Impact of Greek Financial Crisis on the Value of Euro with the Other Major World Currencies

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ABSTRACT

During the Greek Financial Crisis period (December 2009), Greece, one of the members of the EUROZONE, faced an unprecedented financial crisis which triggered gradual erosion in the value of EURO with respect to major world currencies during this period. During May 2010, the European Union agreed for a bailout package for Greece which was intended to prevent a further decline in the value of Euro.

This study mainly focuses on the trend in the Exchange rate of Euro against the world’s major currencies during the period of Greek financial crisis and the predictability of Future spot exchange rates using the currency Futures rates. It has been noted that on an average the variation between Future spot rate and Currency futures rates has been highest in respect of INR/EURO and the lowest in respect of GBP/EURO. This indicates that the predictability of GBP/EURO futures rate as an indicator of future spot price has been the highest.

Further, it has been found that the depreciation in the EURO exchange rate during the Greek financial crisis has been the highest against INR and lowest against GBP. This has been further confirmed by the fact that the Regression Coefficient of GBP/EURO has been the lowest while that of INR/EURO has been the highest.

Keywords:-- EUROZONE, Bailout Package, Future Spot Exchange Rates, Currency Futures Rates

I. INTRODUCTION

During the Greek Financial Crisis period, there was crisis sparked by Greece's financial woes, where the main credit rating agencies downgrade Greece’s debt. Greek Parliament adopts a 2010 budget to reduce public deficit from 12.7% of GDP to 9.1%. Greek Austerity Programmed unveiled. Portugal & Spain show signs of financial weakness. EU approves Greece’s Austerity plan placing the country under surveillance. Portugal’s long-term debt rating downgraded. The Irish economy resists, negative growth of 7.1% during 2009-10. Euro zone maps out a plan to lend 30 billion EURO at 5% rate. EU sharply increases Athens’s Public deficit estimate to 13.6% and Greece’s sovereign debt rating is downgraded to junk status (A2 to A3 ). Euro zone finance managers approve a 110-billion euro loan package for Greece. Greece is paralyzed by a general strike on 3 rd since feb. 2010. And Euro zone leaders meet at a summit to stem the Greek crisis and stop the crisis from spreading. Based on this, it can be look over an impact of Greek Financial Crisis on the value of Euro vis-à-vis the other major international currencies.

II. REVIEW OF LITERATURE

Charles Wyplosz, (2009) Opined - Bailouts: the next step up? Some European governments are contemplating bailouts of other European governments. This column argues that violating the Eurozone’s no-bailout clause this soon would be a mistake. Much as it was necessary to let Lehman Brothers go down before bailing out the remaining banks, it may be necessary to let a profligate government default and ask for IMF assistance.

Barry Eichengreen & Berkeley (2007) this Vox column is more relevant than ever arguing that adopting the euro is effectively irreversible. Leaving would require lengthy preparations, which, given the anticipated devaluation, would trigger the mother of all financial crises. National households and firms would shift deposits to other Eurozone banks producing a system-wide bank run. Investors, trying to escape, would create a bond-market crisis. Here is what the train wreck would look like.

III. OBJECTIVES

(1) To study the trends in the exchange rate of EURO with respect to some of the world’s major currencies during the Greek financial Crisis (Dec. 2009 to May 2010)

(2) To analyze the predictability of currency futures rates in determining the spot rates of the Euro currency.

(3) To determine the rate of decline in the value of EURO vis-à-vis other major world currencies during the Greek financial crisis.

IV. RESEARCH METHODOLOGY

The data used for this study is secondary data collected from various Web sites and News papers in respect of currency spot prices and currency futures prices during the period of Greek financial crisis.

The above data has been analyzed to determine the currency futures price premium or discount during
the Greek financial crisis. Further, the regression analysis has been used to determine the Beta values indicating the rate of decline in the value of EURO vis-

à-vis other major currencies during the Greek financial crisis.

V. ANALYSIS AND INTERPRETATION

| Date        | 3 month Forward Rate | Currency Spot rates |
|-------------|----------------------|---------------------|
|             | $/€ | Rs/€ | £/€ | ¥/€ |            | $/€ | Rs/€ | £/€ | ¥/€ |
| 6/10/2009   | 1.47 | 0.92 | 130.84 | 1.472 | 68.89 | 0.93 | 130.79 |
| 20/10/2009  | 1.49 | 0.91 | 134.92 | 1.495 | 69.02 | 0.91 | 135.34 |
| 26/10/2009  | 1.5  | 0.92 | 137.69 | 1.497 | 69.76 | 0.92 | 137.72 |
| 2/11/2009   | 1.47 | 0.9 | 132.38 | 1.477 | 69.4 | 0.9 | 133.16 |
| 17/11/2009  | 1.49 | 0.89 | 132.38 | 1.488 | 68.85 | 0.89 | 132.91 |
| 27/11/2009  | 1.49 | 0.91 | 128.52 | 1.492 | 69.66 | 0.91 | 129 |
| 11/12/2009  | 1.47 | 0.9 | 130.93 | 1.476 | 68.34 | 0.9 | 130.72 |
| 29/12/2009  | 1.44 | 0.9 | 132 | 1.441 | 66.9 | 0.9 | 131.63 |
| 13/1/2010   | 1.45 | 0.89 | 132.46 | 1.456 | 66.11 | 0.9 | 132.41 |
| 29/1/2010   | 1.4  | 0.86 | 126.08 | 1.397 | 64.35 | 0.87 | 125.61 |
| 16/2/2010   | 1.36 | 0.87 | 122.24 | 1.365 | 63.12 | 0.87 | 123.2 |
| 10/3/2010   | 1.38 | 0.91 | 124.14 | 1.361 | 61.92 | 0.91 | 122.63 |
| 25/3/2010   | 1.33 | 0.89 | 122.52 | 1.336 | 60.77 | 0.89 | 122.71 |
| 29/3/2010   | 1.35 | 0.9 | 124.47 | 1.347 | 60.65 | 0.9 | 124.79 |
| 31/3/2010   | 1.35 | 0.89 | 125.58 | 1.348 | 60.65 | 0.89 | 125.78 |
| 12/4/2010   | 1.36 | 0.88 | 126.91 | 1.359 | 60.38 | 0.88 | 126.58 |
| 3/5/2010    | 1.32 | 0.87 | 124.18 | 1.324 | 58.97 | 0.87 | 125 |
| 10/5/2010   | 1.3  | 0.87 | 120.87 | 1.297 | 57.96 | 0.86 | 118.38 |

Source note: Daily news papers - Business Line

Table 1.1: The 3 month Forward rate Premium (%)

| Date       | $/€  | Rs/€  | £/€  | ¥/€  | Date     | $/€  | Rs/€  | £/€  | ¥/€  |
|------------|------|-------|------|------|----------|------|-------|------|------|
| 6/10/2009  | -0.16| 1.22  | -1.09| 0.04 | 29/1/2010| 0.24 | 1.56  | -1.16| 0.37 |
| 20/10/2009 | -0.36| 0.7   | 0    | -0.31| 16/2/2010| -0.36| 0.66  | 0    | -0.79|
| 26/10/2009 | 0.17 | 1.27  | 0    | -0.02| 10/3/2010| 1.38 | 1.85  | 0    | 1.22 |
| 2/11/2009  | -0.46| 0.5   | 0    | -0.59| 25/3/2010| -0.42| 0.9   | 0    | -0.16|
| 17/11/2009 | 0.17 | 0.82  | 0    | -0.4 | 29/3/2010| 0.21 | 0.9   | 0    | -0.26|
| 27/11/2009 | -0.12| 0.34  | 0    | -0.37| 31/3/2010| 0.16 | 0.69  | 0    | -0.16|
| 11/12/2009 | -0.39| 1.13  | 0    | 0.16 | 12/4/2010| 0.11 | 1.05  | 0    | 0.26 |
| 29/12/2009 | -0.03| 1.23  | 0    | 0.28 | 3/5/2010 | -0.29| 0.76  | 0    | -0.66|
| 13/1/2010  | -0.43| 1.03  | -1.12| 0.04 | 10/5/2010| 0.24 | 1.4   | 1.15 | 2.06 |
| Average Premium | -0.0189 | 1.001 | -0.1233 | 0.0394 |
Table 2: The predictability of 3 month forward rates of Euro versus USD, INR, GBP, JPY during the Greek Crisis

| Dt            | 3 month Forward Rates | Spot rate after 3 months |
|---------------|-----------------------|--------------------------|
|               | S/€       | Rs/€     | £/€      | ¥/€      |               | S/€       | Rs/€     | £/€      | ¥/€      |
| 6/10/2009     | 1.47     | 69.74    | 0.92     | 130.84   | 6/1/2010     | 1.43     | 65.98    | 0.9      | 132.52   |
| 20/10/2009    | 1.49     | 69.51    | 0.91     | 134.92   | 20/1/2010    | 1.41     | 65.02    | 0.87     | 129.04   |
| 26/10/2009    | 1.5      | 70.66    | 0.92     | 137.69   | 26/1/2010    | 1.41     | 64.75    | 0.87     | 126.59   |
| 2/11/2009     | 1.47     | 69.75    | 0.9      | 132.38   | 2/2/2010     | 1.39     | 64.35    | 0.87     | 126.27   |
| 17/11/2009    | 1.49     | 69.42    | 0.89     | 132.38   | 17/2/2010    | 1.37     | 63.09    | 0.87     | 124.26   |
| 27/11/2009    | 1.49     | 69.9     | 0.91     | 128.52   | 27/2/2010    | 1.36     | 62.77    | 0.89     | 121.1    |
| 11/12/2009    | 1.47     | 69.12    | 0.9      | 130.93   | 11/3/2010    | 1.37     | 62.11    | 0.91     | 123.46   |
| 29/12/2009    | 1.44     | 67.73    | 0.9      | 132      | 27/3/2010    | 1.34     | 60.61    | 0.9      | 123.46   |
| 13/1/2010     | 1.45     | 66.8     | 0.89     | 132.46   | 13/4/2010    | 1.36     | 60.54    | 0.88     | 126.58   |
| 29/1/2010     | 1.4      | 65.37    | 0.86     | 126.08   | 29/4/2010    | 1.33     | 58.92    | 0.87     | 124.4    |
| 16/2/2010     | 1.36     | 63.54    | 0.87     | 122.24   | 14/05/2010   | 1.25     | 56.46    | 0.86     | 115.52   |

Source note: Daily news papers- Business Line

Chart II: Percentage variation between 3 month forward rates and the actual spot rates after 3 months
Table 2.1: Percentage variation between 3 month forward rates and the actual spot rates after 3 months

| Date       | $/€  | Rs/€ | £/€  | ¥/€  |
|------------|------|------|------|------|
| 6/1/2010   | -2.8 | -5.7 | -2.22| 1.27 |
| 20/1/2010  | -5.67| -6.91| -4.6 | -4.56|
| 26/1/2010  | -6.38| -9.13| -5.75| -8.77|
| 2/2/2010   | -5.76| -8.39| -3.45| -4.84|
| 17/2/2010  | -8.76| -10.03| -2.3 | -6.53|
| 27/2/2010  | -9.56| -11.36| -2.25| -6.13|
| 11/3/2010  | -7.3 | -11.29| 1.1  | -6.05|
| 27/3/2010  | -7.46| -11.75| 0    | -6.92|
| 13/4/2010  | -6.62| -10.34| -1.14| -4.65|
| 29/4/2010  | -5.26| -10.95| 1.15 | -1.35|
| 14/05/2010 | -8.8 | -12.54| -1.16| -5.82|
| Average Variation | -6.76091 | -9.85364 | -1.87455 | -4.9409 |

Chart 3: Average Variation between 3 month forward rates and the actual spot rates after 3 months

Table 3: Depreciation in the value of Euro against major currencies during the period 11th dec 2009 to 14th may 2010

| Date            | $/€  | Rs/€  | £/€  | ¥/€  |
|-----------------|------|-------|------|------|
| 11/12/2009      | 1.4757| 68.34 | 0.9  | 130.72|
| 29/12/2009      | 1.4405| 66.9  | 0.9  | 131.63|
| 13/1/2010       | 1.4563| 66.11 | 0.9  | 132.41|
| 29/1/2010       | 1.3966| 64.35 | 0.87 | 125.61|
| 16/2/2010       | 1.3649| 63.12 | 0.87 | 123.2 |
| 10/3/2010       | 1.361 | 61.92 | 0.91 | 122.63|
| 25/3/2010       | 1.3356| 60.77 | 0.89 | 122.71|
| 29/3/2010       | 1.3471| 60.65 | 0.9  | 124.79|
| 31/3/2010       | 1.3479| 60.65 | 0.89 | 125.78|
| 12/4/2010       | 1.3585| 60.38 | 0.88 | 126.58|
| 3/5/2010        | 1.3238| 58.97 | 0.87 | 125  |
| 10/5/2010       | 1.2969| 57.96 | 0.86 | 118.38|
| 14/5/2010       | 1.2492| 56.46 | 0.86 | 115.52|
| % 5 month period| -15  | -17   | -4.4 | -12  |

Source: www.exchangerates.org.uk/ & from daily news paper of Business Line
Table 5: Regression Co-efficients of the Euro Exchange Rates against USD, INR, GBP, YEN during the Greek Financial Crisis

| Currency Spot rate | Date       | $/€     | Rs/€   | £/€   | ¥/€   | t^2  | t*y1 | t*y2 | t*y3 | t*y4 |
|--------------------|------------|---------|--------|-------|-------|------|------|------|------|------|
| T (time)           | Date       | y1      | y2     | y3    | y4    |      |      |      |      |      |
| 11                 | 11/12/2009 | 1.4757  | 68.34  | 0.9   | 130.72| 121  | 16.23| 751.7| 9.9  | 1437.9|
| 29                 | 29/12/2009 | 1.4405  | 66.9   | 0.9   | 131.63| 841  | 41.77| 1940 | 26.1 | 3817.3|
| 44                 | 13/1/2010  | 1.4563  | 66.11  | 0.9   | 132.41| 1936 | 64.08| 2909 | 39.6 | 5826 |
| 60                 | 29/1/2010  | 1.3966  | 64.35  | 0.87  | 131.63| 3600 | 83.8 | 3861 | 52.2 | 7536.6|
| 78                 | 16/2/2010  | 1.3649  | 63.12  | 0.87  | 132.41| 6084 | 106.5| 4923 | 67.86| 9609.6|
| 100                | 10/3/2010  | 1.361   | 61.92  | 0.91  | 122.63| 10000| 136.1| 6192 | 91   | 12263|
| 115                | 25/3/2010  | 1.3356  | 60.77  | 0.89  | 122.71| 13225| 153.6| 6989 | 102.35| 14112|
| 119                | 29/3/2010  | 1.3471  | 60.65  | 0.9   | 124.79| 14161| 160.3| 7217 | 107.1| 14850|
| 121                | 13/3/2010  | 1.3479  | 60.65  | 0.89  | 125.78| 14641| 163.1| 7339 | 107.69| 15219|
| 133                | 12/4/2010  | 1.3585  | 60.38  | 0.88  | 126.58| 17689| 180.7| 8031 | 117.04| 16835|
| 154                | 3/5/2010   | 1.3238  | 58.97  | 0.87  | 125    | 23716| 203.9| 9081 | 133.98| 19250|
| 161                | 10/5/2010  | 1.2969  | 57.96  | 0.86  | 118.38| 25921| 208.8| 9332 | 138.46| 19059|
| 165                | 14/5/2010  | 1.2492  | 56.46  | 0.86  | 115.52| 27225| 206.1| 9316 | 141.9| 19061|
| 1290               | 17.754     | 806.58  | 11.5   | 1625  |       |      |      |      |      |      |

Column Total         | 159160    | 1725    | 77881  | 1135.2| 158877|

Regression Co-efficient $b = (\sum x*y - \sum x*\sum y/n)/(\sum x^2 - (\sum x)^2/n)$

Regression Co-efficient of $S$ to € Exchange rate over the 5 month period: -0.0011826
Regression Co-efficient of Rs to € Exchange rate over the 5 month period: -0.0692271
Regression Co-efficient of £ to € Exchange rate over the 5 month period: -0.0001918
Regression Co-efficient of ¥ to € Exchange rate over the 5 month period: -0.0760599

Chart 5: Regression Co-efficients of the Euro Exchange Rates against USD, INR, GBP, YEN during the Greek Financial Crisis
Inferences from the above Tables and Charts

Table 1:
The 3 month forward premium on an average is negative in the case of EURO versus USD and EURO versus GBP which are -0.02% and -0.12% respectively indicating that the GBP forward rates predict a steeper fall in the value of EURO.

However, the 3 month forward rates premium in respect of INR and JPY are positive on an average.

Table 2:
Predictability of 3 month forward rates in general it has been observed that the 3 month forward rates of EURO against USD, INR, GBP and JPY were higher than the actual spot rates after 3 months.

Further, the average variation between actual spot rate after 3 month and the 3 month forward rate is highest in respect of EURO verses INR (-9.85%) and lowest in respect of EURO versus GBP (-1.87%)

Table 3:
It is observed that the depreciation in the value of EURO during the Greek financial crisis has been the highest with respect to INR which is 17.38% followed by USD (15.35%) YEN (11.63%) and GBP (4.44%).

VI. CONCLUSION

Based on these 3 tables, it can be inferred that the 3 month forward rates in respect of EURO to INR has the poorest predictability while the 3 month forward rates in respect of EURO to GBP has the highest predictability. Further, the value of EURO with respect to GBP has fall the lowest during the 5 month period.

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