Economic Comovement among Emerging Economies with Business Group Influences

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Abstract

This paper explores the existence of common business cycles between three emerging economies: Mexico, Turkey, and India. These three economies share traits related to economic emergence and growth. Additionally, all three countries have business groups that influence their public and private sectors. However, despite these similarities between these three economies, the findings do not support a common business cycle. The lack of a common business cycle may offer diversification to investors looking to invest in emerging countries.

Keywords: Emerging economies, business cycles, business groups

Introduction

In recent years, country groupings have emerged to describe the largest developing nations. Some examples include the following: BRIC (Brazil, Russia, India and China), BRICS (Brazil, Russia, India, China and South Africa), BRICM (Brazil, Russia, India, China, and Mexico), BRICET (Brazil, Russia, India, China, Eastern Europe and Turkey) and Next Eleven (Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, Philippines, South Korea, Turkey, and Vietnam). Another grouping is the Big Emerging Market (BEM) which includes Brazil, China, Egypt, India, Indonesia, Mexico, Philippines, Poland, Russia, South Africa, South Korea, and Turkey. All these groupings have been made on the basis that these countries are deemed as having an increasing economic and political presence in the world economy.

Prevalence of business groups is a noticeable feature of most emerging economies (Khanna & Rivkin, 2001). Although the group form has different names in different countries (e.g., Latin American *grupos*, Indian *business houses*, and the Korean *chaebol*), there exist some broad similarities: A complex web of economic and social ties unites otherwise legally independent member firms, which also enable the member firms to coordinate their competitive actions in markets, as well as the markets for inputs (Khanna & Rivkin, 2001). Furthermore, most groups are diversified into various unrelated industries yet are still associated with a single extended family (cf. Granovetter, 1994; Khanna & Palepu, 2000). Widespread in emerging economies, groups (usually also the largest firms) often control a large proportion of a country's productive assets (cf. Amsden & Hiking, 1994; Granovetter, 1994; Khanna & Palepu, 1997; Khanna & Rivkin, 2001).

Theoretical Foundations

Diversified business groups dominate the private sector and substitute for the organizations that support effective capital and labor markets in many countries (cf. Ghemawat & Khanna, 1998; Khanna & Palepu, 1999; Khanna & Palepu, 2000). Operating in various unrelated industries, diversified business groups surfaced in the capitalist countries that industrialized after World War II (Granovetter, 1995; Guillen, 2000; Khanna & Palepu, 1997; Leff, 1978), where business groups with operating units in technologically unrelated industries have acted as the microeconomic agent of growth (Amsden & Hiking, 1994).

Defined as "*…a set of firms which, though legally independent, are bound together by a constellation of formal and informal ties and are accustomed to taking coordinated action,*" (Khanna & Rivkin, 2001, p. 47) business groups differ from typical conglomerates because "…there are generally personal and operational ties among all the firms" as opposed to conglomerates, in which "…a common parent owns the subsidiaries but generally few operational or personal ties exist among the sister subsidiaries" (Strachan, 1976, p.20). The ownership structures of the *grupos* of Mexico (i.e. Grupo Alfa, Grupo Femsa, Grupo Vitro, Cemex), the *business holdings* of Turkey (i.e. Koc Holding, Sabanci Group, Dogan Holding), and the Indian *business houses* (i.e. Reliance, TATA, ADAK, Bharti) corroborate Strachan's distinction.

In addition to family ties, geographical ties and interlocking directorates, a "full-fledged" business group has the following characteristics: Diversity, pluralistic composition, and a fiduciary atmosphere (Strachan, 1979). In other words, a full-fledged business group has "a great number of different firms operating in different sectors…[it] is a coalition of several wealthy businessmen and families, not the diversified holdings of a single wealthy family," and "the relations which bind group members together are characterized by a loyalty and trust similar to that normally associated with family or kinship groups." (Strachan, 1979, p. 244). Therefore, the ties that bind the group firms together and the coordinated actions made possible by those ties separate business groups from typical conglomerates.

According to Hoskisson, Eden, Lau, and Wright (2000), emerging economies cluster into two groups: Developing countries of Asia, Latin America, Africa, and the Middle East and transition economies of the former Soviet Union and China. This study focuses on three regions: Latin America (Mexico), Middle East and Europe (Turkey), and Asia (India). Furthermore, as Guillen (2000) describes, the Latin American grupos, Turkish family holdings, and Indian business houses constitute sound examples of business groups in the emerging markets, thus establishing an adequate sampling frame. These three countries are also considered among the more developed in the emerging markets, namely Newly Industrialized Countries (NICs) or the Big Ten Countries.

Large industrial groups emerged in Turkey, with government support, out of import substitution policies (Amsden & Hiking, 1994). An era of general trading companies in 1970s followed by greater liberalization and internationalization brought about by the macro-level institutional transformations in 1980s, despite representing a shift from the import-substitution model, have contributed to business groups becoming the dominant form of large business organization in Turkey (Goksen & Usdiken, 2001).

The *business houses* in India date back to the middle of 19th century with the managing agency system originally established by the British (Amsden & Hiking, 1994), which is constituted by a network of operating firms and an agency firm or person at the center (Brimmer, 1955). "The managing agency system was ideally suited to the Hindu joint family system in India," and is considered the basis for the formation of modern diversified industrial groups (Herdeck & Piramal, 1985, p. 6).

Some of Mexico's biggest *grupos* date back to the first wave of modern Mexican industrialization period from 1890s to 1930s (Haber, 1989). The true network alliances however did not emerge until 1960s. Economic de-regulation, increased competition and large debts in 1980s resulted in dismantling of some traditional groups as well as emergence of new groups, thus a shuffle in the dominant businesses (Colpan, Hikino, & Lincoln, 2010).

The current paper will investigate the existence of common business cycles between India, Mexico, and Turkey. The commonality between the business cycles would exist due to the similarities between their economies, as noted by their shared emerging country statuses, but also due to the existence of diversified business groups that affect each of their economies internally.

Furthermore, the business groups were state supported in their formation and were beneficiaries of the respective privatization periods in each country, resulting in horizontal and vertical expansion as well as diversification, significantly increasing size and scale (Khanna & Yafeh, 2007). Increased scale can provide business groups with a variety of benefits tied to enhanced market and political power (Khanna & Yafeh, 2007). According to Khanna and Rivkin (2001, p. 45) "…the sheer ubiquity of business groups suggests that they may affect, in important ways, the broad patterns of economic performance in emerging economies."

Data and Methodology

The data used in this study are seasonally adjusted yearly real output series for the countries of Mexico, Turkey, and India. The data was obtained from the World Bank.

The existence of a long term relationship among output data will be tested using Johansen (1988) and Johansen and Juselius (1990) methodology for cointegration. The existence of a cointegrating relation would imply a common business cycle since series that are cointegrated can be expressed with a causal ordering in at least one direction Granger (1986, p. 218). The bivariate pairings that do not demonstrate a cointegrating relation will be subjected to a more stringent test for comovement called common serial correlation feature tests developed by Engle and Kozicki (1993). The finding of a common serial correlation between variables implies at least one-way causality and therefore implies the existence of a common business cycle.

The use of cointegration tests is relatively common in the literature and the reader is referred to Johansen (1988) and Johansen and Juselius (1990) for a complete discussion. Cointegration tests investigate long-term relationships by analyzing forms of comovement of variables that are nonstationary. If no cointegration is found to exist between two variables, a further test is to investigate the forms of comovement that are stationary, specifically common features such as serial correlation can be analyzed. Common feature testing is performed among stationary variables. The common feature for which we test is serial correlation. The finding of a common serial correlation feature between two output variables implies at least one-way causality. Therefore, common serial correlation features are interpreted as common business cycles. The finding of such a common feature will indicate persistence and comovement in the system. Common serial correlation will be tested by using the test statistic developed by Engle and Kozicki (1993).

Empirical Results

Prior to cointegration and common feature testing, the order of integration needs to be ascertained. The order of integration of the individual time series is determined using the augmented Dickey-Fuller test (Dickey & Fuller, 1981; Fuller, 1976) and a Phillips-Perron test (Perron, 1988; Phillips, 1987; Phillips & Perron, 1988). The unit root tests are provided in Table 1. For all three countries, the output variables are found to be nonstationary in levels and stationary in first-differences. To investigate the comovement among the nonstationary variables in their levels the cointegration test is applied on a tri-variate basis. The lag lengths to be used in the cointegration models were determined by the Akaike criteria. The null hypothesis for the maximum eigenvalue statistic is that there are r cointegrationg vectors and the alternative hypothesis is that there are r+1 cointegrating vectors. The null hypothesis for the trace statistic is that there are r or fewer cointegrating vectors and the alternative hypothesis is that there are at least r+1 cointegrating vectors. The results of the cointegration test are reported in Table 2.

All of the test statistics are below the critical values. The cointegration test reveals that the three countries GDP variables do not exhibit a cointegrating vector that can be interpreted as a common business cycle.

Since no cointegrating vector was found to exist between the three variables, the existence of serial correlation as a common feature was investigated. The first step is to test for serial correlation within the individual series. This is done with a Durbin-Watson test statistic. The Durbin-Watson statistic measures the linear association between adjacent residuals from a regression model. The Durbin-Watson is a test of the hypothesis $\rho=0$ in the equation:

$$u_t = \rho u_{t-1} + \varepsilon_t$$

If there is no serial correlation, the Durbin-Watson statistic will be around 2. If there is positive serial correlation the Durbin-Watson statistic will be between 0 and 2. If there is negative correlation, the statistic will be between 2 and 4. The most commonly observed form of serial correlation is positive. A Durbin-Watson below about 1.5 is a strong indication of positive first order serial correlation. Johnston and DiNardo (1997) provide a thorough discussion of the statistic. For all three countries, the Durbin-Watson Statistic indicates no serial correlation. Since no serial correlation exists within the individual country variables, further testing for a common feature of serial correlation is not pursued.

Conclusion

The study, as indicated by the lack of a cointegrating vector and the lack of serial correlation among the variables, finds that there is no evidence of common business cycles between India, Mexico, and Turkey. Although their countries exhibit similarities both economically and in the prominence of their diversified business groups, their business cycles are not necessarily shared. This finding provides some offer of diversification to investors that may be looking at emerging economies.

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Table 1: Unit Root Tests

	Dickey Fuller		Phillips-Perron	
	Level	1st Difference	Level	1st Difference
India	0.02	36.17	0.01	37.17
Mexico	0.94	25.19	1.53	22.73
Turkey	0.07	37.65	0.17	37.65

Note: The critical value at the 90% statistical significance level is 3.43.

Table 2: Cointegration Tests

	Trace Statistic (Critical Value)	Maximum Eigenvalue (Critical Value)
# of cointegrating vectors		
None	24.34 (29.80)	15.48 (21.13)
At most 1	8.86 (15.49)	8.73 (14.26)
At most 2	0.14 (3.84)	0.14 (3.84)

Table 3: Serial Correlation Test

Country	Durbin-Watson Statistic
India	2.005
Mexico	1.956
Turkey	1.999