EAST ASIAN FINANCIAL CRISES: SOME STYLIZED FACTS AND LESSONS FOR INDIA

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ABSTRACT

The erstwhile East Asian miracle economies were hit by a sudden crisis in 1997.On the basis of overall view of Asian currency crises this paper draws a few lessons for Indian economy.This paper illustrates that although India's strong foreign exchange reserves position, the flexible exchange rate policy, the large size of the domestic markets and the relatively weak trade and financial linkages with the international economy were important factors in reducing financial market contagion and trade spillovers. All the variables were captured under index of crises (IOC), index of macro variables (IMV) and index of financial variables (IFV).

Keywords: East Asian Financial Crises, IFV,IMC, IOC, Lessons for India, Standard Deviation, ANOVA Analysis.

INTRODUCTION

The erstwhile East Asian miracle economies were hit by a sudden crisis in 1997. What started as currency depreciation in Thailand in July of that year developed into an all out financial and economic crises enveloping all the major economies in the region, they were adversely affected in the second half of 1997 and the whole of 1998. On the basis of overall view of Asian currency crises this paper draws a few lessons for Indian economy. While India was not entirely immune to the Asian financial crisis of 1997-98, it was less affected by other countries in the region.

Prior Procedure

Several steps were undertaken as a part of the larger study to ensure the above considerations:

1. A literature survey of empirical and conceptual studies was undertaken. On the basis of a literature survey we had arrived at a data set consisting of a large number of crises variables (30 variables including financial and macro variables).
2. We checked for data redundancy amongst a set of available variables. By data redundancy we mean that many of the define variables in the data set are different version of the same variable. We have used our judgment to drop a certain version and retain another version. For instance, if a variable has been defined in terms of PPP $, US $ or Local Currency Units, we have chosen only one of them.
3. A correlation exercise was carried out on these 30 variables. The purpose of this exercise was to establish that crisis variables are ordinarily correlated.
4. We also undertook a dummy variables exercise wherein the data series for 6 countries for each of the 30 variables were tested to see whether there was any structural break at 1997 and 98, which is the crises window during the Asian currency crisis. The

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dummy variable exercise shows that India was least affected by the East Asian financial crises.

5. Granger causality test was applied to the data on India in respect of all the relevant variables to find out which of the variables are causal variables and which are the variables that they impact. This was done in case of India, since it was the control.

6. Correlation analysis has been used to segregate the variables into impacted or dependent variable and causal or explanatory or independent variables. Once the variables were separated into dependent and independent variables we have found that independent variables were correlated. To deal with this problem we have applied Principal Component Analysis. The need of Principal Component Analysis arises because it helps in (i) data reduction and (ii) making the dependent variables uncorrelated with other. At this stage we have constructed three indices namely Index of Crises (IOC), Index of Financial Variables (IFV) and Index of Macro Variables.

The paper is divided into following sections: Section 3 talks about the Objective and Methodology, Section 4 is about Analysis and Interpretation, Section 5 is about Lessons for India, Section 6 talk about some Stylized Facts and Section 7 finally concludes the paper.

Objective and Methodology

The objective of the paper was to highlight the relative levels of the relevant crises index that have been incorporated into our model with respect to the differential in comparison to the reference country i. e. India. It was on this basis that we draw lessons for India.

Methodology

First we must point out that since all variables have been normalized by taking India as a reference country these differentials would not be reflecting the natural's differentials of the levels of the relevant indices which were formed by using these variables. The differential would genuinely reflect the effect of crises and recovery in comparison to the reference country.

An exercise that has been done which shows the differentials in the levels of the index on inter temporal basis between the three periods pre crises, during crises and post crises for all the countries. This could also reflect the comparative trend with respect to India as a reference country. For analyzing the trend average pre crises period was taken as a base. Rests of the two averages were compared with respect to the base average.

The following steps have been undertaken for meeting the above objectives:

1. We have also studied the mean and standard deviation of the three indices country wise in the three policy period.

2. Four sets of ANOVA tests have been conducted, one for the overall period and one each for the pre crises, crises period and post crises period (recovery).

The model used in conducting two-way ANOVA with replication to reveal existence time effect and variable effect is provided in (2).

Here, X_{mnp} is an observation due to the n_{th} variable (column), the m_{th} year-group (row - block). The random variable X_{mn} is normally distributed across the grand mean with four additive effects;

(i) $_{m}$- the year-country effect;

(ii) $_{n}$ - the variable effect;

(iii) $_{mn}$ - the country-variable interaction effect; and

(iv) $_{mnp}$- the random effect.

1. We have undertaken comparison between A 5 countries and India on the basis of indices constructed for comparison of the mean and standard deviation of the three indices by taking India as the base.

Analysis and Interpretation

The first observation is that clearly during the crises window all countries have been affected including India. This is evidence from a discrete jump in the predicted index across countries. However it can be seen that the impact on India was the minimal. One conclusion is that this justifies treating India as the base because it was least effected yet it was not a country that was unrelated to the crises.

The pre crises period showed different patterns which can also be gauged by subsequent analysis of mean and standard deviation. The index witnesses a marginal declining trend in the case of Thailand. A stable but increasing trend was observed in the case of Korea. A declining trend with stagnancy for four years in the case of Indonesia and a very similarly trend in the case of Malaysia was observed. In the case of India there was a slight rise in early 1990's and thereafter there was a declining trend during pre crises period.

The highest index was that of Korea which was in the range of 63-64 while the lowest was of India which was slightly less than half at 31-32. Most of the countries during the crises were in the range of 60's. In fact the highest index was of Indonesia which stood at 64.74. Another feature was that the index rose from between 1997-98 uniformly. In the case of India the rise was less than one point on the scale. The maximum rise was in the case of Indonesia that was around 17 points. Although the Korea has the highest index on an average the jump was just about one point. Similarly in the case of Thailand and Philippines the appreciation was around 3.5 points.

During the recovery phase the patterns were more stable in the case of India there was a decline down to 40% and the recovery was almost complete except for a marginal overall rise in comparison to the pre crises period. Philippines and Thailand both experienced a halving of the index after crises and a mild decline towards pre crises levels in the next three years. In the case of Korea while the dip in the index was down by one third there was a marginal rise and a stable trend which resembled the late 80's. In both Malaysia and Indonesia the decline was less than half and there was a mild tendency towards a falling index which approximated there state at the end of 80's and beginning of 90's. (All the results of the above analysis were reported in Table 1).

Table 1: Predicted Index of Crisis

Year	Thailand	Philippines	Korea	Indonesia	Malaysia	India
1988	22.79	31.70	41.40	35.34	40.79	19.18
1989	20.24	30.98	40.55	34.34	38.83	20.53
1990	19.95	34.16	43.50	34.93	33.48	23.64
1991	20.61	32.95	45.00	24.17	32.79	22.06
1992	19.59	24.68	44.95	24.20	32.22	17.41
1993	18.46	21.40	45.29	23.64	29.80	13.55
1994	18.28	19.31	47.29	23.26	29.28	10.53
1995	16.72	20.05	47.01	22.88	29.17	9.88
1996	15.77	17.59	44.73	23.24	29.01	10.39
1997	**46.41**	**36.87**	**63.03**	**47.85**	**52.54**	**30.94**
1998	**49.98**	**40.31**	**64.09**	**64.74**	**61.41**	**31.80**
1999	25.51	20.17	41.89	37.45	36.52	12.62
2000	22.90	22.10	43.91	34.60	34.62	14.78
2001	24.08	20.49	43.45	33.62	37.22	12.69
2002	22.02	20.04	43.48	33.09	35.51	12.25

Table 2 to 7 below reveals the pattern in the average value of the three indices

(Average of index of crises, financial and macro index represented by AIOC, AFV, AMV) and during the three policy periods. It also discusses the volatility of indices (Standard deviation of index of crises, financial and macro index represented by STIOC, STFV, STMV).

Thailand average index of around 20 before and after the crises with a slight rise after the crises was observed. During the crises the index had doubled. The volatility of the crises index went up three times during the crises. The volatility fell marginally with the standard deviation being around 4 as compared to 1.5 before the crises. The average of the financial index also followed a very similarly pattern to the index of crises. The volatility however decline from 4.6 to 2.8 to 1.17 progressively in three time periods. Interestingly in the case of index of macro variables there is a sharp decline from the pre crises period and a doubling up from crises to recovery period. This explains the impact of macro variables on crises since its influence is negative on the index of crises. The standard deviation however behaved quite to the contrary. This showed that the macro variables were the most volatile element in the entire system during the crises period.

Table 2: Standard Deviation of Index of Crises, Financial and Macro Index Thailand

Thailand						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
20.42	1.47	27.22	4.64	65.84	4.24	Pre
37.76	5.10	32.75	2.83	11.49	28.46	Crisis
26.00	4.24	25.15	1.17	25.99	7.48	Post

Philippines average index of around 25 before and after the crises with a slight rise after the crises was observed. During the crises the index had gone up by half. The volatility of the crises index was low around 4 before and after the crises and went up by two times during the crises. The average of the financial index before crises was around 43 but ironically it fell to 30 for the remaining two periods. The volatility of financial index was 12 before crises and it went down by 90% only to become one fourth of the original period of recovery. In the case of index of macro variables there was a steady decline in the average by 2 points between the first two periods and four and a half points between the next two periods. On the other hand the volatility doubled from pre crises to crises period. While in the post crises period it went down to half the pre crises period.

Table 3: Standard Deviation of Index of Crises, Financial and Macro Index Philippines

Philippines						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
23.58	4.12	42.89	12.21	29.59	6.49	Pre
37.68	8.44	30.13	1.24	27.95	13.17	Crisis
26.31	4.48	30.75	2.87	23.53	3.42	Post

The average index in Korea before the crises was around 35 it almost doubled during the crises and slightly fell from crises levels into the period of recovery. The volatility of the crises index grew dramatically from 2 to 33; it became 14 after the crises. The index of financial variables remain almost stable with the rise from 52 -58 during pre crises to crises period. The volatility of this index went down from 8.75 to point 0.53 in the same period and went up by 5 times up to 2.63 during recovery. The index of macro variables hovered around to 200 with the slightly rise from 187 to 219 from the beginning to end. Interestingly the volatility halved in each period coming down from 16.58 to 3.4.

Table 4:Standard Deviation of Index of Crises, Financial and Macro Index Korea, Rep.

Korea, Rep.						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
34.87	2.01	51.89	8.75	187.29	16.58	Pre
67.71	32.96	58.13	0.53	207.16	7.35	Crisis
62.58	13.78	58.38	2.63	219.44	3.45	Post

The average index in the case of Indonesia was around 25 before and after crises. It went up more than three and a half time and stood at 85 during crises. The volatility of the crises index grew dramatically from 2 to 73; it became 6.75 after the crises. The index of financial variables grew from 38 to 50 and it was back to 45. The volatility of this index remained around 12 but sharply decline during recovery. The average of macro index fell sharply from 50 to one third and slightly rose during recovery. On the other hand the volatility jumped from 4 to 37 only to come back to 5 after the crises.

Table 5: Standard Deviation of Index of Crises, Financial and Macro Index Indonesia

Indonesia						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
24.45	1.98	38.00	11.05	49.09	4.33	Pre
85.41	73.19	49.38	13.61	16.27	37.77	Crisis
26.62	6.75	44.70	2.74	19.80	5.15	Post

The average index in the case of Malaysia rose from 30 to 50 and came back to 43 the volatility of the crises index grew from 2 to 13and came back to pre crises levels. It became 6.75 after the crises. The index of financial variables halved around 24 only to rise slightly during crises. It was observer that the volatility of this index decline steadily from 6 to 3 to 1.2. The average of macro index witness a steady decline from 57 to 42 to 37. But the volatility was jumped from 10 to 33 only to come back to 8 after the crises.

Table 6: Standard Deviation of Index of Crises, Financial and Macro Index Malaysia

Malaysia						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
30.77	2.93	23.44	5.99	57.83	10.74	Pre
50.23	13.40	29.88	3.36	42.11	33.40	Crisis
43.95	2.36	24.05	1.23	37.18	8.13	Post

The average index in the case of India rose was extremely low at 19 to begin with it progressively went down to 16 and 14 in the next two periods. Similarly the volatility went down from 4 to 3 and further to a mere 0.25 during recovery. Index of financial variables was around 42 went down to 34 and slightly rose there after. The standard deviation fell from 10 to 1.4 and slightly rose there after. The index of macro variables remained around 26 on an average with one point above and below in the three time periods. The volatility fell from 5.6 to just point .06 during crises.

Table 7: Standard Deviation of Index of Crises, Financial and Macro IndexIndia

India						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
19.12	3.95	42.33	10.10	28.06	5.67	Pre
16.22	3.10	34.25	1.41	26.51	0.64	Crisis
14.44	0.26	35.58	1.93	27.51	2.78	Post

ANALYSIS OF VARIANCE (ANOVA)

In this case, the total variance is the sum of the year-country effect (between country-group variance), the variable effect (between variable variance), interaction effect and the overall random variance. Their respective mean square errors were used to test whether either of these effects was statistically significant, against an F test.

Four ANOVA exercises were done one for each period and one for the overall period tables 9.11 to 9.14 reports results of the same.

The model was a two factor ANOVA with replication. The results of the overall period show that on the whole there were significant effects in terms of the, three effects, namely the country effect, the variable effect (index effect) and the interaction effect. This prompted us to undertake the ANOVA exercise on the similarly basis for the three periods. The first observation is that the during the 9 year pre crises period the total variation (TSS – Total Sum of Squares) was 231000. The four year recovery period also showed a fairly high degree of variance that was about 145000. The average f value in both these periods was extremely high at around 300, this indicates that during the pre crises as well as post crises period thee was a considerable volatility of the three indices. Contrary to this during the crises the total sum of square was only 76000 and correspondingly the f value on an average was just around 6. This was one of the most significant findings which summarize the stylized facts of complex phenomenon like international currency crises. In fact there was considerable likeness amongst the behavior of the variables or indices during crises such that the column effect or the variable effect is not significant. Interestingly in the entire ANOVA exercise this is the only effect that was not significant. This points out towards contagion effect because even India was included in the sample of the countries.

Table 8: ANOVA Analysis Overall Period

ANOVA						
Source of Variation	SS	Df	MS	F	P-value	F crit
Sample	169135.9	5	33827.17	176.4098	3.66E-80	2.249846
Columns	58634.83	2	29317.42	152.8912	3.33E-44	3.031629
Interaction	176072.5	10	17607.25	91.82236	4.1E-78	1.868397
Within	48321.86	252	191.7534			
Total	452165	269				

Table 9: ANOVA Analysis :Pre-Crisis

ANOVA						
Source of Variation	SS	Df	MS	F	P-value	F crit
Sample	73292.78	5	14658.56	249.0205	5.35E-69	2.277044
Columns	56020.01	2	28010	475.8358	3.51E-64	3.058928
Interaction	93203.53	10	9320.353	158.3348	1.86E-72	1.897007
Within	8476.539	144	58.86486			
				294.397	Average F – Value	
Total	230992.9	161			(Calculated)	

Table 10: ANOVA Analysis :Crisis Period

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Sample	31269.25	5	6253.85	10.70222	6.81E-05	2.772853
Columns	1599.197	2	799.5984	1.368353	0.279766	3.554557
Interaction	32645.86	10	3264.586	5.586688	0.000809	2.411702
Within	10518.32	18	584.3509	5.8	Average F – Value	

Table 11: ANOVA Analysis :Recovery

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Sample	72497.224	5	14499.4447	534.242487	1.14578E-44	2.386069853
Columns	9357.7316	2	4678.86581	172.3961816	3.58482E-24	3.168245967
Interaction	61227.256	10	6122.72558	225.5962351	2.60328E-40	2.011180924
Within	1465.5705	54	27.140194			
				310.7449679	Average F – Value	
Total	144547.78	71			(Calculated)	

THE LESSONS FOR INDIA

We present below a summary of the lessons for India. Our understanding is that such a paper has to be based primarily on observation and analysis of the pre-crisis period. In this period the precursors to the crisis are observable and hence, they hold the true lessons. Once crisis takes place there is little variation across countries. From the analytical point of view it is the variations that enable comparisons and yield some distinct lessons. The paper has two parts:

1. Empirical Analysis
2. Comparative indices with India as control

EMPIRICALANALYSIS

Korea that shows a constant upward trend in the IOC also experienced the largest shock. In the case of Indonesia, Malaysia and India there was a somewhat declining trend. This shows that the severity of shock depends upon the rising trend that precedes the crisis (Table 9.4).

The trends show violent changes during crisis which very often are reversed after crisis. Therefore, our paper tells us that crisis is not a long term phenomenon. It is rather a shock and often gets resolved after the crisis passes. Of course this does not mean that crisis should not be avoided. The key is to realize the inevitability of the shock that must be anticipated and to develop the robustness to recover fast and completely from crisis. We say that crisis is inevitability because India in spite of having much better conditions during pre-crisis had to undergo crisis, albeit of a much lower order. The main observable difference in this respect was that India recovered as fast as any other A5 country but its recovery was much more complete. In all other cases the recovery was incomplete because their post crisis index was constantly above the pre-crisis level.

The ANOVA exercise reveals that while the overall ANOVA for all the periods (Table 9.12) all effects - country, variable and interaction effects, are significant. It is only during the crisis period that the only effect that was not significant was the variable effect (Table 9.13). This shows that all variables (IOC, Index of Macro variables and Index of Financial variables) that represent cause and effect get enmeshed in the crisis period. There is hardly any variation amongst then during crisis – both across countries and time. Therefore, the lesson is that the crisis period as such is not the best period to paper the crisis.

INDIA AS CONTROL

In this section, as a part of our review of lessons for India we have formed indices with India as the control. That is India is taken in the denominator or base.

Table 9.15 reports the comparative index of mean of the three indices with respect to India as the base country. Similarly there were comparative indices of volatility measured by standard deviation of the three indices with India as 100. In the case of Thailand the index of crises more than doubled during crises and remained so around 200, but the standard deviation went up by five times in the crises and by 10 times there on in comparison to India. The average of financial index however remain low and yet the volatility was doubled was that of India during crises. The average of index of macro variables was low during crises although it was high before crises. But there was a phenomenal rise in the volatility which stood at around 4500 in comparison to India.

Table 12: Average and Standard Deviation of Countries taking India as a Control

Thailand						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
106.81	37.18	64.30	46.00	234.64	74.71	Pre
232.84	164.24	95.62	200.00	43.32	4472.22	Crisis
180.10	1655.03	70.70	60.76	94.47	269.46	Post
Philippines						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
123.34	104.14	101.31	120.97	105.46	114.41	Pre
232.38	271.98	87.96	87.50	105.41	2070.00	Crisis
182.20	1750.11	86.44	148.74	85.55	123.24	Post
Korea, Rep.						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
182.40	50.91	122.57	86.62	667.50	292.20	Pre
417.55	1061.73	169.71	37.50	781.42	1154.44	Crisis
433.44	5380.71	164.09	135.98	797.76	124.31	Post
Indonesia						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
127.89	50.00	89.76	109.40	174.94	76.24	Pre
526.70	2357.86	144.16	962.50	61.35	5934.44	Crisis
184.40	2636.59	125.65	141.82	71.96	185.53	Post
Malaysia						
Index of Crisis		Index of Financial Variables		Index of Macro Variables		
AIOC	STIOC	AFV	STFV	AMV	STMV	Period
160.94	73.99	55.38	59.30	206.11	189.31	Pre
309.74	431.66	87.23	237.50	158.85	5248.89	Crisis
304.43	923.19	67.60	63.63	135.16	293.02	Post

In the case of Philippines the index of crises behaved very similar to Thailand and so also did its volatility. The average of financial index remained slightly below India and its volatility was not very different from India. The average of index of macro variables was also around the Indian index but the volatility was 20 times of the Indian index during crises, low during crises although it was high before crises. But there was a phenomenal rise in the volatility whic

stood at around 4500 in comparison to India.

The average of the crises index in the case of Korea was twice that of India. It went on to four times and remained as such. The volatility increased manifold from 50 to 1000 to 5400. The average of financial index remained two third higher than India.

The volatility varied between periods but surprisingly remain very low during crises. The average of index of macro variables was anonymously high and remained between 667 to 797 with a slightly increasing trend during recovery. Once again the volatility of the macro index was high and shot up to 1154 during the crises.

The average of the crises index in the case of Indonesia was beyond India and was five times that of India during crises. The volatility jumped from 50 and remained around 2500 for the remaining period. The average of financial index was slightly below India grown to 144 and came back to 125 after the crises. The volatility was around 100 but went up by 10 times during crises. The average of index of macro variables remained quite low but the standard deviation jumped from 76 to 5900 as an index. It still remained almost twice that of India's volatility.

In the case of Malaysia the average of the crises index was beyond India and was around 160. It almost doubled during crises and remained so. The volatility steadily grew from 74 to 431 to 923.The average of financial index remain below India and grew slightly during crises. The standard deviation increased from 59 to 273 during crises and came back to 63 after the crises. The average of index of macro variables was doubled that of India but progressively fell from 158 in crises to 135 after the crises. The standard deviation jumped from 189 to 5250 during the crises and came down to 293 after crises it still remain almost thrice that of India's volatility.

Therefore, from the above analysis it is clear that the key to all understanding the phenomenon lies in the underlying volatility of variables.

SOME STYLIZED FACTS

Such complicated phenomena as currency crises are bound to have many variants. It is therefore necessary to derive some basic tendencies which can be generalized. In this concluding section we attempt to derive such general conditions that can be called 'stylized facts'. They are known as such because they represent a certain stylized happenings which may in the process ignore certain angularities and differences. For arriving at these stylized facts we undertake an analysis of the phenomenon of volatility of the underlying variables/ indices. Our broad understanding is that the currency crisis arises out of such volatility. Our variables/ indices have been built in such a manner that they capture the volatility (through PCA).

Table 13: Change in Trend of Volatility during Crisis over Pre-Crisis Period

Country	Index of Crisis	Index of Financial Variables	Index of Macro Variables
Thailand	Rise	Fall	Rise
Philippines	Rise	Fall	Rise
Korea, Rep.	Rise	Fall	Fall
Indonesia	Rise	Rise	Rise
Malaysia	Rise	Fall	Rise
India	Fall	Fall	Fall

Table 14: Change in Trend of Volatility during Recovery over Crisis Period

Country	Index of Crisis	Index of Financial Variables	Index of Macro Variables
Thailand	Fall	Fall	Fall
Philippines	Fall	Rise	Fall
Korea, Rep.	Fall	Rise	Fall
Indonesia	Fall	Fall	Fall
Malaysia	Fall	Fall	Fall
India	Fall	Fall	Fall

The benchmark country India witnesses a fall in volatility uniformly in all variables/ indices – both causal and impacted/ dependent, as well as, in both time periods, namely, between crisis and pre-crisis, on the one hand and crisis and recovery, on the other hand. During recovery most variables as well as countries experience a falling trend in volatility. The crucial difference comes while observing volatility between pre-crisis and crisis. While the benchmark country India shows uniformly declining volatility in all variables/ indices – both causal and impacted/ dependent, other countries show crucial differences.

The volatility of financial variables falls in general (with some exceptions). The volatility of macro variables rises in general (with some exceptions). The volatility of the index of crises is uniformly rising except India.

In the following analysis we are drawing stylized facts from the comparative indices of volatility where the standard deviations of the three variables/indices are compared with that of India the control country.

Table 15: Comparative Indices of Volatility between Pre-Crises and Crises

Country	Index of Crisis	Index of Financial Variables	Index of Macro Variables
Thailand	Rise	Rise	Rise
Philippines	Rise	Fall	Rise
Indonesia	Rise	Rise	Rise
Malaysia	Rise	Rise	Rise
Korea	Rise	Fall	Rise

Table 16: Comparative Indices of Volatility between Crises and Recovery

Country	Index of Crisis	Index of Financial Variables	Index of Macro Variables
Thailand	Rise	Fall	Fall
Philippines	Rise	Rise	Fall
Indonesia	Rise	Rise	Fall
Malaysia	Rise	Fall	Fall
Korea	Rise	Fall	Fall

It is obvious from the table 9.18 that uniformly the volatility has risen during crises period in comparison to India, save two instances. Similarly in from table 9.19 it is clear that all volatility has fallen during recovery in comparison to India except in two cases. This analysis points to a stylized facts that in general in comparison to the control there are distinction pattern in the volatility. Such facts cannot be gathered unless reference is made to a neutral benchmark country.

CONCLUSION

In summary the following stylized facts are apparent as features of crises in respect of volatility which is the main phenomenon of a crisis:

1. In absolute framework the volatility of index of crises rises uniformly in all countries (except India).
2. In absolute terms the financial index falls with some exceptions.
3. In absolute terms the macro index rises with some exceptions.
4. In absolute terms during recovery with some exception volatility of all indices falls.
5. In relative terms the volatility of all indices index rises during crises and falls during the recovery period.

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