

ON THE ASCENT OF MULTINATIONALS FROM EMERGING ECONOMIES: A GROWTH FORECAST

BURNETE Sorin¹

“Lucian Blaga” University of Sibiu, Romania

Abstract

The question whether companies headquartered in emerging economies will grow in the future with the same (or higher) speed their respective home countries (especially the BRICs) are expected to grow (as most of today's forecasts indicate), is surely of high interest and deserves an answer. Since forecasts with respect to the future growth of national economies most often rely on quantitative-type macroeconomic performances, a similar technique can be used for projecting the future growth of multinational enterprises: analyzing the evolution of holdings of foreign assets, aggregated at the country-group level. This is what I tried to accomplish in this paper.

Keywords: *asset growth, time series, forecast, non-stationary trend*

JEL Classification: *F-29*

1. Short time series can be misleading in forecasting

In this paper I continue the analysis commenced in the previous one, dealing with the ineluctable conflicts aroused by the ascent of multinationals from emerging economies (hereinafter EEMs), which are challenging and even squeezing their western older counterparts (hereinafter DCMs) away from certain industries. In the third part I make use of time series to forecast the future growth trend of EEMs relative to the DCMs. Technically, when dealing with time series, a matter of utmost importance is the number of observations. Obviously, this is a major drawback in our case, since the available data only spans fifteen years. Under such circumstances, the model

¹ professor Ph.D, Department of Economics

expressing the data-generating process can be miss-specified, estimates might be biased and naturally, forecasting on its basis might lead to false conclusions. All these drawbacks notwithstanding, I believe a forecast will not be useless.

Obviously, the amount of foreign assets owned may not be the best proxy for multinationals' development. After all, multinational enterprises are not mere outcomes of pure growth. However, strictly for the purpose of this paper, this indicator can be a good predictor for firms' international expansion, as measured in quantitative terms.

2. Asset growth can be a reliable basis for forecast formulation

Data in table 1 represent the aggregated value of foreign assets jointly held by the top 100 multinationals (ranked by foreign assets) belonging to the BRICs and the G7¹ respectively, during 1994-2008. At first glance, the gap between the two groups of multinationals in this respect is striking (almost fifty-fold on average) although it is diminishing. Normally, one wonders whether multinationals from the BRICs could catch up with those from the G7 (in terms of amount of foreign assets owned). How real and how close is such a possibility? Venturing direct answers to this type of questions is nonetheless not the author's intention; the goal is to derive certain pieces of information (if any) from available statistics, which might lead to a conclusion as regards the way things are going to progress in the future. The author is fully aware of the inherent limits of such an attempt. As Taleb (2007) remarked, "...we can learn a lot from data – but not as much as we expect."

The analysis will therefore, not address matters such as causality, co-integration and the like; it will be focused on trends. More precisely, the author is interested in ascertaining the nature (stochastic or deterministic) and relevance of inferred trends (to what extent they may constitute a basis for forecasts formulation). At the same time, the author is aware that this might be a thorny task, given the relatively small number of observations available (small-size samples might render econometric techniques hardly applicable) but is hopeful that, despite its limits, the analysis will yield some results with an acceptable degree of uncertainty.

¹ Symbol for the group of seven industrialized countries: United States, Canada, Germany, France, Italy, United Kingdom and Japan.

Table 1: Aggregate value of foreign assets held by the top 100 multinationals from the BRICs and G7 groups of countries respectively, during 1994-2008 (\$ billions)

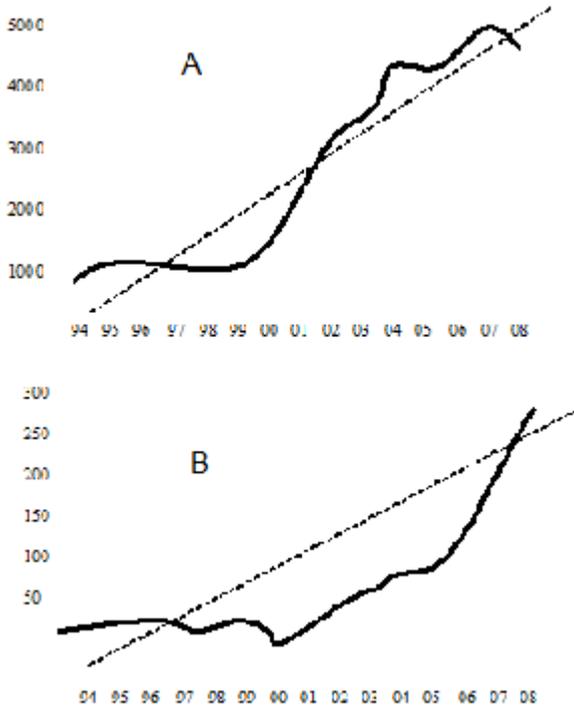
Year	Total foreign assets* (EEMs from the BRICs**)	Total foreign assets* (DCMs from the G7)
1994	8.96	972.0
1995	12.55	1,349.3
1996	14.87	1,403.8
1997	13.12	1,356.1
1998	15.76	1,321.2
1999	9.33	1,489.6
2000	13.43	2,109.6
2001	5.99	2,589.4
2001	14.58	2,832.5
2003	45.49	3,457.5
2004	73.04	4,216.4
2005	76.11	4,101.2
2006	89.28	4,388.2
2007	153.76	4,949.9
2008	280.29	4,490.9

*The figures in the table were calculated by the author on the basis of published data and represent absolute values, obtained by aggregating individual firms' holdings of foreign assets. Where published data, referring to certain firms were not available, no author's estimations were used instead (that explains for example, the trough inside the 2nd column (EEMs from the BRICs), between 1998 and 2002). The procedure is meant to rule out any suspicion of data snooping by the author. Besides, the mentioned trough, caused by the absence of data is not significant enough so as to determine an alteration of the general trend in the respective time series.

**The figures for China include neither Hong Kong nor Taiwan.

Source: UNCTAD - "The world's top 100 non-financial TNCs, ranked by foreign assets" and "The top 100 non-financial TNCs from developing countries, ranked by foreign assets", 1994-2008.

Figure 1: Line graphs representing holdings of foreign assets during 1994-2008, by MNEs from the BRICs (B) and G7 (A) groups of countries respectively (\$ billions)



Certain aspects can be inferred intuitively by simply scrutinizing the data. As shown by the line graphs in figure 1, the two series clearly exhibit an ascending trend but there is a visible difference in shape between them: the BRICs curve (B) to begin with, has two distinct parts, corresponding to two sub-periods of the considered time-interval: while the first part (up to 2000) is rather flat, showing a slow growth during 1994-2000, the second part (between 2000 and 2008) is much steeper, indicating a sharp increase. This pattern is typical for a quadratic function of t (with a convex curvature). The G7 curve (A) is s -shaped, consisting of three distinct parts: a slight growth in the initial period (1994-1999), followed by a much steeper increase in the second interval (1999-2004) and then slackening off in the last part (2004-2008), when the curve is again flattened. This behavior suggests the presence

of two components: a non-stationary linear-trend component and a stationary business-cycle one. The two flat portions of the curve correspond to two distinct periods in which the Western economies were faced with economic recession (once in the early 1990s and again in the late 2000s). The steep portion reflects, among other things, the boom in mergers and acquisitions that occurred after 1999.

3. Descriptive statistics

Forecasting entails specifying the model, testing for the existence of unit roots, assessing the number and significance of parameters (and implicitly, the trends' nature) and finally, deriving forecasting functions. The unit roots tests will ascertain: (1) whether there are stochastic and/or deterministic trends in the time series; (2) the correct number of estimated parameters. A parametric unit root test, as suggested by Dickey, Fuller (1981) and Enders (1995) requires calculating, besides the usual t-statistics for individual estimates, the Φ_2 and Φ_3 statistics for joint hypothesis.

Table 2: Descriptive statistics for the BRICs and the G7 groups of multinationals (holdings of foreign assets during 1994-2008)

Significance level*	Observations		
BRICs			
<i>F-test (3 parameters, 2 restrictions)</i>			
	<u>10%</u>	<u>5%</u>	<u>1%</u>
Φ_2 (17.216)	4.67	5.68	8.21 One can reject the null at 1%.
Φ_3 (17.216)	5.91	7.24	10.61 One can reject the null at 1%.
<i>t-test (3 parameters, 2 restrictions)</i>			
	<u>10%</u>	<u>5%</u>	<u>1%</u>
- $\hat{\beta}$ (2.73)	- 3.15	- 3.45	- 4.04 One cannot reject the null.
- constant (-0.91)	2.77	3.59	4.05 One cannot reject the null.
- time (0.59)	2.39	2.85	3.74 One cannot reject the null.
<i>F-test (2 parameters, 1 restriction)</i>			
	<u>10%</u>	<u>5%</u>	<u>1%</u>
Φ_1 (35.005)	4.12	5.18	7.88 One can reject the null at 1%.
<i>t-test (2 parameters, 1 restriction)</i>			
	<u>10%</u>	<u>5%</u>	<u>1%</u>
- $\hat{\beta}$ (5.52)	- 3.15	- 3.45	- 4.04 One cannot reject the null.
- constant (-0.905)	2.77	3.59	4.05 One cannot reject the null.
<i>t-test (1 parameter, no restrictions)</i>			

	10%	5%	1%	
- $\hat{\beta}$ (0.66)	- 1.61	- 1.95	- 2.60	One cannot reject the null.
G7				
<i>F-test</i>	10%	5%	1%	
Φ_2 (4.602)	4.67	5.68	8.20	One cannot reject the null.
Φ_3 (4.602)	5.91	7.24	10.61	One cannot reject the null.
<i>t-test (3 parameters)</i>	10%	5%	1%	
- $\hat{\gamma}$ (-2.723)	- 3.15	- 3.45	- 4.04	One cannot reject the null.
- constant (2.823)	2.77	3.59	4.05	One can reject the null at 10%.
- time (2.493)	2.39	2.85	3.74	One cannot reject the null.

*The critical values are taken from Dickey, Fuller (1981), p.1062-1063 and Enders (1995), p.223. The values correspond to a sample size of 25.

The descriptive statistics are presented in table 2. In the case of multinationals from the BRICs, the time series is visibly non-stationary (as the graph illustrates). The successive application of the Dickey-Fuller test (by gradually decreasing the number of parameters and restrictions, and calculating the corresponding F- and t-statistics) proves the existence of a unit root. It follows, logically, that the time trend coefficient (\hat{m}_2) is not zero (the Φ_3 test rejects the null $\beta = m_2 = 0$). Hence the series has a stochastic trend and a deterministic time trend. In the case of multinationals from the G7, the time series is also non-stationary (the graph clearly shows that the series is going upwards) and contains a stochastic trend, since the Dickey-Fuller test indicates the presence of a unit root. Unlike the BRICs' series, the G7's series does not contain a time trend but a drift. The time trend coefficient (\hat{b}_2) is zero because the Φ_3 test cannot reject the null $\gamma = b_2 = 0$. It follows the series has a non-zero constant ($\hat{b}_0 \neq 0$). The fact that the Φ_2 test yielded an ambiguous result (one may, equally, accept or reject the null $\gamma = b_2 = b_0 = 0$, at 10 percent confidence level) is not in contradiction with this conclusion.

The above results show, with pretty high certainty that two time-series differ with regard to the nature of their deterministic trend: the BRICs' series exhibits a time trend whereas the one corresponding to the G7, a drift. This fact is a solid base for forecasting: it shows that, should these trends not change (and of course, should the "Black Swan" not emerge) the two series will intersect sometimes in the future, namely the BRICs' holdings of foreign

assets will equal and perhaps even surpass the G7's. To estimate the time when this outcome will be likely to occur, all one has to do is derive a forecast function from the specified model and then build a conditional or unconditional forecast thereupon. This wouldn't be, technically, a difficult task but, economically, it would most surely be a risky undertaking. As Phillips (1995) noted, "it is fatuous to expect that the complications of trending mechanisms in economics are properly captured by the simple models of stochastic trends, deterministic trends, or trend breaks that we presently use. Outside of sample, models and their fitted trending mechanisms inevitably break down." In our case, having ascertained the trends' nature of the two time-series might be looked upon as a useful accomplishment for it tells us something about the way things are expected to unravel in the years to come. For the declared purpose of this paper, I reckon it is good enough.

4. Conclusions

The available data indicate that multinationals from emerging economies manifest a more pronounced (quadratic) upward trend in respect of holdings of foreign assets whereas in the case of multinationals from developed countries, the trend is linear. It is a mathematical premise that the level of the indicator for the two groups of multinationals will even out in the future.

5. References

- Dickey D.A., Fuller W.A. (1981) Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root, *Econometrica*, Vol. 49 (4), pp. 1057-1072
- Enders W. (1995) *Applied Econometric Time Series*, John Wiley & Sons, Inc.
- Phillips P.C.B. (1995) Nonstationary Time Series and Cointegration, *Journal of Applied Econometrics*, Vol. 10 (1), pp. 87-94
- Taleb N.N. (2007) *The Black Swann – The Impact of the Highly Improbable*, Penguin Books, 2007, p.56

[1]