EXCHANGE RATE ARRANGEMENTS AND ECONOMIC PERFORMANCES OF BRICS

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This study investigates the links between exchange arrangements and economic performances of BRICS countries over the period from 1990 to 2017. The major findings are: (i) it would allow BRICS to diversify their foreign reserves as a way of managing the risk; (ii) if the BRICS use their national currency to trade and they experience a bright future as predicted, their currencies may become global; (iii) it is believed that the use of BRICS currencies would decrease transaction costs compared to the USD; (iv) this would also allow the BRICS to have a greater political power in international negotiations.

Keywords: exchange rate arrangements, exchange rate risk, exports, foreign income (index of industrial production), BRICS.

В этом исследовании исследуются связи между договоренностями об обмене и экономическими показателями стран БРИКС за период с 1990 по 2017 год. Основными выводами являются: (i) он позволит БРИКС разделить свои собственные возвраты в качестве средства управления риском; (ii) если БРИКС использует свою национальную валюту, чтобы торговать, и они приобретают светлое будущее, как ожидается, их курс может стать глобальным; (iii) считается, что использование валют БРИКС будет способствовать снижению трансакций в долларах США; (iv) это также позволило бы БРИКС иметь большую политическую силу в международных отношениях.

Ключевые слова: обменные курсы, валютный риск, экспорт, иностранные доходы (индекс промышленного производства), БРИКС.

INTRODUCTION

The choice of an appropriate exchange rate regime for countries around the world has been at the center of debate in the international political economy for a long time. In this respect, the previous literature discusses several factors that may influence the selection of an exchange rate regime, such as the domestic macroeconomic environment, financial system, and political system [1]. Particularly, argues that once a country exhibits weak and volatile macroeconomic fundamentals, it commonly is accompanied with high exchange rate risk. According to the IMF's current exchange rate scheme, the *de jure* arrangements and the *de facto* arrangements, which are classified into 10 categories. This classification is based on the information available on members' de facto arrangements, as analyzed by the IMF staff, which may differ from countries officially announced (*de jure*) arrangements. The description and effective dates of the *de jure* exchange rate arrangements are provided by the authorities. By Article IV, Section 2(a) of the Fund's Articles of Agreement and Paragraph 16 of the 2007 Surveillance Decision

No. 13919-(07/51), each member is required to notify the Fund of the exchange arrangements it intends to apply and to notify the Fund promptly of any changes in its exchange arrangements. Country authorities are also requested to identify, whenever possible, which of the existing categories of exchange rate arrangements below most closely corresponds to the de jure arrangement in effect. Country authorities may also wish to briefly describe their official exchange rate policy. The description includes officially announced or estimated parameters of the exchange arrangement (for example, parity, bands, weights, rate of crawl, and other indicators used to manage the exchange rate). It also provides information on the computation of the exchange rate.

Indeed, IMF staff classifies the *de facto* exchange rate arrangement**s** according to the categories below. The name and the definition of the categories describing the *de facto* exchange rate arrangements have been modified in accordance with the revised classification methodology, as of February 1, 2009. Where the description of the *de jure* arrangement can be empirically confirmed by the IMF staff over at least the previous six months, the exchange rate arrangement will be classified in the same way on a *de facto* basis. Because the de facto methodology for classification of exchange rate regimes is based on a backward-looking approach that relies on past exchange rate movement and historical data, some countries are reclassified retroactively to a date when the behavior of the exchange rates changed and matched the criteria for reclassification to the appropriate category.

Furthermore, the system classifies exchange rate arrangements primarily on the basis of the degree to which the exchange rate is determined by the market- rather than by official action, with market-determined rates being on the whole more flexible. The system distinguishes among four major categories: hard pegs (such as exchange arrangements with no separate legal tender and currency board arrangements) soft pegs (including conventional pegged arrangements, pegged exchange rates within horizontal bands, crawling pegs, stabilized arrangements, and crawl-like arrangements) floating regimes (such as floating and free floating) and a residual category, other managed.

LITERATURE REVIEW

In the past few decades, the emerging market economies had a much faster growth rate compared to the developed economies, which led to a significant increase of their share in world GDP in international trade. The economic crisis has led to relevant changes in global economic governance, especially the G20 replacing the G8 as an international leader on the global stage. These changes can be interpreted as a manifestation toward a multipolar international economic order, where developing countries should have a much more significant role. Studies show that in the globalization era almost 3 billion people from emerging countries such as China, India, Russia, and Brazil have managed to integrate into the global market; and the rise of the great powers is due to the boom of the emerging countries that seek to catch-up the advanced countries [2].

One of the most highlighted cases of coordinated action has been among the nations of the newly established BRICS grouping, which consists of Brazil, India, Russia, China, and South Africa. This new initiative of coordinated action among developing regional powers has become one of the main vehicles for opening up consultations between emerging powers from different world regions (*i.e.* South America, South Asia, Central Asia, East Asia, and Sub Saharan Africa) with the aim of achieving greater cooperation and coordination when global issues are discussed within global forums and institutions [3]. Exchange rate uncertainty serves as another determinant of Hong Kong's trade flows. Their investigation is based on ARDL and VAR models. In the paper the issue is still important that it has been in the past, especially if a country is more export oriented [4]. Furthermore, using the data of four CIS countries, Belarus, Kazakhstan, Russia and Ukraine the linkage between exchange rate risk and trade flows over the period for 1998-2008. The results indicated that the exchange rate risk variable was negative in all of the economies under study [5].

Similarly, the impact of exchange rate volatility on export growth for set of countries Brazil, Chile, New Zealand and Uruguay, selected as commodity exporting countries. They further interesting finding is that global demand and international process influence goods' exports for all the selected countries. In the case of Brazil, Chile and New Zealand the authors did not find evidence of real exchange rate volatility impact on export growth [6]. Likewise, the effects of exchange rate volatility on exports in the case of India for the period of 1970-2011. They found that the foreign country's income positively affected to India exports, whereas the domestic exchange rate volatility negatively affected on India exports [7].

The exchange rate volatility hinders aggregate exports of South Africa, Malawi and Morocco using the error correction method over the period 1973-1990 and also to present a new complexity the issue in hand through the examination of a new measure of exchange rate volatility [8].

ANALYSIS AND RESULTS

During this period, an important role was played by the BRICS countries have several similar features: They are developing countries with relevant global economic performance and high potential, systemic importance for the world economy and able to exert influence on the governance of the global economy [9].

Table 1.

Classification of exchange rate arrangements of the countries under concern

Year/Country	Brazil	Russia	India	China	South Africa
1990	14	-	7	12	15
1991	14	-	7	12	15
1992	14	14	4	12	15
1993	14	14	4	8	15
1994	14	14	4	4	15

1995	6	14	4	4	13
1996	6	14	7	4	13
1997	6	15	7	4	13
1998	6	15	7	4	13
1999	14	14	7	4	13
2000	12	8	7	4	13
2001	12	8	7	4	13
2002	12	8	7	4	13
2003	13	8	7	4	13
2004	13	8	7	4	13
2005	13	8	7	4	13
2006	13	8	8	11	13
2007	13	8	8	11	13
2008	12	8	8	11	13
2009	12	8	8	4	13
2010	12	8	8	4	13
2011	12	8	12	4	13
2012	12	8	12	4	13
2013	12	8	12	4	13
2014	12	8	12	4	13
2015	12	12	12	4	13
2016	12	13	12	4	13
2017	12	13	12	4	13

Note: 1- No separate legal tender or currency union; 2-Pre announced peg or currency board arrangement; 3-Pre announced horizontal band that is narrower than or equal to +/-2%; 4-De facto peg; 5-Pre announced crawling peg; de facto moving band narrower than or equal to +/-1%; 6-Pre announced crawling band that is narrower than or equal to +/-2% or de facto horizontal band that is narrower than or equal to +/-2%; 7-De facto crawling peg; 8-De facto crawling band that is narrower than or equal to +/-2%; 9-Pre announced crawling band that is wider than or equal to +/-2%; 10-De facto crawling band that is narrower than or equal to +/-5%; 11-Moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation over time); 12-De facto moving band +/-5%/ Floating; 13-Freely floating; 14-Freely falling; 15-Dual market in which parallel market data is missing. The data for the period 1990-2010 were taken from Ilzetzki et al. (2017) fine classification codes can be obtained from http://personal.lse.ac.uk/ilzetzki/IRRBack.htm, while the data for the period 2011-2017 were collected from IMF's database of classification of exchange rate arrangements and monetary policy frameworks.

The Global economic leadership is progressively shifting from the G7 to the BRICS, the popular symbol use to refer to Brazil, Russia, India, China and South Africa. Indeed, China passed Japan in 2010 to become the second largest economy while Brazil just overtook the United Kingdom [10]. The BRICS are first characterized by an astonishing economic growth, from 5% to a two-digit annual growth, depending on the countries. Together, the BRICS represent 30% of the global economic growth, 40% of the world's population and 25% of the global land mass [11]. The BRICS countries would account for over half the size of the G6 economies (France, West Germany, Italy, Japan, the UK and the US) and in less than 40 years, the BRICS would be larger than the G6 in the USD terms [12].

Moreover, increased globalization has meant that BRICS has become an important source of global growth and political influence. BRICS economies have grown rapidly with their share of global GDP rising from 11 per cent in 1990 to almost 30 per cent in 2014. BRICS account for over 40 per cent of the world

population, hold over US$4 trillion in reserves and account for over 17 per cent of global trade. In addition, the exports from BRICS to developed markets and investments into their respective economies have declined, while the collective contribution to global growth has fallen from a peak of nearly 50 per cent in 2013 to around 36 per cent in 2015. Real GDP growth of BRICS, which was over 8 percent in 2010 declined to just over 4 per cent in 2015 [13].

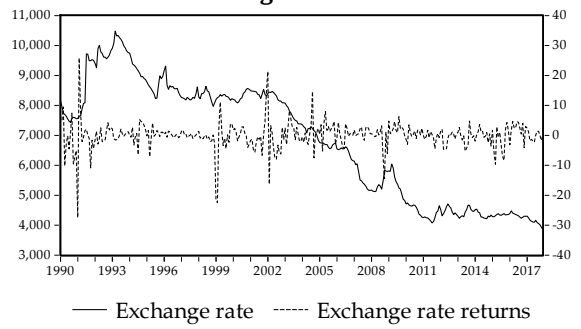
In addition, the local currencies of BRICS, with the exception of China, have experienced varied levels of volatility following the onset of the global economic crisis. However, there have been three particular challenges confronting the global economy and also the BRICS countries.

First, China's growth transition and the rebalancing of its economy from industry to services, from exports to domestic markets, and from investment to consumption. In the short run, this will lead to slower growth with spillover effects through trade and lower demand for commodities. Global trade, which fell to 20 per cent below its pre-crisis trend, was driven by sluggish growth in advanced economies, and the maturation of global value chains which has further reduced the elasticity of trade flows to economic activity and exchange rate changes. Furthermore, higher capital requirements and tightened financial regulations have reduced banks' willingness to extend trade finance, and the pace of trade liberalization slowed.

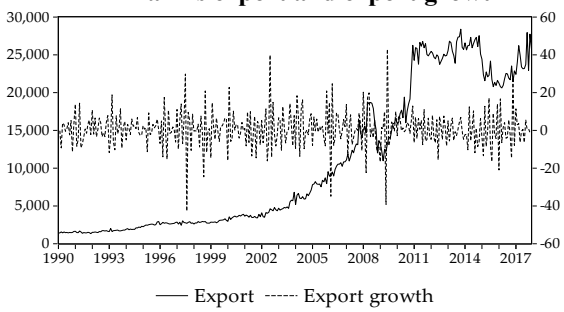
Second, a declining commodity price has placed many commodity exporting emerging economies under severe stress with very large currency depreciation in some cases and has set back growth in commodity exporting BRICS.

Third, asynchronous monetary policies have contributed to an appreciation of the U.S. dollar, putting considerable strain on emerging market currencies.

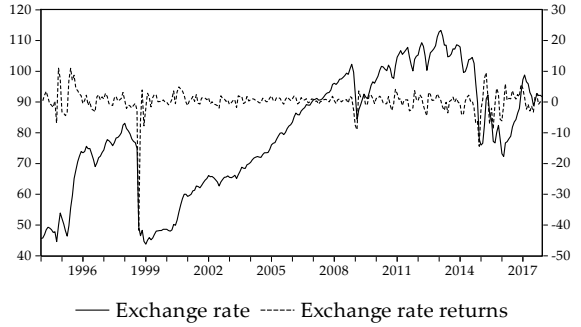
Brazil's exchange rate and its returns



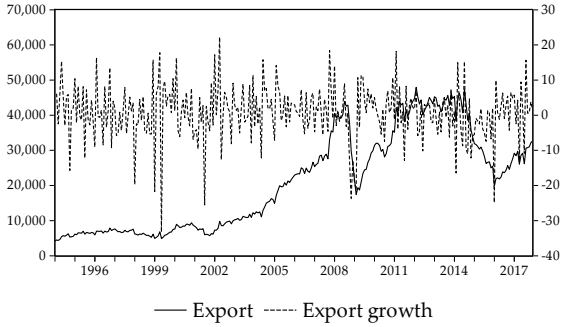
Brazil's export and export growth



Russia's exchange rate and its returns



Russia's export and export growth



India's exchange rate and its returns

India's export and export growth

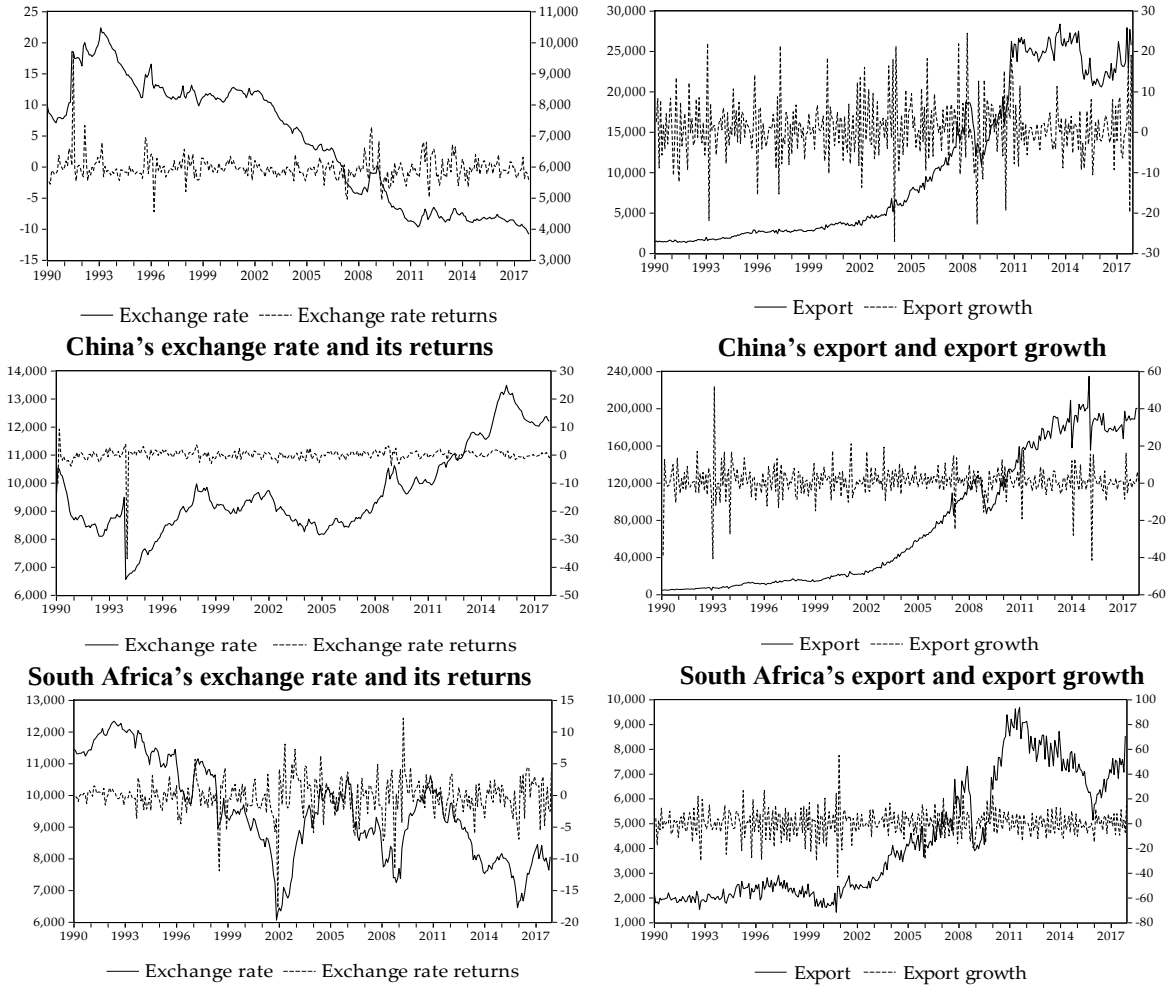


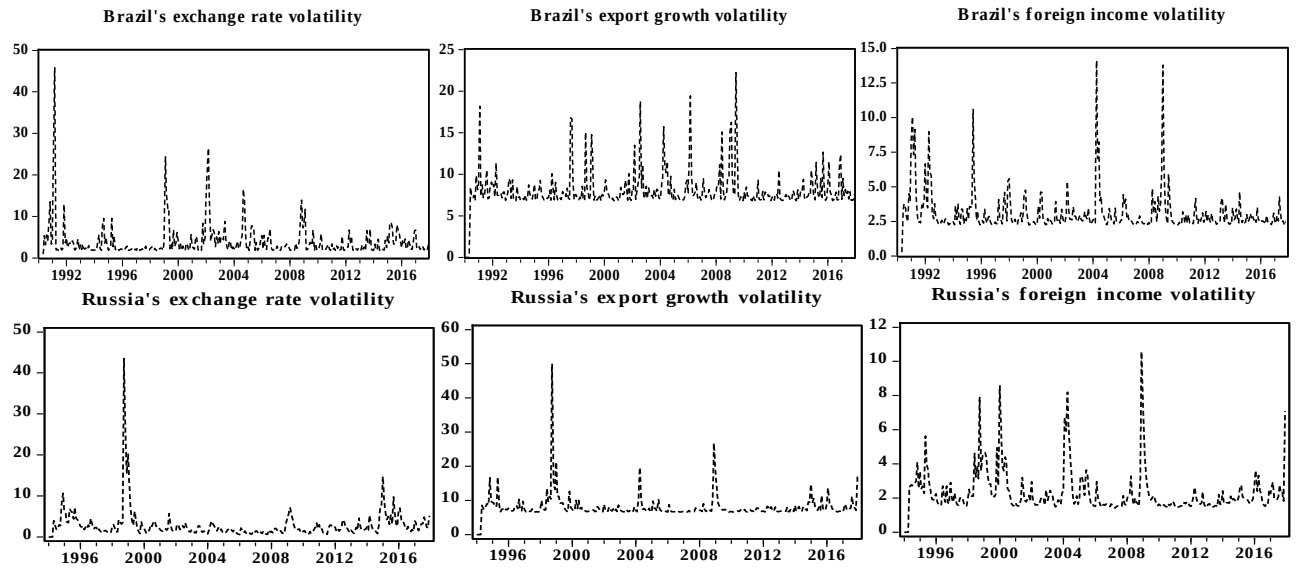
Figure 1. The data and logarithmic changes of the series for the sample periods.

Figure 1 depicts graphical illustrations of seasonally adjusted monthly time series and logarithmic transformed data of the real effective exchange rate and export growth of the BRICS countries. As a plotted, the exchange rate returns of Brazil is highly volatile for the sample period, and a structural break is also ensured in 1990-1991, 1998, 2001-2002, 2004, whereas in Russia and China economies the exchange rate returns exhibit relatively high volatility for the sample periods of 1993-1994, 1997-1998, 2008–2012, and 2014-2015. Indeed, India and South Africa's economies exchange rate returns highly volatile for the following sample periods of 1991-1992, 1997-1998, 2001-2002 and 2007-2013, 2015-2016. There is a high possibility that these volatile sample periods are relatively associated with the recent decade's economic and financial downturns.

It should be noted that, the extensive debate on fixed versus flexible exchange rates started after the demise of Bretton Woods's system. Opponents of floating exchange rates argue that floating exchange rates may deter trade flows introducing exchange rate volatility. On the other hand, proponents perceive that flexible exchange rate system can insulate the domestic economy from foreign shocks. Therefore, the policy decisions regarding exchange rate regimes and other exchange rate policies mainly depend on the determining the true relationship between exchange rate risk and export relationship.

Considering two aspects: first, a main source of risk seems to be originated from exchange rate fluctuations; and second, a foreign trade has been becoming more significant, an effect of exchange rate risk on export should be assessed in BRICS countries. It is important to emphasize that the exchange rate fluctuations are not the only source of countries under concern. In should be noted that, we find out more about the study, Figure 1 illustrates visual inspections that Brazil produced a strong performance in exchange rate return volatility dynamics and that the conditional standard deviation was highly volatile for the first half of 1990's, reaching the highest level in 1991, then again collapsed over time from around 50 to slightly above its original level. Also, it should be noted that Brazil's exchange rate was fluctuating significantly for the period for 1999, 2002, 2004-2005 and 2009's, respectively. The uncertainty performances of Brazil's export and foreign income growth series display exceedingly frequent fluctuations over the sample period, including the 1991, 1992 and 1997-1999 middle volatiles, and the highest volatiles are between 2008 and 2009's. After the Brazilian currency crisis in January 1999, Brazil adopted a new economic policy based on the following guides: floating exchange rate regime, inflation targeting regime and the generation of primary fiscal surpluses, that has resulted in interest rates lower than the former period (1995-1998) but still high and volatile exchange rates [14].

Likewise, Russia and India's economies also exhibit highly volatile performances in exchange rate returns, but their estimated standard deviations are quite low (below 50 percent for Russia and around 17 percent for India) compared to Brazil's exchange rate volatility for the whole sample period, except for during the 1999 and 2014 fiscal years in Russia and during the 1992, 1996 and 2009 fiscal years in India. Similar observations have also smarted in exchange rate volatility and export growth uncertainty performances of China and South Africa economies.



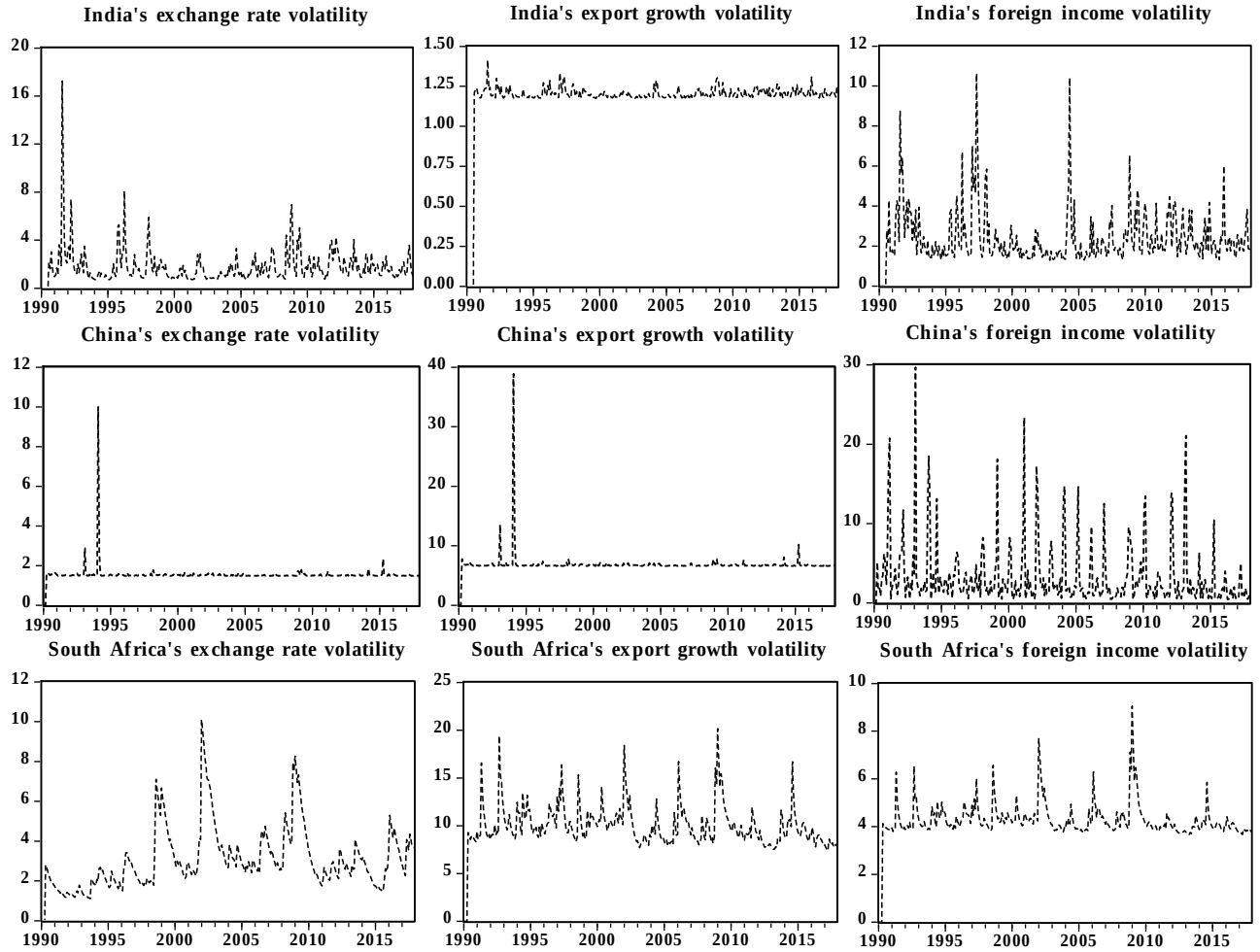


Figure 2. Estimated conditional variances of growth for the sample periods.

Initially, China's exchange rate volatility and export growth trend gradually increased and grasped it's the highest level (around 10 percent for exchange rate and 40 percent for export growth) in 1994; after, sudden and sharp declines were routine, and this steady decrease is enduring at around 1.8 percent for exchange rate and 8 percent for export growth until now. In the case of South Africa's economy, the real exchange rate volatility and export performances of its real exchange rate returns and export growth are more abnormal compared to the other BRICS countries. South Africa's exchange rate risk and exports growth uncertainty consequently, its impact on the economy for the sample periods, 1992-1993, 1998, 2002 and 2009's, respectively.

Moreover, the BRICS have contributed up to 60% of the trade between low-income countries. As the bulk of this trade is done in USD, the countries under concern have accumulated dollar reserves such that today, these countries hold 40% of the World's currency reserves [11].

The USD has lost some of its leadership as a stable and strong currency, particularly now with the seemingly every increasing US national debt. This USD instability is an issue of concern for the leaders of the BRICS who have already proposed a move away from the use of the USD as vehicle currency.

Importantly, a current major monetary issue in emerging markets of BRICS countries is whether these countries should trade using their own currency or not? This study provides some insights into that problem only from the perspective of exchange rate risk effect on exports. Other dimensions of the problem like political, social and others are beyond the scope of the study. There have been many theoretical arguments that the currency union or using own currency is beneficial for participating countries. The literature documents several benefits of joining the currency union or using own currencies. They are the lower transaction costs, improved price stability and increased price transparency. In addtition, a further advantage for countries to introduce their own currency is that it might eliminate exchange rate risk. Most likely, they would use their local currencies in bilateral trade.

CONCLUSION

In conclusion, it is worth noting that there are several reasons to move away from the use of the USD in BRICS countries. Firstly, it would allow BRICS to diversify their foreign reserves as a way of managing the risk. Secondly, if the BRICS use their national currency to trade and they experience a bright future as predicted, their currencies may become global. Thirdly, it is believed that the use of BRICS currencies would decrease transaction costs compared to the USD. Fourth, this would also allow the BRICS to have a greater political power in international negotiations [15].

In sum up, and much more hypothetically, by using their national currency, the BRICS may lay the foundation for a monetary union and the creation of a potential "Basket Currency."

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