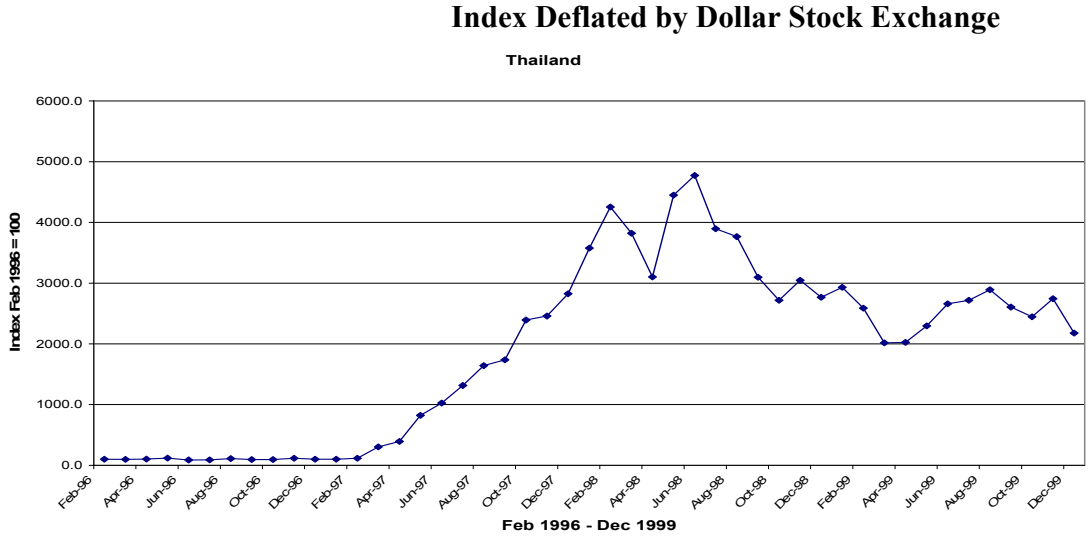


Chart 10B. International Investors' Asset Holdings in Indonesia

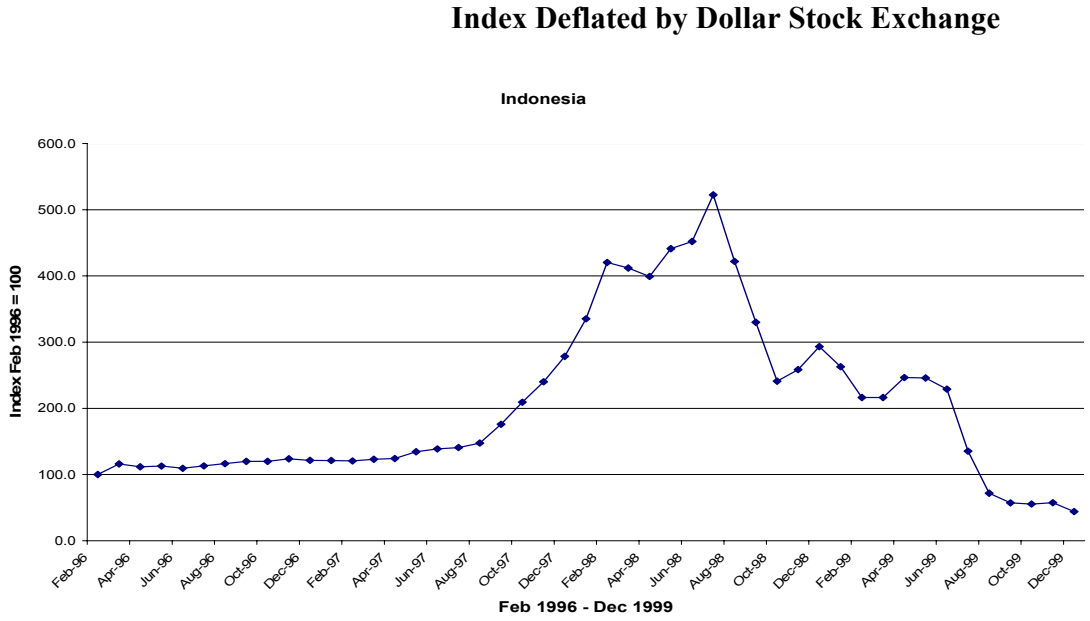


Chart 10C. International Investors' Asset Holdings in Malaysia

Index Deflated by Dollar Stock Exchange

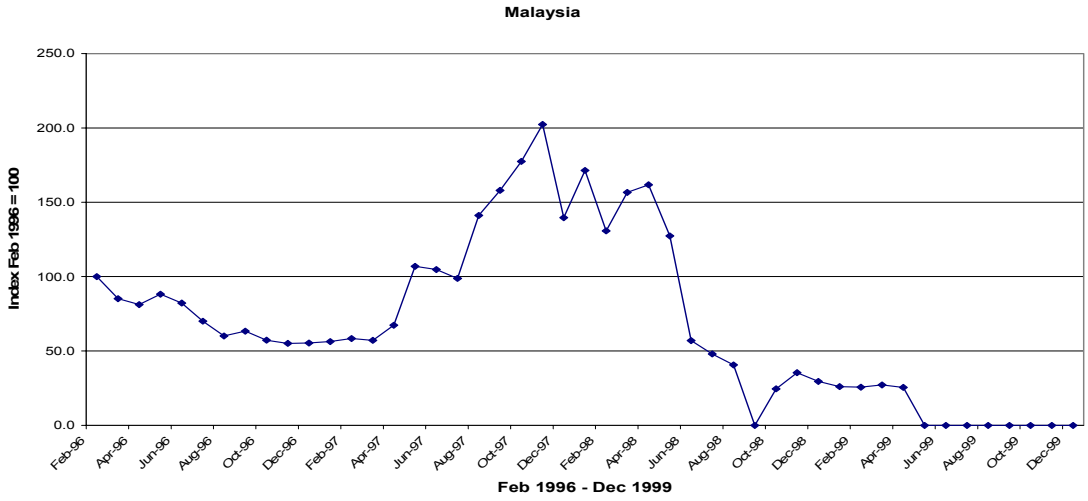


Chart 10D. International Investors' Asset Holdings in Korea

Index Deflated by Dollar Stock Exchange

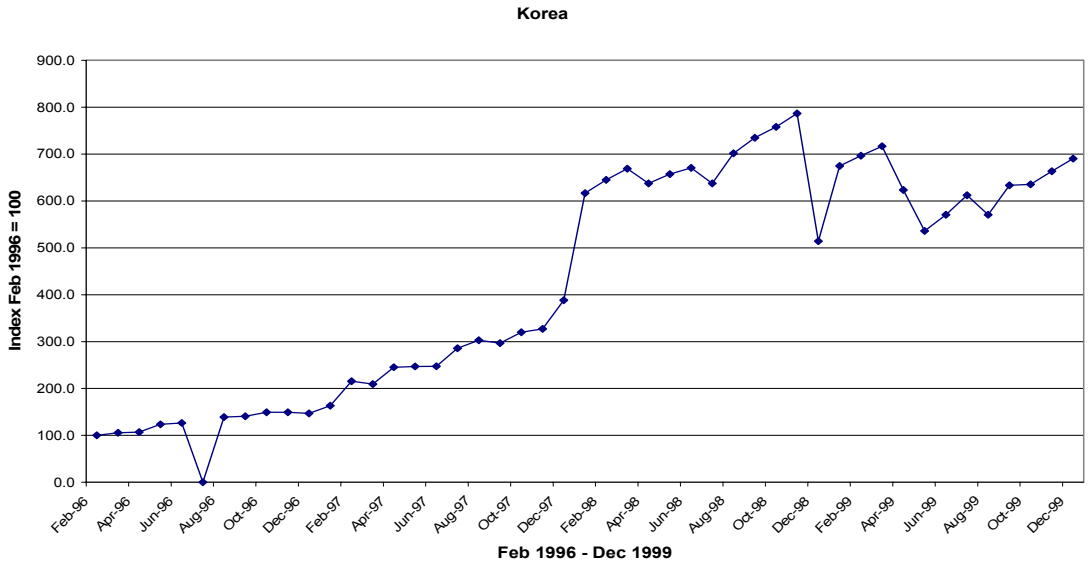


Chart 10E. International Investors' Asset Holdings in Russia

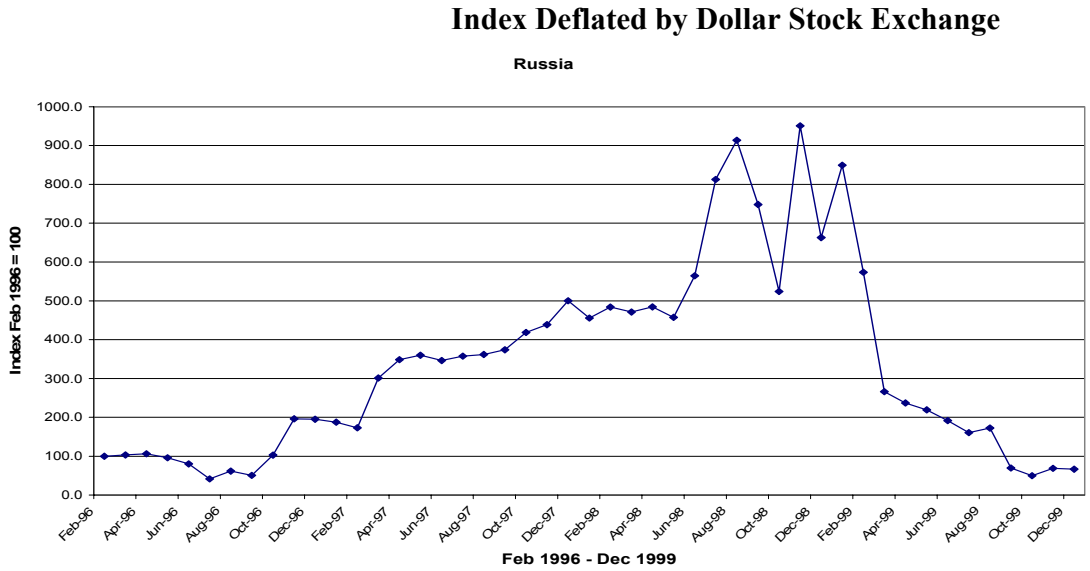
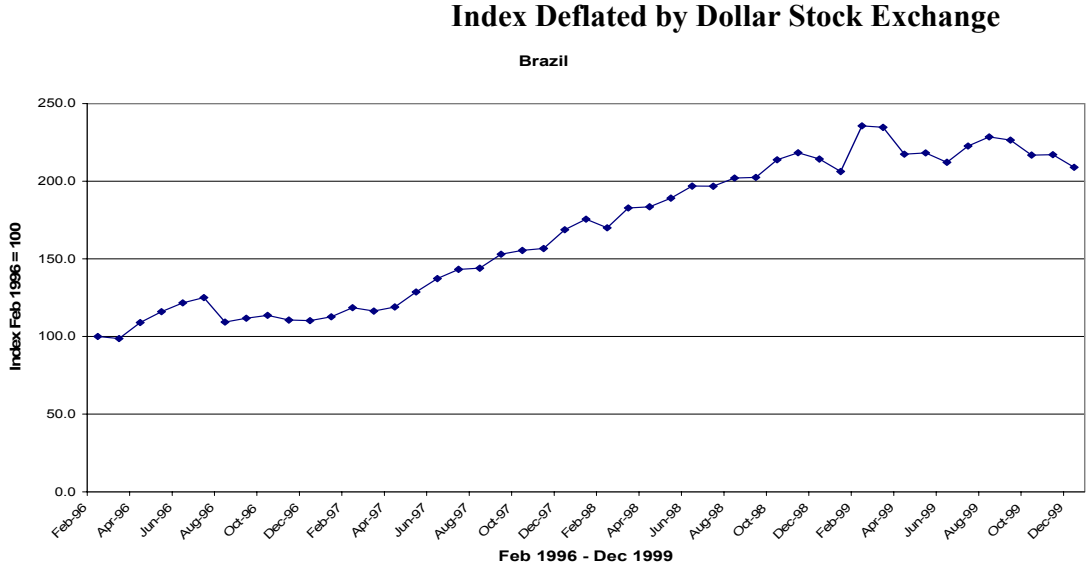


Chart 10F. International Investors' Asset Holdings in Brazil



Looking at Charts from 10A to 10F, we can see that the funds represented in our sample did not, as a whole, adopt a speculative behaviour in the periods that preceded the various financial crises of the late 1990s - the Asian crisis, and then the Russian and the Brazilian crises. However, they pulled out quite strongly when a crisis erupted in Malaysia and Russia.

The Russian crisis seems, however, to have changed international investors' perception of the creditworthiness of their asset holdings, if not in all EM, at least in some of them. As can be seen from Charts 10A to 10F, after the Russian crisis they reduced their asset holdings to very low levels in Russia, Malaysia and Indonesia, and to a considerable extent in Thailand as well. This reflects the sharp increase in risk aversion among international investors since then. The asset holding decline in these countries contrasts with the behaviour of global emerging market investors, as the latter rebuilt their asset stocks from the Russian crisis onwards, even in countries that had suffered a major crisis.

Finally, international funds increased their asset holdings in Korea and especially Brazil, in the latter case despite the crisis of the early 1999. The latter may be explained by the fact that 7 of the 8 funds of our sample have domicile in the USA, and the remaining one in Canada.

To summarise, the overall asset holding trends of global emerging market funds and international funds are somewhat different. Since the Russian crisis international funds seemed more wary to invest in countries that suffered a crisis, and clearly more so than the global EM funds, which may have returned to these countries, possibly due to lack of investment alternatives.

The findings regarding the behaviour of international funds should be seen with extreme caution. As said before, these are based on data from just 8 funds, 6 of which from the same investment house. They therefore may not be representative of the whole universe. Further investigation into their behaviour drawing on data for the years 2000 and onwards is necessary, so that we can have a more accurate idea of their behaviour before and during financial crises in developing countries.

5. Conclusions and Policy Recommendations

This paper analysed the behaviour of international and global emerging market equity funds during the financial crises of the late 1990s, using data information on changes in their asset holdings over time and across countries. The main purpose was to detect differences in their behaviour pattern over time and among themselves. The main findings can be summarised as follows.

International and global emerging market funds did not seem to have played a major role during the period preceding the Asian, Russian and Brazilian crises of the late 1990s. However, they did pull out from the countries quite heavily when the crises broke out, thus contributing to their deepening. Moreover, data shows the funds pulled out from the neighbouring countries during the Asian crisis, and more generally from countries across different developing regions during the Russian crisis. They therefore acted as conduits of financial contagion both within and across regions.

The data trends also show that although funds during the Asian crisis tended to return to the crisis countries once the worst was over, since the Russian crisis this no longer seems to have been the case. Since then, investors, particularly the international ones, seem very reluctant to invest in the countries that suffered a crisis. This tendency is in accordance with general evidence on declining trends in portfolio equity flows to emerging markets since the Russian crisis.

Looking specifically at the individual global emerging market funds, we could observe some degree of divergence in their behaviour during the East Asian crisis. That is, whilst many funds pulled out quite heavily from the crisis countries both before and during the crises, a few others stayed in. The funds that stayed in were of different sizes and based on different localities, whereas the ones that pulled out heavily were predominantly of small size and based in small jurisdictions.

The degree of divergence in funds' behaviour was not confirmed during the Russian crisis, however. This time, the EM funds converged in their behaviour by pulling out heavily from Russia altogether. During the Brazilian crisis some degree of divergence could be detected again, but clearly far less than during the Asian crisis. Once more, it was the smaller funds that pulled out and, this time, the bigger ones that stayed in. A possible explanation for that is that the bigger funds were predominately based in the US, and that US based funds are more focused on and committed to the Latin American region and, consequently, more stable.

Among the main findings, it is worth highlighting that, first, after the Russian crisis international funds - the ones that invest globally both in developed and EM countries - abandoned EM countries more strongly than EM funds, which are the ones that invest only in EM countries. This can be explained by the fact that EM funds are constrained by their mandates to invest only in emerging markets, thus not having clear investment alternatives. Moreover, they may have more information and knowledge on the countries they invest in, and as a consequence are more able to explore market inefficiencies.

Furthermore, it may be the case that their informational advantage makes them less prone to panic and herding, and therefore less volatile.

The second important finding is that, although divergence in investors' behaviour could be detected, this was more strongly observed during the Asian crisis, which was the first one among the various crises covered in this study. Afterwards, their behaviour converged in the sense that they tended to pull out heavily when a crisis broke out, thereby contributing to crisis deepening. Moreover, although a few funds acted as contrarian for more than once, we could hardly identify a single fund that acted consistently as a contrarian during all the crises. This finding shows that in fact contrarians exist, but they are a minority and their behaviour pattern may change from one crisis to the next. More generally, the behaviour pattern of funds may change in both ways - from contrarian to momentum, and vice-versa. Their different behaviour over time may be explained, among other things, by their size, locality and geographical interests, as suggested above for the case of US funds investing in Latin America.

Most of the findings in this study, such as the different behaviour between international and EM funds, the convergence in behaviour pattern across funds and the more speculative behaviour of smaller funds, are empirically new, thereby providing support for hypotheses that, although around for a while, could not be tested due to lack of data availability. Thus, this new evidence provides us with a more concrete basis for policy recommendation, as follows.

First, it would be nice if more funds with mandates specialised in EM could be established, as these funds seem more committed to developing countries than the international funds, which are the ones that invest in different asset categories. It is not clear, though, which instruments could be created and/or used to support these funds. At the same time, it is important that mechanisms and incentives be created in order for international funds to invest more long term in developing countries, so that they can become sources of more stable flows. For example, existing UK tax incentives for investment could be reduced in those cases in which the investment is short term. Of course, further research using a more representative sample of international funds should be carried out, to see how they behaved during the crises that occurred more recently. It would be interesting to see whether their behaviour has been influenced, or not, by the amount of information made increasingly available by the international financial institutions and the countries themselves through the ROSC exercise.

Second, although investors have converged in pulling out more systematically from the crisis countries, contrarian behaviour still exists, showing that this is possible and certainly rational. This provides an economic justification for the adoption of instruments to encourage more funds to act as contrarians regarding their investments in developing countries. A possible course of action would be to promote diversification in the use of risk assessment techniques. That is, if funds could use techniques that are not uniform, but rather tailored to their own needs, they would be less prone to herding and therefore stick to their developing country assets in the long term.

Third, in so far as funds based in small jurisdictions such as off-shore centres are more speculative, these jurisdictions should be subject to international regulation. This may help curb the ability of their investment funds to raise funds - which probably originate from developing countries themselves - to invest in developing countries.

Finally, continued investigation into international and global emerging market funds' behaviour is needed in order to detect new behaviour patterns and the sort of policies that may be more appropriate to help foreign investment funds become more stable sources of financing to developing countries.

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