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Big Mac vs. Wiggle Room: A Comparative Study of Two Unconventional Indexes

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List of Abbreviations:

BMI	Big Mac Index
BRIC	Brazil, Russia, India, China
CEO	Chief Executive Officer
ECB	European Central Bank
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IMF	International Monetary Funds
PPP	Purchasing Power Parity
UK	United Kindom
UN	United Nations
USA	United States of America
WRI	Wiggle Room Index

1. Abstract

The attempt of this research paper is to have a closer look at the world of unconventional indexes. In particular, its objective is to offer an analysis of two such indexes, the well-established Big Mac Index and the new and innovative Wiggle Room Index, both developed by the British-based magazine *The Economist*. Possible ways of applications of the indexes will be addressed and evaluated just like their strong and weak points. As a framing, a global economic overview and a brief description of *The Economist* is provided. Furthermore, a sound comparison of the indexes is offered along with a conclusion resuming the investigation carried out in this paper.

El presente trabajo pretende dar una visión profunda del mundo de índices no convencionales. Particularmente, su objetivo es ofrecer un análisis sobre dos de estos índices, el ya consolidado *Big Mac Index* y el nuevo e innovador *Wiggle Room Index*, ambos elaborados por la revista británica *The Economist*. Las posibilidades de aplicar estos índices son tratadas y evaluadas así como sus puntos fuertes y débiles. Como contexto, se aporta una visión conjunta de la economía global y una breve descripción de *The Economist* y su sentido como fuente económica para nuestro tiempo. Además, se ofrece una sólida comparación de los índices junto con una conclusión que resume la investigación llevada a cabo.

2. Introduction

Ever since the first publication of the so called Big Mac Index in 1986, *The Economist*, a prestigious British weekly newsmagazine, has been very well known for the creation of rather simple, but yet meaningful and sound indexes. The purpose of this paper is to have a closer look at two of those indexes by means of comparing them. My choice fell on the Big Mac Index (henceforth abbreviated BMI) itself, and the rather recent and new Wiggle Room Index (henceforth abbreviated WRI). The initial plan to compare three European economies, namely Spain, the Netherlands and Germany through the BMI and the WRI was an idea that had to be rejected since the BMI only displays data about the European Currency Union as a whole. Moreover, the WRI is only applicable for emerging countries. Upon reflection on that, the present study takes a slightly different approach and the decision was thus to have a closer look at the indexes themselves. Rarely can a deep analysis of indexes be found; countries and different economic systems seem to be a prevailing topic for studies. The two above-mentioned indexes, hence, shall be analysed and compared with regard to their applications and usages. An important weight, though, lies on their disadvantages and shortcomings. I will seek to demonstrate that the indexes differ in the majority of respects, but also share a few.

As one will see later, there are other unconventional indexes that could be used for a study like this one, but the BMI can be considered as one of the best-known ones and the WRI as one of the most innovative ones. Moreover, within the scope of this study, I decided to only make use of those two indexes rather than including several ones. Yet, a brief overview on some of them will be provided.

Nowadays, in a very closely intertwined world economy, things tend to be complicated and not always easily comprehensible. For that reason, we recently find new methods and trends trying to explain high-complex structures in a rather simple way, mainly for people that are not so much into business issues, but also for experts and people who want to have a different view on these topics. Therefore, by means of explaining and critically analysing the aforementioned indexes, I will try to figure out up to what extend these indexes are usable and trustworthy for carrying out reliable research and if investors can reckon on them. Thus, my aim is to work out their ways of applications and in addition their possible disadvantages.

The focus of this primarily descriptive work lies undoubtedly on the indexes. Nonetheless, I consider it indispensable to firstly give a solid overview on what is going on in the world economy in 2012. As to that, I shall proceed stepwise. Therefore, the structure of this paper will be as follows: First of all, I shall give a brief review about the state of affairs concerning the world economy in 2012. I will describe how things are respecting the current situation all over the world. A focus will not solely lie on Europe, although it might be standing to reason. Au contraire, emerging economies are incorporated as well since the WRI refers exclusively to them. We additionally will have a look at topics that currently keep the economies in suspense. In a next step, *The Economist* will be introduced since it is necessary for the reader to know where the main information is retrieved from before I come to the main part of this paper consisting of an outline of unconventional indexes and the two indexes in detail. Here, I will show in what way the indexes can be applied and what their intentions are. Graphics shall widely support their description. Aside from that, a focus shall lie on possible drawbacks and weak points that the indexes have. The final step consists of a sound comparison of differences and similarities of the BMI and the WRI. Finally, a short recap of my findings together with ideas for future research shall conclude the paper.

3. Global Economic Overview

To begin with, in a study of this scope it can certainly be considered fruitful to provide first of all an overview on what is actually going on in the world economy of 2012 in order to get a better understanding of the situation in its entirety. This part shall be regarded as a complement of the main part, taking into account that the indexes introduced later on have a worldwide scope and thus consider a variety of countries from every single continent.

The idea of giving an in-depth description of every single country appearing in the indexes has been discarded taking into account that the focus shall undoubtedly lie on the indexes itself. In preference to doing that, the decision made was to provide a short but yet detailed overview on the state of affairs, but with a slightly higher focus on countries or zones, respectively, that seem to be dominating world trade activities, and in due consideration of the growing interdependence of the countries' economies. The reason for that lies obviously in the fact that some highly industrialized zones, mainly Europe and North America, are having a more important and considerably bigger role in world trade whilst African countries for instance clearly lack behind, only having a very low global trade share.

Since it is not easy to find literature on the very recent situation, I made use of economic research institutes' publications and journals published by economic institutions such as the International Monetary Fund (IMF) and the *Deutsche Bundesbank*.

To locate the present situation within a more general context, I would like to dedicate a few words to the general economic behaviour that has taken place in the new millennium. Within the last decade, the world economy has seen various changes and novelties in the course of an increasingly rapid intertwining and globalization process. The rise of emerging countries such as China and India belongs to the most outstanding happenings since their new strength has several consequences, partly also the enormous increase in energy prices. Yet, the USA remain the economic leader of the world, but its position seems to be in danger in the near future. The terror attacks from September 11th contributed to an early but light recession; and turmoil on the stock exchange markets became commonplace, with its climax being the bursting of the dotcom bubble in 2000. Two wars on Afghanistan and Iraq is what the world has seen and what is still costing the USA billions of dollars. Financial speculation with high-risk bonds and finally the bursting of the US housing bubble and its repercussions

led to most probably the biggest financial crisis since the Great Depression of the 1930s. One of the most anticipated changes was the introduction of the common currency, the euro, in many European Union states at the beginning of the decade. In the meantime, the euro has become the second most-traded and thus most important currency in the world. However, nowadays there are more doubts about the euro than ever before. Another remarkable fact is the importance of the internet, which has taken a development that was to be expected, and its significance keeps growing in every respect.

As regards the current state of the economic world, it can clearly be said that there are some major themes that are right now talked about. This is mainly due to the financial crisis of 2008/2009, whose repercussions are still causing problems for a lot of developed countries and thus also for the rest of the heavily intertwined world economy. According to de Freytas-Tamura, Germany, China and Brazil were the driving economies that kept the world economy going in the aftermath of the crisis. Yet, one can say that in the course of 2012 growth is expected to remain below potential all over the world and that a certain enlivenment of the world economy remains fragile. An outlook in terms of growth is provided by the following figure.



Figure 1: Outlook for world gross product. World Economic Situation and Prospects. United Nations. 2012. Web. 05. Sep. 2012.
 < http://www.un.org/en/development/desa/policy/wesp/wesp_current/2012wesp_es_en.pdf>.

By far the biggest issue to solve remains the euro crisis and the question of how to provide stability for the heavily indebted member states, mainly Greece. One can easily say that the euro zone debt crisis remains the most dangerous threat to the world economy these days and that an escalation of the crisis can have far-reaching repercussions (cf. World Economic Situation and Prospects, Update as of mid-2012: 11). Another factor that always plays a role is the condition of the world's largest economy, the United States of America. Moreover, the development of the oil price in the near future and developments in the Asian area as well as that of the BRIC (Brazil, Russia, India and China) states will determine world economic trade. In the following, we shall have a brief look at all those aforementioned influences and we will decide in how far the world is recovering from the recent crises and what factors still display a risk for the economies.

Beginning with the current situation in Europe, we can say that there is a “tale of two halves” (de Freytas-Tamura) consisting of the relatively stable north and the suffering south. While northern states are affected to a lesser extent by the crisis, the main focus lies on how

the situation in Ireland and the south develops. Here, we mainly have to mention Greece, Spain, Portugal and since very recently also Italy. The case of Greece, yet, is a special one because it is the most serious and alarming of all and, beyond that, opinions on how to solve the euro zone crisis differ a lot (cf. de Freytas-Tamura). Up to the present day, Greece is still creating a lot of uncertainty on the financial markets and the widespread estimation is that Greece leaving the euro zone is supposed to be a horrible scenario with far-reaching consequences. Yet, right now that possibility is an option that has been brought into play by the German vice-chancellor Philipp Rösler; true to the motto that it is better to make a painful break than draw out the agony (“Rösler erwartet baldigen Euro-Austritt Athens“).

Also Spain is in serious trouble, and several austerity measures and spending cuts are required to bring the country back on a healthy path, but what is basically happening is the squeezing out of an “already squeezed out economy” (de Freytas-Tamura). For that reason, the developments in Spain are being observed worldwide with a high interest. Yet, austerity measures seem to be the prevailing solution for the time being when it comes to strengthen the competitiveness of the southern European countries, but many regard it as a vicious circle since austerity is actually deterring any growth. Italy is not in an emergency situation comparable to that of Spain and Greece, but still is facing severe problems and it is obvious that a country of the size of Italy cannot be supported financially by the EU bailout funds.

The only country that remained almost unaffected by what is going on is the so called European engine Germany. Unemployment is low and Germany’s economy is the most stable one. Therefore, its role in solving the euro zone crisis is a decisive one and the eyes are on what is happening in Europe’s strongest economy. However, even “the most solid ship can capsize in a rough thunderstorm” (de Freytas-Tamura) and Germany has to take its decisions with care. The European Central Bank (ECB) also has a crucial role since the measures it takes are important for the future developments. Lately discussed steps are buying government bonds from indebted states and lowering the interest rate even further. However, these measures are looked at with scepticism. In the north there is a lack of trust in southern states, which also makes decision taking rather complicated. Nevertheless, the ECB very recently promised to save the euro, which is an ambitious promise that is actually primarily supposed to bring some stability back to the financial markets. The main aims according to the German government should be to achieve a reduction in government debt, a stabilization

of the financial markets and a strengthening in competitiveness (Jahreswirtschaftsbericht 2012: 18).

When having a look at the states belonging to the European Union but not to the common currency union, we can say that the United Kingdom (UK) is neither very stable nor is it in deep trouble. However, in the course of 2012, British economy has shown signs of weakness (cf. Cornellsen and Doeswijk 3) and is facing an unpredictable future like so many other countries (Stewart 24). Therefore, the UK performance in 2012 is expected to be somewhat mediocre.

The new member states of the European Union that do not belong to the euro either are nevertheless suffering from the problems that their neighbours have to deal with. This can be shown in a rather low growth, a slow recovery towards pre-crisis level, weak labour markets, a big indebtedness and thus increasing fiscal tightening (cf. World Economic Situation and Prospects, Update as of mid-2012: 8). In fact, most of south-eastern European countries are experiencing economic stagnation. Croatia even is facing a possible recession phase and the outlook for 2013 is rather modest (cf. World Economic Situation and Prospects, Update as of mid-2012: 7-8).

Looking at the very east of Europe, we mainly focus on some former Soviet states, now united in the Commonwealth of Independent States, and its by far strongest member Russia. Just like Kazakhstan, Russia is mainly profiting from energy exports and an elevated oil and gas price; something that keeps their economies going comparatively well (cf. World Economic Situation and Prospects, Update as of mid-2012: 7). However, Russia's economy seems to depend quite a lot on the oil exports, which make up more than 60 % of all exports (cf. Kalish, "Russia:" 34). A decline in oil prices can have severe consequences, but since the energy prices are predicted to remain relatively high, Russia has a stable foundation for the future. Also, political uncertainty has been diminished after the presidential elections of March 2012 and the victory of Vladimir Putin.

Summing up, the situation in Europe will remain intense and difficult and the outlook for 2013 is rather sombre due to ongoing fiscal tightening, a lack of confidence, high energy prices, deleveraging and austerity. Yet, moderate growth prospects for the year 2013 can be expected should the crisis not worsen and Greece and Spain be able to turn the corner. In

order for that to happen, the primary tasks will be to restructure Greek private debt and to reform the Spanish banking sector.

Unemployment is another big issue, not only in Europe. On account of the crisis it is a worldwide problem. Also in the USA, whose unemployment rate currently lies beyond the 8 % border. This is a sign for the states' "persistent weakness in the labour market" (de Freytas-Tamura). The current development on the US job market is deceptive because there is a trend of job growth only in lower-paying jobs and temporary jobs. A further big and already permanent problem of the USA is their total national debt, which amounts to almost 100 % of GDP. What is even more the problem here is that the amount of total debt "is being accumulated faster than GDP is growing" (Steidtmann 16). Regardless of that, GDP is expected to grow by 2 % in 2012, which is the best value for all of the developed economies (cf. de Freytas-Tamura) so that there is some careful optimism in the economic world. In spite of that, the uncertainties are clearly prevailing. This is mainly due to the upcoming presidential elections in November and thus a certain unsafeness as regards the fiscal policy outlook (cf. World Economic Situation and Prospects, Update as of mid-2012: 6). However, the private housing market, a very important one in the USA, "is showing signs of strength" (Cornellisen and Doeswijk 2) but nevertheless remains a child of sorrow. There are also improvements noticeable in the credit market and in consumptive and inventory investment.

In spite of the currently decent economic situation, Kalish does not see a sustainable recovery (cf. "Global Economic Outlook Q2 2012" 2). On the contrary, the oil price development and further geopolitical uncertainties and risks may pull the USA into another downturn (cf. Kalish, "Global Economic Outlook Q2 2012" 2). Steidtmann even asks: "Why the euphoria?"(12). But opinions on the states' future seem to differ; not only the *Deutsche Bundesbank* sees a solid expansion and growth potential, hoping that there might be a certain dynamic from the US economy that may spill over to the rest of the world (cf. "Robuste deutsche Wirtschaft in schwierigem europäischen Umfeld" 6).

It is also vital to have a look at the developments in the Asian-Pacific market, mainly at China, Japan and India, which are due to their size and strength the dominating economies there. China, "the Asian powerhouse" (de Freytas-Tamura), has taken a remarkable development within the last years, displaying an annual growth potential unseen before. Many experts feared a possible overheating of China's economy. Yet, its economy was also affected

by the financial crisis and is therefore facing slower annual growth in the future, also due to a decline in exports. Cornellisen and Doeswijk nonetheless expect a hard landing of the giant to be unlikely (cf. 4). Kalish also sees a “soft landing now, [but] uncertainty later” (“China” 20). Even so, China is generally seen to have a lot of scope “to implement expansionary policy” (Cornellisen and Doeswijk 2). The main issue that Asia’s biggest economy has to solve is the question of how to make growth sustainable and how to keep up with the former years, also taking into account its growing dependence on countries abroad (cf. Kalish, “China” 20-21).

India is also performing weaker as compared to the pre-crisis period. The annual growth rate in 2012 is predicted to be 5.3 %, which is the slowest in nine years (cf. de Freytas-Tamura). Moreover, there is a decline in investments and a trade deficit caused by a weak demand from western markets (cf. Ramalingam 28). The biggest difficulty that India currently has to come to terms with is, yet, a rise in consumer prices and thus a rather big inflation of 7.5 % (cf. Cornellisen and Doeswijk 4), which strictly speaking is the highest inflation of all BRIC nations. Furthermore, India faces an account and budget deficit, which gives the government very low wiggle room, to speak in *Economist* terms. The central bank is taking measures to fight those problems, but encounters a dilemma: The mixture of high inflation and declining growth (cf. Ramalingam 28; de Freytas-Tamura). The question will be how India can control inflation and maintain growth at the same time.

According to de Freytas-Tamura, Thailand and the Philippines are performing surprisingly well because labour costs are low and the countries are therefore luring a lot of foreign companies and thus foreign investment (cf. de Freytas-Tamura). Also Indonesia is unlocking its potential, having grown faster than ever before in 2011 (cf. Burli 36). Indonesia belongs to the most populated countries in the world and it is generally seen to be one of the promising future markets. Some characteristics that distinguish its economy are a low debt profile, a small budget deficit, fiscal prudence and economic growth (cf. Burli 38). Nevertheless, a weak global macroeconomic environment and a lack of sufficiently good infrastructure are in a certain way slowing down the development.

Japan’s economy can be regarded as somewhat stable after the earthquake, tsunami and the thus following nuclear crisis in Fukushima, from which Japan is still recuperating. Its economic growth for 2012 is expected to be 2.2 % according to the Bank of Japan, mainly due to a “reconstruction-related demand” (de Freytas-Tamura), government-spending and

investments. Yet, Japan is slipping into a trade and budget deficit in spite of being one of the world top exporters. This is caused by a relatively strong Yen and the enormous rise in fuel imports as aftermath of the nuclear crisis (cf. World Economic Situation and Prospects, Update as of mid-2012: 6). Its debt is said to be higher than 200 % of GDP (cf. Kalish, “Japan” 30; Cornelissen and Doeswijk 3). Kalish, though, does not consider Japan’s government debt to be a big problem and is carefully and moderately optimistic as regards the future developments there (cf. “Japan” 30).

Australia, one of the strongest countries in the Pacific region, seems to be unaffected by the economic turmoil and is performing comparatively well. In the course of 2012 its economy has grown faster than expected and also for the future the outlook is positive (cf. “Australia’s economy grows by more than expected”). Nevertheless, there is a growing dependence on developments in China and should China’s economy show signs of weakness then this might affect Australia as well (cf. Cornelissen and Doeswijk 4).

When throwing the spotlight on Latin America, we firstly have to mention the continent’s biggest and overwhelming economy Brazil. Within the last couple of years, Brazil has taken a development comparable to that of China, although not as rapidly growing as Asia’s flagship. Yet, a lot of government spending and successful exports due to an activist policy have made the country rise to the world’s top economies. Regardless of that, the aftermaths of the financial crisis are also still noticeable and recently Brazil has been the worst performer among the BRIC states (cf. de Freytas-Tamura). Furthermore, Brazil is facing a high inflation, declining exports and therefore an account deficit (cf. Kalish, “Brazil” 32). Lately there has been no growth, but the outlook is to some degree positive and for this year a growth of 2 % is expected (cf. de Freytas-Tamura). For Argentina, the outlook is not as positive as for Brazil. After having grown very fast in recent years, the UN expects a severe slowdown for 2012 with a decrease in agricultural production and domestic demand (cf. World Economic Situation and Prospects, Update as of mid-2012: 10). As regards Mexico, the country’s economy looks relatively stable. In 2011, exports have risen, but in 2012 economic growth is expected to slow to 3.4 % (cf. World Economic Situation and Prospects, Update as of mid-2012: 10).

Africa should not go unmentioned here, although its role in world trade remains only a marginal one. Still, there is potential on the African markets, but geopolitical risks and

uncertainties have always been present and keep investors away. On top of that, infrastructural deficits, mainly in regard to energy generation and refining capacity (cf. World Economic Situation and Prospects, Update as of mid-2012: 8), are braking bigger growth and development possibilities. However, the UN also identifies some strengths, which can be summarized like that: a strong service sector (including Nigeria and Ghana), a strengthening in domestic consumption demand, a growing public and private investment in the natural resource sector and a higher production capacity (cf. World Economic Situation and Prospects, Update as of mid-2012: 8). Though, problems remain regrettably high. Amongst them, one finds very high inflation rates mainly in sub-Saharan Africa, especially in Ethiopia, Uganda, Nigeria and Tanzania; and the ever-present possibility of droughts and food-shortages (cf. World Economic Situation and Prospects, Update as of mid-2012: 8), as one could recently see in the Sahel region. Africa's by far biggest economy South Africa is not facing this sort of problems and performs reasonably well, although also affected by the ongoing crisis.

I would now like to turn briefly to some of the common topics that keep the world economy in suspense. These are, amongst others, the oil price and mainly its trend and volatility. Moreover, a global problem remains the high unemployment and underemployment, the so far unsolved euro zone crisis, high governmental debt and the impact that the still struggling developed countries have on the developing countries. One must of course not forget the situation on the financial markets. It is needless to mention here that all those factors in one way or another depend on each other and a worsening of one of them may have serious consequences for the world economy.

The major weaknesses currently prevailing worldwide as identified by the UN are continued deleveraging by banks, firms and households; high unemployment rates, fiscal austerity measures, the fragile banking sector, the weak aggregate demand, policy paralysis and bank exposure to sovereign debts (cf. World Economic Situation and Prospects, Update as of mid-2012: 1; World Economic Situation and Prospects 2012: 9). Moreover, Cornellisen and Doeswijk ad “the ongoing euro crisis and lack of political decisiveness” (4) as the main challenges and problems that have to be tackled in the time to come.

Casting a glance at the oil price, it is impossible to predict which way it will go. This is mainly due to geopolitical uncertainties such as the developments in Syria and Iran. In

2012, the Brent oil price increased further than expected due to bans that the EU and USA imposed on oil imports from the aforementioned countries Syria and Iran (cf. World Economic Situation and Prospects, Update as of mid-2012: 4). Furthermore, speculation is what keeps the oil price high and what makes it even less predictable.

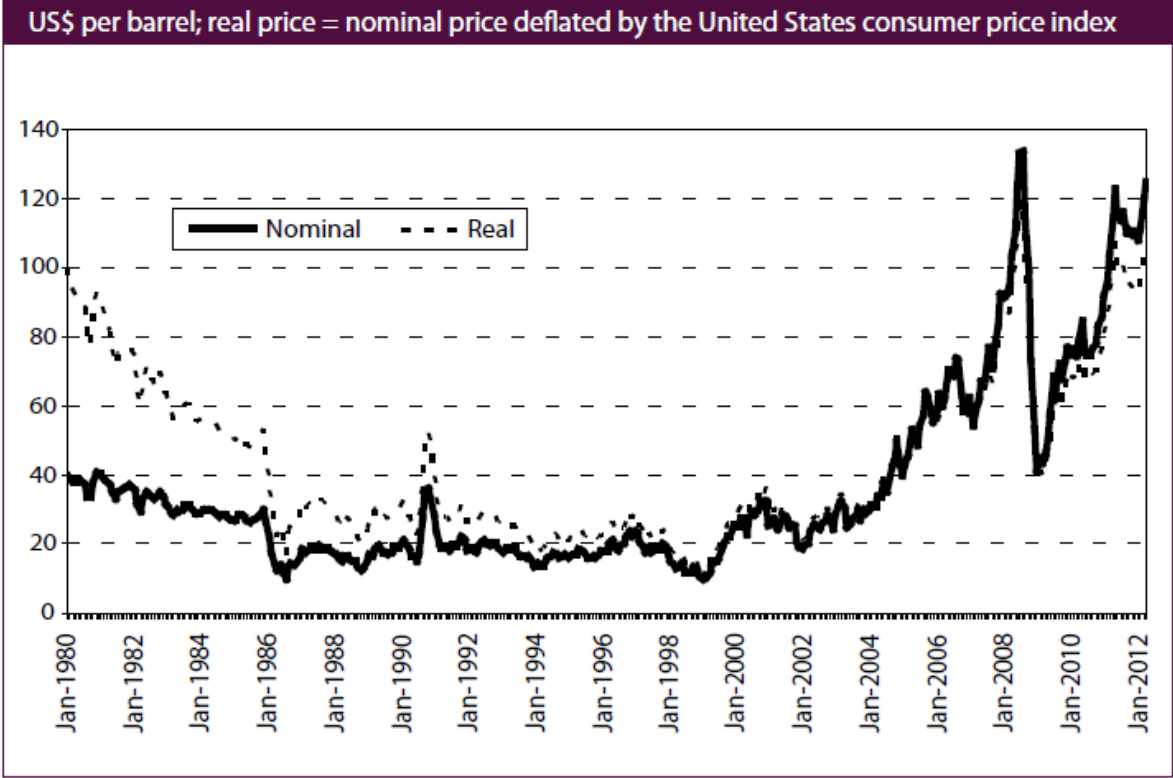


Figure 2: Brent oil price: January 1980–January 2012. World Economic Situation and Prospects, Update as of mid-2012. United Nations. 2012. Web. 05. Sep. 2012. <http://www.un.org/en/development/desa/policy/wesp/wesp_archive/2012wespupdate.pdf>.

In spite of that, the UN says that the forecast is that there will be no further rise in the oil price should geopolitical tensions not increase further (cf. World Economic Situation and Prospects, Update as of mid-2012: 4). Cornellisen and Doeswijk even see a decline in the oil price and the positive side effect of bringing headline inflation down (cf. 1). Anyway, there is undoubtedly a worldwide exposure to and dependence on the oil price development. According to the IMF, an increase by about 50 % would lower the overall global output by 1.25 % (World Economic Outlook, April 2012: XVI).

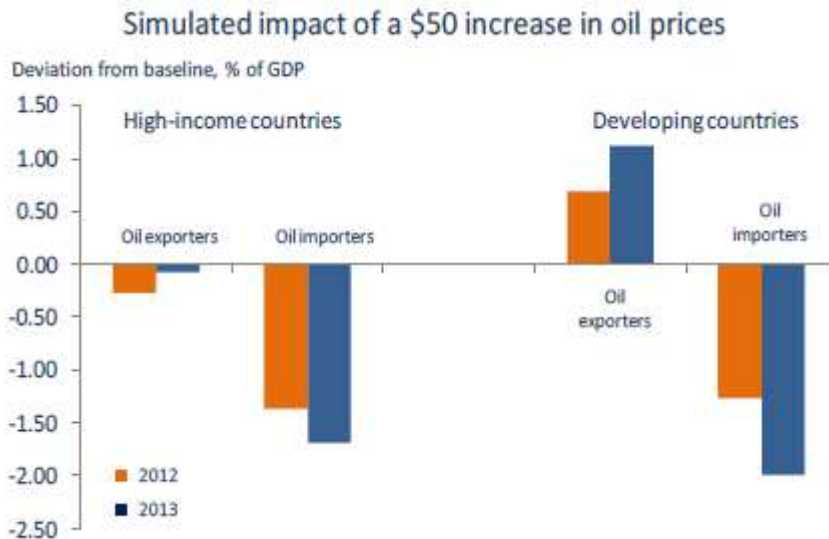


Figure 3: Consequences of an oil price increase on GDP. Global Economic Prospects. The World Bank. 2012. Web. 05. Sep. 2012.
 <http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1322593305595/8287139-1339427993716/GEPJune2012_Full_Report.pdf>.

Another current problem that has to be raised here is the ongoing job crisis. According to the UN, by the end of 2011 48 million jobs were required and the employment-to-population ratios remained below pre-crisis level in basically all major economies apart from China, Germany and Brazil (cf. World Economic Situation and Prospects, Update as of mid-2012: 1). Especially Europe is affected by that problem and in 2012 we are facing a historically high average unemployment rate of 10.9 % within the euro area, with only Germany and Austria performing still quite well with regard to that (cf. World Economic Situation and Prospects, Update as of mid-2012: 3). The situation is yet alarming in the euro zone's most affected crisis countries Spain, Greece, Portugal and Ireland. Concerning youth unemployment, Spain is currently experiencing a historic all-time high with a number that surpasses the 50 % border. This is a development that Spain has to put a stop to, but the question remains: How?

Also, North Africa, Western Asia, Latin America and the Caribbean have to cope with increasing youth unemployment (cf. World Economic Situation and Prospects 2012: 5). Apart from that, long-term unemployment remains one of the severest issues and it increased in many developed countries in the course of the crisis, mainly in the UK, the USA and the debt-distressed European countries (cf. World Economic Situation and Prospects, Update as of mid-2012: 3).

As mentioned already, not only unemployment, but also underemployment is a global problem. Developing economies are facing challenges regarding this, too. By the end of 2011 a high number of countries in South Asia, Western Asia, Africa and Latin America have suffered from large job deficits; but not only that, also vulnerable employment, bad job conditions, low wages and the inexistence of a social safety net are problems in a lot of emerging countries (cf. World Economic Situation and Prospects, Update as of mid-2012: 4).

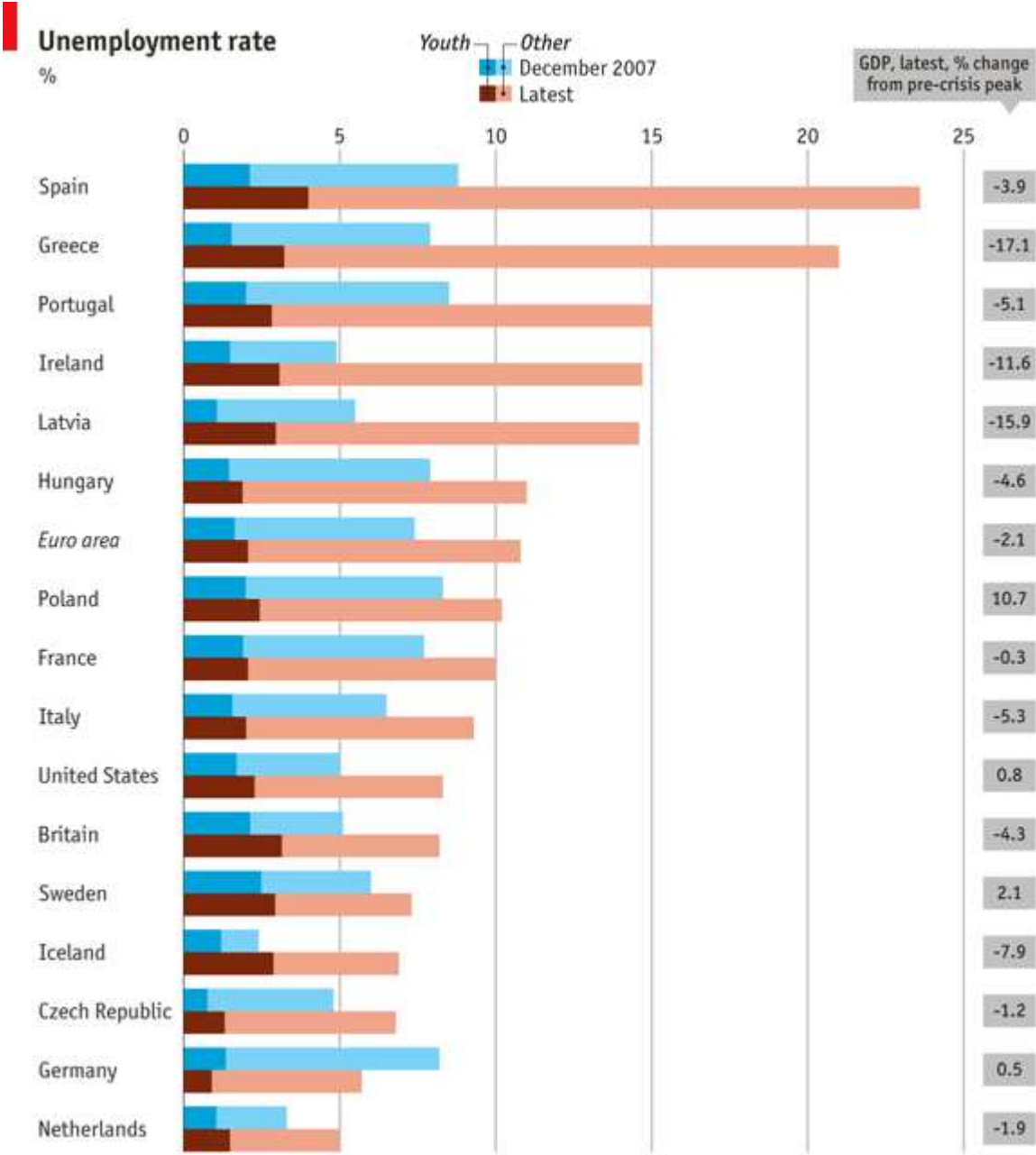


Figure 4: Unemployment before and after the financial crisis. The Economist online. 01.05. 2012. Web. 05. Sep. 2012. <<http://www.economist.com/blogs/graphicdetail/2012/05/daily-chart-0>>.

The financial markets react with sensibility to basically everything that is happening. In spite of gradual up and down movements, the *Deutsche Bundesbank* sees some easing

tendency on the markets but makes everything dependent on how the euro zone crisis develops (cf. "Robuste deutsche Wirtschaft in schwierigem europäischen Umfeld" 6). Regardless of what is happening now, one can without any doubt say that reforms on the financial markets are more than necessary but an agreement on that is more than unlikely.

In view of what is to come later in this paper, it is also important to have a look at the currency markets and global exchange rate stability. Within the last decade there has been a lot of volatility on the exchange markets causing a lot of exchange rate instability (cf. World Economic Situation and Prospects 2012: 11). The dollar found fierce competition with the introduction of the euro but maintained its role as most important reserve currency and also most traded currency in the world. Nevertheless, large fluctuations and a downward pressure on the dollar against most major currencies have taken place since 2002, which makes confidence in the dollar more and more subject to volatility (cf. World Economic Situation and Prospects 2012: 11). However, recently the euro is weakening as well due to the European debt crisis. In 2012, the major currencies have so far traded in relatively narrow ranges (cf. World Economic Situation and Prospects, Update as of mid-2012: 5). A primary issue remains the seemingly government-led undervaluation of the Chinese renminbi. Many experts demand an appreciation of the currency, but China, with good reason, sees a cheap currency as obviously the best way to boost exports.

A further interesting fact is that in recent years, developing countries have caught up a lot and their importance in world trade has risen enormously according to the UN, stating that their share in world trade has gone from 28.5% in 1995 to 41.2 % in 2010 (cf. World Economic Situation and Prospects 2012: 6). Another observation is that developing countries are more resilient to the crisis and seem to recover better and much faster than most of the developed economies; a certain heterogeneity is observable here (cf. World Economic Outlook, April 2012: xiii) so that one may arrive at the view that growth is not evenly distributed between developing countries and the developed world. Also the *Deutsche Bundesbank* sees a higher dynamic in developing countries and simply a continuance in a shift as regards future growth potential (cf. "Robuste deutsche Wirtschaft in schwierigem europäischen Umfeld" 6). Nonetheless, one cannot deny that the stagnation and even contraction of activity in developed economies have a spill-over effect to developing economies and economies in transition through trade and financial relations (cf. World Economic Situation and Prospects, Update as of mid-2012: 15). Consequences are, amongst

others, volatile capital flows, a weakening external demand and thus a notable output growth moderation and lower export growth (cf. World Economic Situation and Prospects, Update as of mid-2012: 1). Also, due to the currently existing volatility of international capital flows and differences in economic growth, developing economies experience both capital inflows and also withdrawals alike by developed countries (cf. World Economic Situation and Prospects, Update as of mid-2012: 5). This is primarily caused by the fact that the more industrialized and developed countries have to devote more financial resources to cope with their own unhealthy conditions.

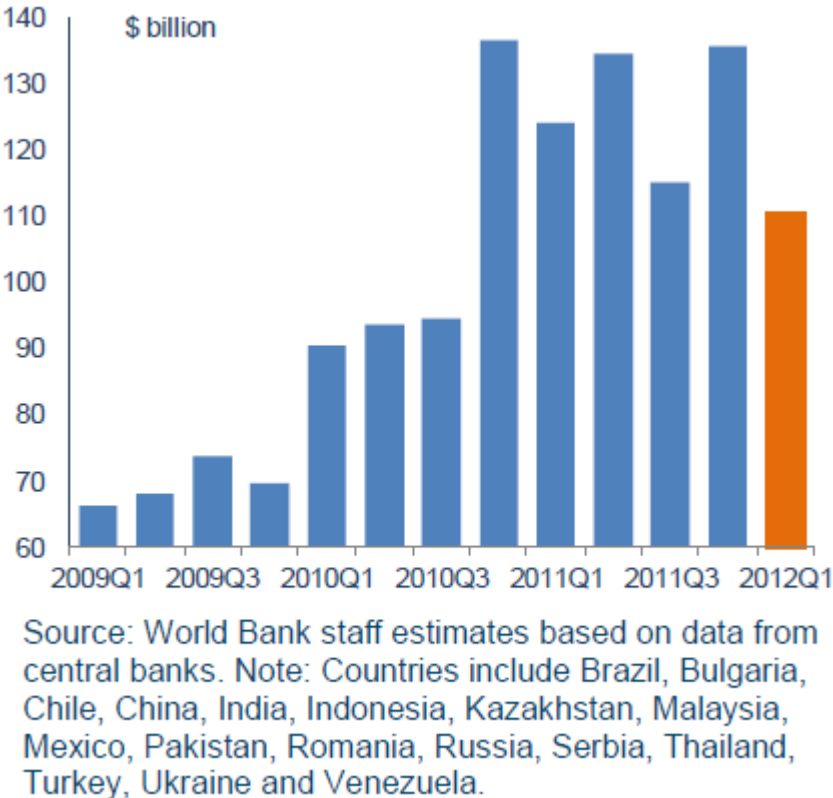


Figure 5: FDI Inflows in selected developing countries. Global Economic Prospects. The World Bank. 2012. Web. 05 Sep. 2012. <http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1322593305595/8287139-1339427993716/GEPJune2012_Full_Report.pdf>.

Yet, as in the case of India, developing and emerging economies are more and more facing difficulties in keeping inflation low, but recently could bring some stability back to their inflation ranges as one can see in the following figure.

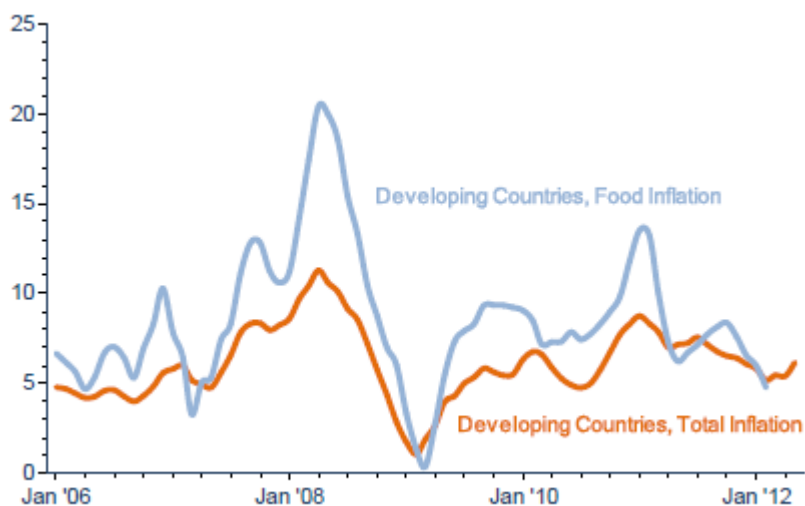


Figure 6: Food and overall inflation in developing countries. Global Economic Prospects. The World Bank. 2012. Web. 05. Sep. 2012.
 <http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1322593305595/8287139-1339427993716/GEPJune2012_Full_Report.pdf>.

To sum it up with the words of the UN, “the developing countries remain vulnerable to downturns in the developed economies” (cf. World Economic Situation and Prospects 2012: 2) since their ties have intensified and their interdependence is gradually growing. Still, there is supposed to be sufficient policy room in developing countries in order to sustain solid growth (cf. World Economic Outlook, April 2012: xiii).

Taking all the aforementioned developments and states of affairs into account, the current picture of the world trade activity can be subsumed perfectly by the World Bank:

The world economy remains fragile, and risks to the downside remain. Renewed deterioration of conditions in Europe, financial flows volatility due to very loose monetary policy in high income countries and the risk of higher oil prices, on account of geo-political tensions and supply disruptions are among the most important of these downside risks that could stall global growth. (Global Economic Prospects 2012: 35)

The following figure sums up some of the aforementioned facts and serves as additional and detailed information in concrete numbers.

	2010	2011	2012e	2013f	2014f
Global Conditions					
World Trade Volume (GNFS)	13.0	6.1	5.3	7.0	7.7
Consumer Prices					
G-7 Countries ^{1,2}	1.2	2.4	1.9	1.8	2.0
United States	1.6	3.1	2.6	2.4	2.5
Commodity Prices (USD terms)					
Non-oil commodities	22.5	20.7	-8.5	-2.2	-3.1
Oil Price (US\$ per barrel) ³	79.0	104.0	106.6	103.0	102.4
Oil price (percent change)	28.0	31.6	2.5	-3.4	-0.6
Manufactures unit export value ⁴	3.3	8.9	0.9	1.2	1.5
Interest Rates					
\$, 6-month (percent)	0.5	0.5	0.7	0.8	1.1
€, 6-month (percent)	1.0	1.6	1.0	1.1	1.4
International capital flows to developing countries (% of GDP)					
Developing countries					
Net private and official inflows	5.8	4.6	3.3	3.6	3.8
Net private inflows (equity + debt)	5.4	4.4	3.1	3.4	3.7
East Asia and Pacific	5.9	4.9	3.3	3.4	3.5
Europe and Central Asia	4.9	4.4	2.6	3.7	3.9
Latin America and Caribbean	6.1	4.8	3.9	3.9	4.0
Middle East and N. Africa	2.3	0.0	1.0	1.7	2.2
South Asia	5.2	3.7	2.8	3.0	3.5
Sub-Saharan Africa	3.6	3.4	2.6	3.3	4.3
Real GDP growth ⁵					
World					
Memo item: World (PPP weights) ⁶	4.1	2.7	2.5	3.0	3.3
High Income	5.1	3.7	3.3	3.9	4.2
OECD Countries	3.0	1.6	1.4	1.9	2.3
Euro Area	2.9	1.4	1.3	1.8	2.2
Japan	1.8	1.6	-0.3	0.7	1.4
United States	4.5	-0.7	2.4	1.5	1.5
United States	3.0	1.7	2.1	2.4	2.8
Non-OECD countries	7.4	4.8	3.6	4.3	4.1
Developing countries	7.4	6.1	5.3	5.9	6.0
East Asia and Pacific	9.7	8.3	7.6	8.1	7.9
China	10.4	9.2	8.2	8.6	8.4
Indonesia	6.2	6.5	6.0	6.5	6.3
Thailand	7.8	0.1	4.3	5.2	5.6
Europe and Central Asia	5.4	5.6	3.3	4.1	4.4
Russia	4.3	4.3	3.8	4.2	4.0
Turkey	9.2	8.5	2.9	4.0	5.0
Romania	-1.6	2.5	1.2	2.8	3.4
Latin America and Caribbean	6.1	4.3	3.5	4.1	4.0
Brazil	7.5	2.7	2.9	4.2	3.9
Mexico	5.5	3.9	3.5	4.0	3.9
Argentina	9.2	8.9	2.2	3.7	4.1
Middle East and N. Africa	3.8	1.0	0.6	2.2	3.4
Egypt ⁷	5.0	1.8	2.1	3.1	4.2
Iran	2.9	2.0	-1.0	-0.7	1.5
Algeria	3.3	2.5	2.6	3.2	3.6
South Asia	8.6	7.1	6.4	6.5	6.7
India ^{7, 8}	9.6	6.9	6.6	6.9	7.1
Pakistan ⁷	4.1	2.4	3.6	3.8	4.1
Bangladesh ⁷	6.1	6.7	6.3	6.4	6.5
Sub-Saharan Africa	5.0	4.7	5.0	5.3	5.2
South Africa	2.9	3.1	2.7	3.4	3.5
Nigeria	7.9	7.4	7.0	7.2	6.6
Angola	3.4	3.4	8.1	7.4	6.8
Memorandum items					
Developing countries					
excluding transition countries	7.8	6.4	5.5	6.1	6.2
excluding China and India	5.6	4.4	3.6	4.3	4.5

Notes: PPP = purchasing power parity; e = estimate; f = forecast.

1. Canada, France, Germany, Italy, Japan, the UK, and the United States.

2. In local currency, aggregated using 2005 GDP Weights.

3. Simple average of Dubai, Brent and West Texas Intermediate.

4. Unit value index of manufactured exports from major economies, expressed in USD.

5. Aggregate growth rates calculated using constant 2005 dollars GDP weights.

6. Calculated using 2005 PPP weights.

7. In keeping with national practice, data for Egypt, India, Pakistan and Bangladesh are reported on a fiscal year basis in Table 1.1.

Aggregates that depend on these countries, however, are calculated using data compiled on a calendar year basis.

8. Real GDP at market prices. GDP growth rates calculated using real GDP at factor cost, which are customarily reported in India, can vary significantly from these growth rates and have historically tended to be higher than market price GDP growth rates. Growth rates stated on this basis, starting with FY2010-11 are 8.4, 6.5, 6.9, 7.2, and 7.4 percent – see Table SAR.2 in the regional annex.

Figure 7: The global outlook in summary. The World Bank, Global Economic Prospects 2012. Web. 05. Sep. 2012.

<http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1322593305595/8287139-1339427993716/GEPJune2012_Full_Report.pdf>.

4. The Economist

The intention of this part of the present paper is to give a brief description of *The Economist* since it is the magazine that created the indexes and is thus the main source of the information used for this study. In respect thereof, it is useful to outline the magazine's history, its characteristics and most importantly its reliability. To begin with, it is interesting to know that *The Economist* describes itself as a newspaper. This is due to historical reasons, since

in addition to offering analysis and opinion, it tries in each issue to cover the main events—business and political—of the week. It goes to press on Thursdays and, printed simultaneously in six countries, is available in most of the world's main cities the following day or soon after (“About us”).¹

Yet, it does not appear daily but only once a week. Furthermore, the general conception of its readers is that it is a magazine rather than a newspaper. This can also be emphasized by the name of its YouTube channel: *EconomistMagazine*.² Therefore, in this paper I have decided to also regard *The Economist* as a magazine rather than a newspaper or, more neutral, a publication.

Apart from being available as a print edition, one can also read the magazine online and, as already seen, one can access its YouTube channel. I tried to make use of each of the media I had at disposal, but finally the online version logically proved to be easier accessible and always at hand when I needed it. For that reason, the wide majority of the primary information used for this paper was obtained from its online version.³ The good and comfortable fact is that they

publish all articles from *The Economist* print edition (including those printed only in British copies) and maintain a searchable online archive that dates back June 1997. [They] also offer a variety of web-only content, including blogs, debates and audio/video programmes. (“About us”)

When turning to the magazines history, one can say that *The Economist* was founded in 1843 by the Scotsman James Wilson, an advocate of free trade. The main reason for establishing the magazine was, as Cheryl Schonhardt-Bailey points out, “a dramatic context”. The magazine was supposed to support Wilson in his struggle against the so called Corn

¹ Please note that all the quotations labelled as “About us” are taken from *The Economist* official online presence http://www.economist.com/help/about-us#About_The_Economist

² Cf. <http://www.youtube.com/user/EconomistMagazine>

³ Cf. <http://www.economist.com/>

Laws; a truly protectionist law. The historical background was that “the early 1840s were a time of protests, turmoil and agitation throughout Britain as the Conservative government under Sir Robert Peel staunchly refused to consider changing decades of protection for agriculture” (Schonhardt-Bailey).

This was certainly not good for Britain, taking into account the rise in prices for bread caused by higher import tariffs. And indeed, in 1846 the Corn Laws were abolished. Nonetheless, the magazine lived on, until the very day dedicated to “international news, politics, business, finance, science and technology” (“About us”). What is even more important is that throughout the almost 170 years of its existence and regardless of its so far 16 editors, the magazine has remained true to its liberal ideas, firstly represented by Wilson himself. Therefore, down to the present day, *The Economist* is a supporter of liberalism. Some of the values and characteristics that the magazine promotes are, amongst others, globalization and thus free trade and free markets; free immigration, gun control, gay marriage, environmental friendliness and even the legalization of drugs.⁴ Besides, it supported the Americans in the war against Vietnam and also during the Iraq war and the still ongoing mission in Afghanistan. The magazine sees itself as an “enemy of privilege, pomposity and predictability” (“About us”).

What, apart from that, makes the magazine special is its anonymity. Virtually none of its articles carries a byline and thence it is not evident for the reader who the editor of an article is. I would like to mention the reason for that in the words of *The Economist*, where it says that, first of all, “it speaks with a collective voice”, and secondly, “what is written is more important than who writes it” (“About us”).

The Economist is read all over the world and nowadays has a circulation of over 1.4 million magazines, appearing in over 200 countries. Interesting is the fact that America accounts for almost 50 % of the whole circulation, with only one fifth being in the UK. A big circulation is also sold in continental Europe, but the US clients are undoubtedly the primary readers (cf. “About us”). Although *The Economist* itself considers its circulation of 1.4 million a rather small number, taking into account its long existence, we also have to

⁴ As regards the truly delicate topic of drugs and the way *The Economist* reports on that please confer <http://www.drogasedemocracia.org/Arquivos/the-economist.pdf>

incorporate its online readers, though, which easily could make up another million. However, there is no statistic available on that.

A question that may arise now is certainly: Who actually reads *The Economist*? According to Frank Langfitt, the magazine has “enviable demographics”. A study carried out claims that two out of three readers of *The Economist* in the states earn more than \$100,000 a year. For that reason, one might absolutely classify the magazine as high-class and even elitist. Paul Rossi, publisher of the magazine in North America, states:

We are one of the most thumbed magazines on Air Force One. We've reached CEOs and politicians and financiers around the world. And that is, in some sense, an aspiration that we promote in our advertising. So, one of our tag lines is: It's lonely at the top, but at least there's something to read. (Langfitt)

Also, John Jungclaussen describes the magazine in one of his articles for the German *Zeit* as a paper for the global élite. This certainly underlines its seriousness, credibility and thus its reliability.

In the course of its existence, the magazine therefore has acquired a prestigious reputation. This becomes evident in the quotations of some very famous readers which I would like to cite here⁵, basically defining *The Economist* based on the people who read it:

“The magazine I spend most of my days reading is *The Economist*.”

Bill Gates, Chairman & Founder, Microsoft

"*The Economist* is almost the only publication that I know that deals with issues conceptually and at the same time practically... It is one of the few publications that I read regularly."

Henry Kissinger, former US Defence Secretary

“I used to think. Now, I just read *The Economist*.”

Larry Ellison, CEO, Oracle Corp.

"We were receiving *The Economist* and reading the news we hungered for."

Nelson Mandela, former President of South Africa

⁵ Please note that all quotations are taken from http://web.archive.org/web/20060907230415/http://printmediakit.economist.com/Reader_reviews.40.0.html

"How did *The Economist* put it?"

Ronald Reagan, former US President

"*The Economist* has an extensive knowledge of economies, markets and companies around the world, and a very good reputation for independent judgement."

Frederick Walsh, former President, Morgan Stanley Capital International

"There are several reasons why I read *The Economist*: number one, it appears only once a week and nevertheless gives you a good overview of what has happened in the economic world and a little bit also in the political world. And I really mean the world, not just Britain, or not just Europe."

Helmut Schmidt, former Chancellor, West Germany

These words speak for themselves. Moreover, one cannot but mention a sentence by Lord Granville, a British foreign secretary, who said even back then in the 19th century "that whenever he felt uncertain, he liked to wait to see what the next issue of *The Economist* had to say" ("About us"). To bring it back to Helmut Schmidt's words, it has indeed been a very striking characteristic of the magazine from the very beginning to not only represent British interests, but to see "the world as an inter-related political and economic whole" (Emmott: ix).

Last but not least, *The Economist* is very well known for the creation of humorous yet serious indexes such as the BMI and the WRI which shall be covered in the following main part of this paper.

5. The Indexes

The main part of this paper shall deal with the indexes itself. Here, I will explain their history, functions, applications and also their advantages, disadvantages and thus objective criticism. I will begin with a short description of existing unconventional indexes in the world of economics in order to provide a framing. After that, the BMI and WRI will be introduced and compared with regard to their differences and similarities. It will contain both a descriptive and also a normative part. This is because we primarily describe the indexes, but will also try to assess which one is more useful and trustable in the end.

5.1 Unconventional Indexes

Within the last 20 years there has been a widely observable trend to make economic problems and issues easily understandable for people inside and outside professional economic circles. This is due to problems and theories becoming more complicated and more difficult to understand in a more and more intertwined world. *The Economist* was the magazine that made the trend of inventing unconventional indexes popular through the creation of the BMI, which is nowadays widely considered to have given birth to the term “Burgernomics”. Apart from that, *The Economist* created further humorous but yet interesting indexes that are not necessarily meant to be taken seriously. Amongst them, one can find for instance the “Tall Latte Index”, also called “Starbucks Index”. This one has not risen to fame comparable to that of the BMI although it basically had the same purpose, comparing exchange rate over-/undervaluation through the price of a big milk coffee sold at Starbucks. Yet, it was published only once as an alternative to the BMI and its results confirmed to some extent the findings of the BMI (cf. “Burgers or beans?”).⁶

Adapting the initial idea of the BMI and the “Tall Latte Index”, the world has seen many similar attempts to compare prices of a single product in order to have a look at the accuracy of exchange rates. Amongst these attempts we find the “iPod index” and the “iTunes index”, but also the “Billy index”. The “Billy index” compares the prices of the famous IKEA bookshelf called Billy in all 38 countries where it is sold. The idea comes from the Bloomberg journalist Kristian Siedenburg (cf. Reise). In 2009, the Billy bookshelf was

⁶ A table comparing the results of the BMI and the Tall Latte Index is provided in the annex.

cheapest in the United Arab Emirate and most expensive in Israel. The iPod and iTunes indexes work the same way by comparing the prices of an iPod and of iTunes in several countries in order to check the correctness of exchange rates relative to the dollar.

Moreover, *The Economist* created a sensation in 1997 through the publication of the “Coca Cola Map”, a world map showing where in our world the consumption of the trademark beverage is highest. The conclusions drawn by the magazine are that there is a correlation between cola consumption and wealth. Moreover it can be seen as an indicator of general life quality and even of how well democracy is going since “consumption rises with political freedom” (“Next year, the french-fry index”). Funnily enough, the article finishes with “Have a cola, North Korea” (“Next year, the french-fry index”). Regrettably, *The Economist* published the Coca Cola Map only once and nowadays there is no such map for 2012.⁷

Another Index created by *The Economist* is a more serious one. Yet its title is clearly missing that seriousness as it is called “Shoe Thrower’s Index”. It was composed in 2011 and is supposed to show the level and probability of unrest in the Arab world. The title obviously is an allusion to the shoe-throw-attack of an Iraqi journalist during a press conference in Baghdad with former US president Bush. Back then, the index comes to the conclusion that the most unstable Arab countries are Yemen and Libya, whereas unrest is least probable in Qatar and Kuwait (cf. “The Shoe-Thrower's index”).⁸

In addition, *The Economist* created an index giving the cost of making pancakes around the world. It was created this year in honour of Shrove Tuesday, also called Pancake Tuesday. The tradition requires participants to eat pancakes that very day so the magazine compiled a comparison of how much it would cost you to make a pancake party with roughly 130 pancakes in terms of ingredients (milk, white flour, butter and eggs). The party would be most expensive in Japan and cheapest in India.⁹

A further very humorous index is definitely the “Banana Equivalent Dose” (BED). The index measures the amount of radiation in terms of bananas. Sounds funny, but is

⁷ The Coca Cola Map is provided in the annex.

⁸ The Shoe Thrower’s Index is provided in the annex.

⁹ The Pancake Index is provided in the annex.

intended to be serious. This is due to bananas being a “natural source of radioactive isotopes” (Blastland). However, the amount in one banana is tiny little. One banana can be taken as the basic unit and one can thus convert other radiation exposures to the amount of equivalent bananas (cf. Blastland). By way of example, a fatal dose of radiation would be if someone ate 80 million bananas at a time. Yet, it goes even worse. Having eaten 500 million bananas in a row would be equivalent to the amount of radiation “ten minutes next to Chernobyl reactor core after explosion and meltdown” (Blastland).¹⁰

The “Golden arches theory of conflict prevention” is another interesting tool, though not really an index. The golden arches in this case refer to the big yellow “M” that one can find above any big McDonald’s restaurant in the world. It has been mentioned by the author Thomas L. Friedman that no countries having a McDonald’s restaurant have ever been at war against each other since each has a McDonald’s and it basically shows the effect globalization has on foreign policy.¹¹ The theory is true to a certain degree, but it has also been disproved by several conflicts. To give just one example of the theory being untrue is the conflict between Russia and Georgia with regard to South Ossetia. Both countries have McDonald’s restaurants within their frontiers.

Further funny and surprising economic indexes include, amongst others, the “crane index”, the “Lipstick index”, the “R-word index” and the “men’s underwear index”. The “crane index” displays the amount of cranes that are visible from a certain point in a city (cf. “Fast food for thought”) whereas the “Lipstick index” claims that in economically hard times, women buy more lipsticks since cosmetics remain affordable. It has been brought forward by Leonard Lauder, chairman of Estée Lauder, when lipstick sales increased by 11 % during the 2001 recession in America.¹² The “R-word index” is another informal index that measures the “number of newspaper articles that use the word “recession” in a quarter” (“Up means down”) in order to assess the economic health of the world and in order to forecast a possible recession.¹³ Last but not least there is the “men’s underwear index”, which has become famous due to a popular follower: Alan Greenspan, former chairman of the Federal Reserve of the USA. In normal economic times, sales of a usual need such as men’s underwear are steady. Yet, in an economic crisis there is a change in demand and the buying of these

¹⁰ The Banana Equivalent Dose chart is provided in the annex.

¹¹ For more information about the theory see: Thomas L. Friedman. “The Lexus and the Olive Tree”, 1999.

¹² The Lipstick index is provided in the annex.

¹³ The R-word index is provided in the annex.

products is postponed so that sales “drop in recessions when men replace them less often” (“Fast food for thought”). Thus, the index is supposed to reflect less consumption spending during economically tough times.

Notwithstanding the fact that the indexes mentioned in this part can easily be considered funny and humorous, one can clearly say that the majority of indexes created nowadays are meant to be serious. Also, I would like to point out that in spite of having an amusing and to some degree non-serious flavour, the aforementioned indexes nevertheless address very serious economic issues and topics.

5.2 The Big Mac Index: Explanations and Applications

The BMI has been introduced for the first time in 1986 by Pam Woodall, a journalist of *The Economist*. Initially it was created in order to check possible over- or under-valuations of the dollar itself, but later was adapted to calculate over- or under-valuations of the included currencies against the dollar in order to disprove the thesis of an existing equilibrium on the international exchange rate markets. It was by no means intended to be serious but was rather thought to be a funny way to “make exchange rate theory more digestible” (“Beefed-up burgeronomics”) for the reader, providing a “light-hearted look at currency valuations” (“Burgeronomics to go”) without having to use a textbook. In spite of that, it has become the “best-known regular feature in *The Economist*” (“Ten years of the Big Mac index”) and up to the present day has not lost any of its popularity. On the contrary, it is considered the “nucleus of burgeronomics” (Haidar 3) and “a mature product” (Clements et al. 3). The idea is simple: By making use of the theory of purchasing power parity, the magazine compares the prices of a single item, the famous McDonald’s hamburger called Big Mac, in several countries around the world. The purpose is to check whether a currency is over- or undervalued relative to a reference currency, which is the American dollar (\$). In the course of this part, I will make use of Big Mac data¹⁴ from 2011 and 2012 alike in order to provide a more accurate picture, since the 2011 index has been analysed more deeply. Furthermore, *The Economist* updates its index in a rather irregular rhythm, but tries to publish at least one version every year. However, the magazine itself claims the BMI to be “recompiled a few times a year to keep

¹⁴ *The Economist* humorously refers to that as “McData” (“Calories and currencies”).

this vital economic indicator up to date” (“Please help us compile the Big Mac index”). In the following, I will show its uses and applications.

The theory of purchasing power parity is one of the most controversial theories when it comes to the determination of exchange rates (cf. Ong 1-2). It says that exchange rates eventually adapt to make the price of a basket of goods the same in each country, basically assuming “that price levels in any two countries should be identical after converting prices into a common currency” (Pakko and Pollard 9) should there be free market opportunities between those countries. Simply put, according to the theory one US dollar should buy the same amount in all countries (cf. “Ten years of the Big Mac index”), also known as “Law of one price”. By way of example, we can assume that on the exchange rate market, one dollar is worth ten Argentinean Pesos. In the USA, a New York Yankees jersey sells for \$50. In Argentina it is sold for 300 Pesos. Taking into account the exchange rate of 1 \$ = 10 Pesos, the jersey would cost you only \$30 when buying it in Argentina as compared to \$50 you would have to pay in the states. Logically, a clever consumer would buy it in Argentina rather than in the USA. The theoretical scenario would be that Americans change their dollars to Pesos in order to buy the jersey in Argentina. The consequence would be that the Peso becomes more valuable in relation to the dollar, the demand for New York Yankee jerseys in the US market decreases and the demand in Argentina increases, which will finally result in the exchange rates and prices to adapt so that we have purchasing power parity. Of course, this would only happen if all the commodities were traded this way, but in principle this is the theory that the BMI relies on. Yet, it is mentioned more than once in several articles published ever since the first appearance of the BMI, that it is a rather “fun guide” (“Currency Comparisons, to go”), “never intended as a precise gauge of currency misalignment” (“Beefed-up burgeronomics”). Thus, many do not consider it to be “particularly serious” (Reise).

In spite of these warnings, the BMI has become famous worldwide. Several studies about the index have been carried out and it has even been cited by American politicians when demanding an appreciation of China’s currency¹⁵ (cf. “Beefed-up burgeronomics.”). Yet at the same time, *The Economist* states that the BMI is “arguably the world’s most accurate financial indicator based on a fast-food item” (“Please help us compile the Big Mac index”).

¹⁵ A highly interesting approach and discussion of the Chinese-American “currency-war” can be found here: <http://www.csc.iitm.ac.in/?q=node/141>

Therefore, one can say that many people do take it seriously and by now it has become a global benchmark and one of the international stars of statistics supposed to make wealth and purchasing power worldwide comparable. This may mainly be due to its simplicity. Instead of taking a collection of different goods, the BMI is calculated only based on the price of one single product. The idea behind is that the Big Mac is globally sold in more than 120 countries as a homogeneous product in basically the same way, i.e. with the same ingredients. These ingredients can be traded freely on the international markets (cf. Pakko and Pollard 11). Therefore, it might be seen to be the perfect product for carrying out exchange rate investigation; Ong sees in it “the flavour of the perfect universal commodity (xiii). Indeed, *The Economist* says that “a Big Mac contains 29 g of fat and a surprisingly large quantity of useful economic info” (“Burgernomics to go”). A BMI table looks something like this:

Table 1: BMI 2012¹⁶

Country	Currency Code	Big Mac Price in Local Currency	Big Mac Price In Dollars	Implied PPP of the Dollar	Actual Dollar Exchange Rate March 27, 2012	Under(-)/Over(+) valuation against the Dollar, %
Argentina	ARS	28.57	\$6.57	6.42	4.3500	48%
Australia	AUD	4.78	\$5.14	1.07	0.9300	16%
Brazil	BRL	10.36	\$6.06	2.33	1.7100	36%
Great Britain	GBP	2.49	\$3.96	0.56	0.6300	-11%
Canada	CAD	5.37	\$5.37	1.21	1.0000	21%
Colombia	COP	8604.88	\$4.85	1934.75	1773.0000	9%
Czech Republic	CZK	71.04	\$3.82	15.97	18.6200	-14%
Denmark	DKK	28.50	\$5.15	6.41	5.5300	16%
Egypt	EGP	15.29	\$2.53	3.44	6.0400	-43%
Euro Area	EUR	3.50	\$4.73	0.79	0.7400	6%
Hong Kong	HKD	15.41	\$1.99	3.46	7.7500	-55%
Hungary	HUF	780.54	\$3.61	175.50	216.0400	-19%
Chile	CLP	1955.71	\$4.08	439.73	479.1500	-8%
China	CNY	15.37	\$2.60	3.68	6.3000	-42%
Indonesia	IDR	22290.66	\$2.46	5011.91	9045.0000	-45%
Israel	ILS	16.97	\$4.51	3.81	3.7600	1%
Japan	JPY	320.00	\$3.95	71.95	81.0000	-11%
Malaysia	MYR	7.35	\$2.44	1.65	3.0100	-45%
Mexico	MXN	32.00	\$2.48	7.19	12.9000	-44%
New Zealand	NZD	5.20	\$4.34	1.17	1.2000	-3%
Norway	NOK	45.00	\$8.08	10.12	5.5700	82%
Pakistan	PKR	200.12	\$2.20	45.00	90.9300	-51%
Peru	PEN	10.00	\$3.73	2.25	2.6800	-16%
Philippines	PHP	136.51	\$3.19	30.69	42.8500	-28%
Poland	PLN	8.97	\$2.89	2.02	3.1100	-35%
Russia	RUB	79.23	\$2.71	17.81	29.2200	-39%
Saudi Arabia	SAR	10.00	\$2.67	2.25	3.7500	-40%
Singapore	SGD	4.60	\$3.65	1.03	1.2600	-18%
South Africa	ZAR	20.53	\$2.70	4.62	7.6000	-39%
South Korea	KRW	4026.47	\$3.58	905.33	1125.2500	-20%
Sweden	SEK	48.40	\$7.38	10.88	6.5600	66%
Switzerland	CHF	6.50	\$7.22	1.46	0.9000	62%
Taiwan	TWD	75.00	\$2.47	16.86	30.3300	-44%
Thailand	THB	70.00	\$2.36	15.74	29.6000	-47%
Turkey	TRY	7.10	\$4.01	1.60	1.7700	-10%
United Arab Emirates	AED	9.09	\$2.48	2.04	3.6700	-44%
United States	USD	4.45	\$4.45	1.00	1.0000	0%

Big Mac Index 2012. Web. 05. Sep. 2012. <<http://www.maxi-pedia.com/Big+Mac+Index+2012>>.

What one can see in this 2012 chart is the Big Mac price in local currency, the actual dollar exchange rate, the Big Mac price in dollars, the implied purchasing power of the dollar and the local currencies over-/ undervaluation. In order to show how the table works, we can take the Big Mac price of Argentina in local currency, which is 28.57 Pesos. In order to get the Big Mac price in dollars, we divide the 28.57 pesos by the actual exchange rate, which is 4.35, and we get the price of \$6.57. However, if we want to assess the implied purchasing power of

¹⁶ Please note that the American price is calculated by taking the average prices of Atlanta, Chicago, New York and San Francisco.

the dollar in this case, we have to divide the local currency by the dollar price of a Big Mac in the USA, which is \$4.45. Thus, we get the implied purchasing power of 6.42. What is the meaning of this result? Basically, it says that in order for the Big Mac to cost the same in the USA as in Argentina, the exchange rate should be 6.42 instead of the actual 4.35. This would be equivalent to purchasing power parity. However, as one can see in this example, the Big Mac is roughly two dollars more expensive in Argentina, which leads to an overvaluation of 48% of the Argentinean Peso according to the BMI measurements.¹⁷ In line with this procedure, the results are calculated for every country considered in the index in order to compare the Big Mac prices around the world with its American average price of \$4.45 in March 2012.

Important to know here is that there is no data available for each single country forming part of the European currency union. Instead, one has taken the average price of Big Macs sold in the countries making up the currency union and thus listed it under the term "euro area". On the one hand, this makes sense because it is a single currency; moreover you spare work in creating the index. On the other hand, it may not display an honest picture since even in the euro zone Big Mac prices usually differ quite a lot. Speaking from experience, a Big Mac in Germany sells much more expensive than a Big Mac in Portugal. The data itself is collected very easily. The normal procedure carried out is to ask local McDonald's restaurants for the price of a single Big Mac. Yet, it is interesting to know that in 2011 *The Economist* took a rather different approach by asking its readers from all over the world to report the prices online. Thus, its readers were actually compiling the index. (cf. "Please help us compile the Big Mac index").

When having a closer look at table 1 above, one can primarily draw the inference that the currencies of Switzerland, Sweden, Norway, Argentina and Brazil were heavily overvalued in March 2012. In Norway, a Big Mac sold for a converted \$8.08, making the Krone 82% overvalued relative to the dollar. At the other end of the spectrum, one can find the currencies of Hong Kong, Pakistan, Thailand, Indonesia, Malaysia and China. The cheapest Big Mac could be bought in Hong Kong for a converted \$1.99, meaning that the Hong Kong dollar is 55% undervalued relative to the American dollar. The second cheapest Big Mac can be bought in Pakistan for \$2.20. What is really striking is the fact that the

¹⁷ The over-/ undervaluation can be calculated according to the following formula: (implied purchasing power – actual exchange rate) / actual exchange rate. This translates to $(6.42-4.35)/4.35 = 48\%$ in the case of Argentina.

majority of emerging market currencies are undervalued as one can see in the examples of Hong Kong, China, Indonesia, Mexico, Poland and Turkey. Yet, an undervalued and weak currency does not necessarily have to be bad since it makes exports attractive and cheap. It is an open secret that precisely China is using the tactic of keeping their currency low for this purpose.

As it is observable in all the examples, almost throughout the BMI purchasing power parity does not really exist. The only countries where the exchange rate corresponds more or less with the implied purchasing power of the dollar are Israel, New Zealand, Chile, Colombia and the euro area. The question that remains to be solved is up to what extent the results are reliable taking into account that we are just talking about the price of a Big Mac. I would like to postpone the answer for a later stage of this paper when it comes to the disadvantages of the BMI. The following table illustrates the results of the BMI as of July 2011.

Table 2: BMI 2011¹⁸

Country	Big Mac prices		Implied PPP† of the dollar	Actual dollar exchange rate July 25th	Under(-)/over(+) valuation against the dollar, %	
	in local currency	in dollars*			raw index	adjusted for GDP per person
United States‡	\$4.07	4.07	–	–	–	–
Argentina	Peso 20.0	4.84	4.92	4.13	19	101
Australia	A\$4.56	4.94	1.12	0.92	22	12
Brazil	Real 9.50	6.16	2.34	1.54	52	149
Britain	£2.39	3.89	1.70§	1.63§	-4	9
Canada	C\$4.73	5.00	1.16	0.95	23	24
Chile	Peso 1,850	4.00	455	463	-2	58
China	Yuan 14.7	2.27	3.60	6.45	-44	3
Colombia	Peso 8,400	4.74	2,066	1,771	17	108
Czech Republic	Koruna 69.3	4.07	17.1	17.0	nil	45
Denmark	DK 28.5	5.48	7.01	5.20	35	23
Egypt	Pound 14.1	2.36	3.47	5.96	-42	11
Euro area**	€3.44	4.93	1.18††	1.43††	21	36
Hong Kong	HK\$15.1	1.94	3.71	7.79	-52	-43
Hungary	Forint 760	4.04	187	188	-1	57
India§§	Rupee 84.0	1.89	20.7	44.4	-53	-8
Indonesia	Rupiah 22,534	2.64	5,543	8,523	-35	24
Israel	Shekel 15.9	4.67	3.91	3.40	15	43
Japan	¥320	4.08	78.7	78.4	nil	5
Malaysia	Ringgit 7.20	2.42	1.77	2.97	-40	2
Mexico	Peso 32.0	2.74	7.87	11.7	-33	13
New Zealand	NZ\$5.10	4.41	1.25	1.16	9	29
Norway	Kroner 45.0	8.31	11.1	5.41	104	46
Pakistan	Rupee 205	2.38	50.5	86.3	-42	16
Peru	Sol 10.0	3.65	2.46	2.74	-10	63
Philippines	Peso 118	2.78	29.0	42.4	-32	33
Poland	Zloty 8.63	3.09	2.12	2.80	-24	21
Russia	Rouble 75.0	2.70	18.5	27.8	-34	10
Saudi Arabia	Riyal 10.0	2.67	2.46	3.75	-34	-3
Singapore	S\$4.41	3.65	1.08	1.21	-10	-6
South Africa	Rand 19.45	2.87	4.78	6.77	-29	24
South Korea	Won 3,700	3.50	910	1,056	-14	21
Sweden	SKr 48.4	7.64	11.9	6.34	88	85
Switzerland	SFr 6.50	8.06	1.60	0.81	98	63
Taiwan	NT\$75.0	2.60	18.5	28.8	-36	-7
Thailand	Baht 70.0	2.35	17.2	29.8	-42	6
Turkey	Lira 6.50	3.77	1.60	1.72	-7	53

Currency Comparisons, to go. The Economist online. 28.07.2012. Web. 05. Sep. 2012.
 <<<http://www.economist.com/blogs/dailychart/2011/07/big-mac-index>>>.

¹⁸ Please note here that India has been included for the first time in 2011. However, in India the Big Mac is not sold due to religious reasons. Instead, it is called Maharaja Mac and is made of chicken meat only. Its shape, however, is the same. Yet, *The Economist* claims that meat makes up less than 10 % of the burgers total cost so that the Maharaja Mac can be included here without distorting the results (cf. “Fast food for thought”).

I have included the 2011 version here mainly for two reasons. First of all, even superficial observation indicates several changes that have occurred to the Big Mac price and thus the currencies even within one single year. The reference price of an American Big Mac has increased from \$4.07 to \$4.45. Also, exchange rates have adapted just like the prices of local Big Macs. Thus, the converted dollar prices have changed. For instance, in 2011 the euro was 21 % overvalued against the dollar, while in 2012 it is only 6 % overvalued according to the indexes. I will not discuss this matter further here, but shall return to a comparison of occurring changes later on. The second reason for the inclusion of the 2011 data is clearly an improvement introduced as “gourmet version” (“Fast food for thought”) by *The Economist* for the first time here in honour of the BMI’s 25th anniversary. As it can be seen in the 2011 table above, the over-/ undervaluation measurement procedure has been divided into a raw index and a so called value adjusted for GDP per person. The latter one is intended to make results more accurate and reliable, since it takes the factor GDP (Gross Domestic Product) into account and not merely the Big Mac price alone. The following chart provides an explanation.

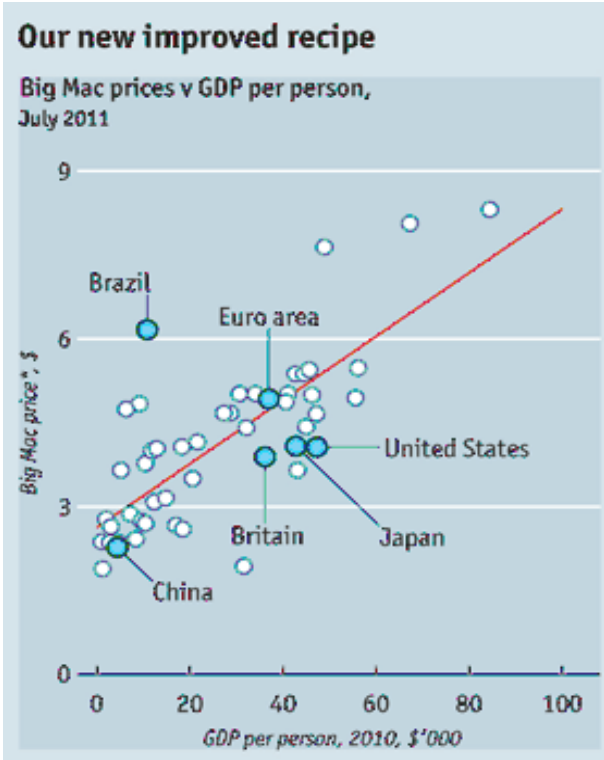


Figure 9: Big Mac prices and GDP per person. The Economist online. 28.07.2011. Web. 05. Sep. 2012. <<http://www.economist.com/blogs/dailychart/2011/07/big-mac-index>>.

The chart shows the Big Mac price in relation to GDP per person. The underlying assumption here is that the higher GDP per person is, the more you have to pay for a Big Mac in the

corresponding country. And indeed, one can recognize that these two factors are in a way positively correlated. The procedure can be explained as follows:

PPP signals where exchange rates should move in the long run. To estimate the current fair value of a currency we use the “line of best fit” between Big Mac prices and GDP per person. The difference between the price predicted for each country, given its average income, and its actual price offers a better guide to currency under- and overvaluation than the “raw” index (“Currency Comparisons, to go”).

The red line visible in the chart is the aforementioned line of best fit, displaying the predicted Big Mac prices for the countries by using GDP data. The biggest discrepancy provided by this “alternative recipe” (“Fast food for thought”) is clearly observable in Brazil, where the Big Mac price is disproportionately high relative to GDP per person, making the Brazilian real the “most overvalued currency in the world” (Geromel) in 2011. The results are to a certain degree different from the raw index. The euro is more overvalued than the raw index suggests. In China we see a good fit of a low GDP and a low Big Mac price. This is why the Chinese Yuan is not as undervalued as supposed, but rather close to its fair value as it is illustrated by the following figure displaying the major currencies.

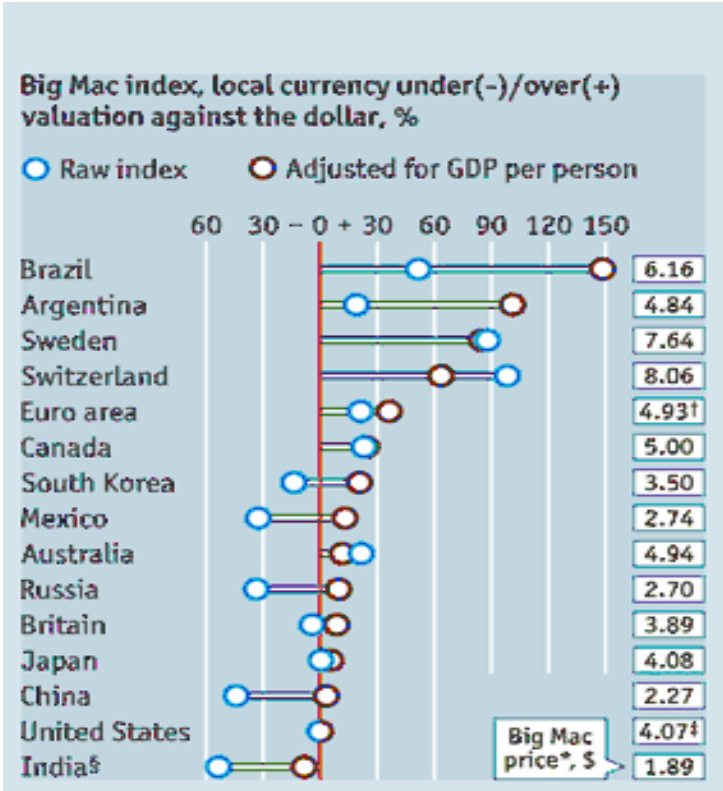


Figure 10: Comparison of raw index and value adjusted for GDP per person. The Economist online. 28.07.2011. Web. 05. Sep 2012. <<http://www.economist.com/blogs/dailychart/2011/07/big-mac-index>>.

A cheap burger does not necessarily mean that a country's currency is undervalued as one can for instance see in the cases of China, India and Russia. It is accurate to assume that the average prices should be lower in poor countries and emerging economies than in rich ones because labour costs and wages are supposed to be lower; a point we will come back to when discussing the disadvantages of the BMI. Here, one can easily arrive at the view that a "quarter of a century after its first grilling, burgernomics is far from perfect, but it gets tastier if adjusted for GDP per person" ("Fast food for thought").

For the sake of completeness and as a matter of interest, the following figure displays the 2011 index adjusted for GDP per person for every single currency that has been taken into account, showing its over-/ undervaluation relative to the dollar.¹⁹

¹⁹ The 2011 raw index expressed in mere percentages is provided in the annex.



Figure 11: 2011 Index adjusted for GDP per person. The Economist online. 28.07.2011. Web. 05. Sep 2012. <<http://www.economist.com/blogs/dailychart/2011/07/big-mac-index>>.

What becomes very obvious in the improved 2011 chart is that 31 out of 37 currencies were overvalued relative to the dollar. Apart from China, also Malaysia's and Saudi Arabia's currencies were close to their fair value.

The BMI can easily be used for carrying out interesting burgeronomics-research. In 2012, *The Economist* has established a chart comparing currency over-/ undervaluation of 2007 and 2012, i.e. it compares the pre-crisis level with current rates and draws interesting conclusions, as can be observed in the following chart.

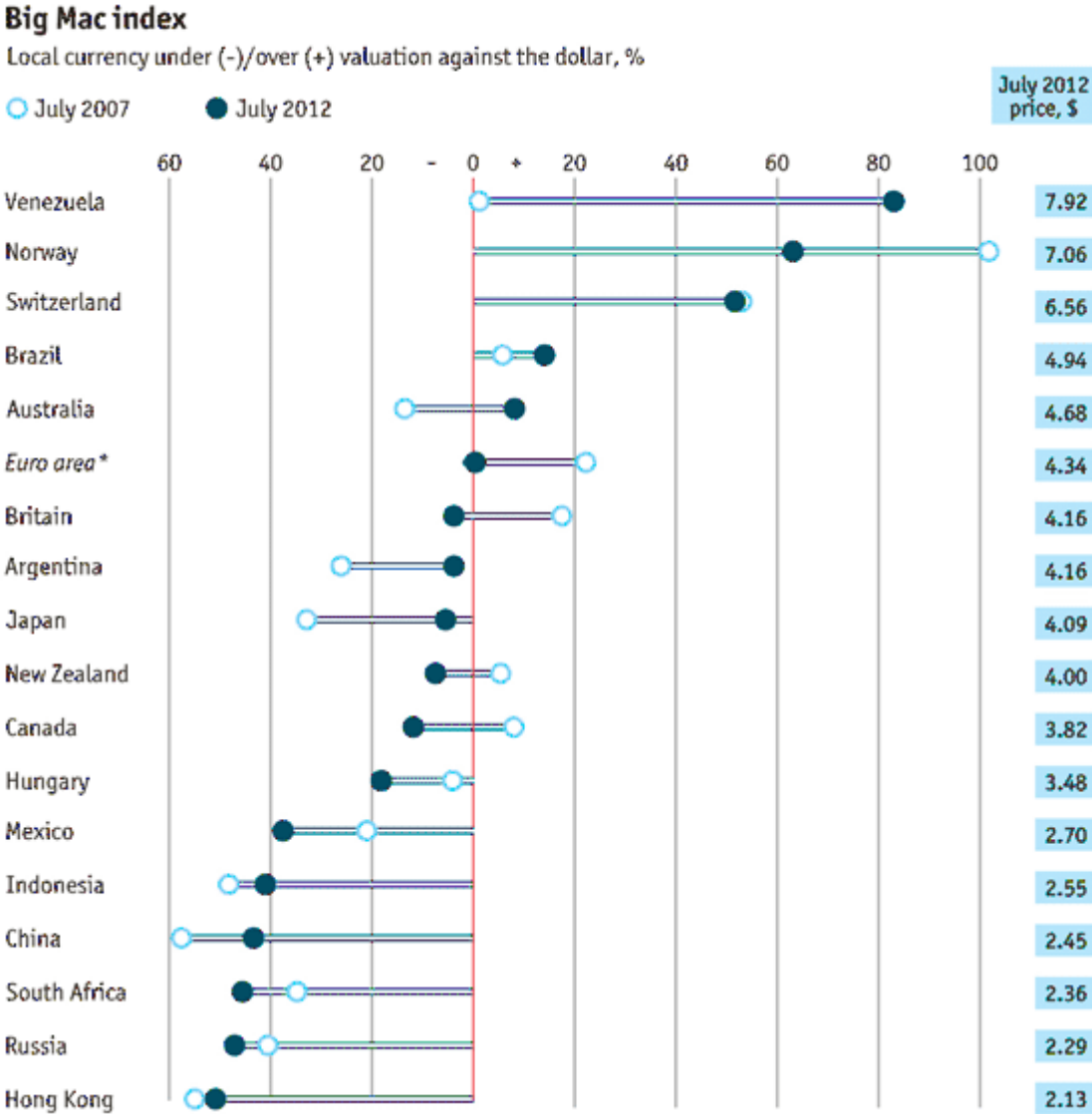


Figure 12: Comparison of 2007 and 2012 under- / over-valuations. The Economist online. 26.07.2012. Web. 05. Sep. 2012. <<http://www.economist.com/blogs/graphicdetail/2012/07/daily-chart-17>>.

The Economist asks in its article: “What does burgeronomics reveal about today’s exchange rates, and about the impact that five years of distress, from credit crunch to euro crisis, have

had on currencies?” (“Calories and currencies”). Obviously, there are enormous changes that have occurred between 2007 and today. The by far biggest adjustment visible here is the change from Venezuelan’s currency that went from a basically perfect purchasing power parity value to almost over 80 % overvalued, making a Big Mac cost \$7.92. Contrariwise, Norway’s Krone went from massively overvalued in 2007 to much less overvalued in 2012, a change of 40%. Still, conclusions are to be drawn with due care. It remains doubtful if these changes are caused merely by the economic crisis. It is of course standing to reason, but yet it is pure speculation. Much further research would be required to investigate such a hypothesis. Especially in the case of Venezuela there are certainly other factors that led to a change as drastic as this one, mainly the revaluation of the Venezuelan *bolívar* in 2007, following the name change to *bolívar fuerte*. However, also a high inflation, a currency peg with the US dollar and a subsequent trade imbalance with America might have contributed a lot to a change as drastic as this one (cf. MercoPress).

The Australian dollar has strengthened and went from undervalued to overvalued (-14% to +8 %). When the crisis was at its beginning, Australian banks remained comparatively stable, whereas lately the Australian dollar has benefitted from increased commodity prices and from strong export relations with China (cf. “Calories and currencies”; Findlay). Those factors may have been the driver of the change in Big Mac exchange rate here. Interestingly enough, the currencies of Canada, New Zealand and Great Britain have taken exactly the opposite development, going from overvalued in 2007 to undervalued in 2011. Especially the British pound is a “shadow of its former self” (“Calories and currencies”). The depreciation can be explained by a decline in British exports, since the euro zone, its biggest export market, is currently suffering a lot from the crisis. Peachy also underlines the economic ties between UK’s economy and the euro zone, emphasizing the current job situation of the UK which might worsen in case the euro crisis does so, too.

With the aforementioned examples of applications of the BMI we have not at all reached the final stage of possible usages of the index. On the contrary, it offers much more. In 2011, by using the BMI *The Economist* checked if officially reported inflation rates are reliable or not. The magazine claims that many people fear that governments may falsify their inflation rate figures in order to decrease inflation on the paper, and since there is a lot of disagreement on how to perfectly measure it, *The Economist* suggests to make use of burgernomics (cf. “Overcooked, undercooked”). The idea originates from Jonathan Andersen,

an economist at UBS, relying on the fact that the Big Mac itself is a “handy consumer-price basket, whose composition has hardly changed over time” (“Lies, flame-grilled lies and statistics”). The procedure, once more, seems straightforward and uncomplicated: The prices of the Big Mac by the end of 2010 were compared with the prices ten years before in order to check the price change and thus annual inflation. The following figure provides a deeper insight.

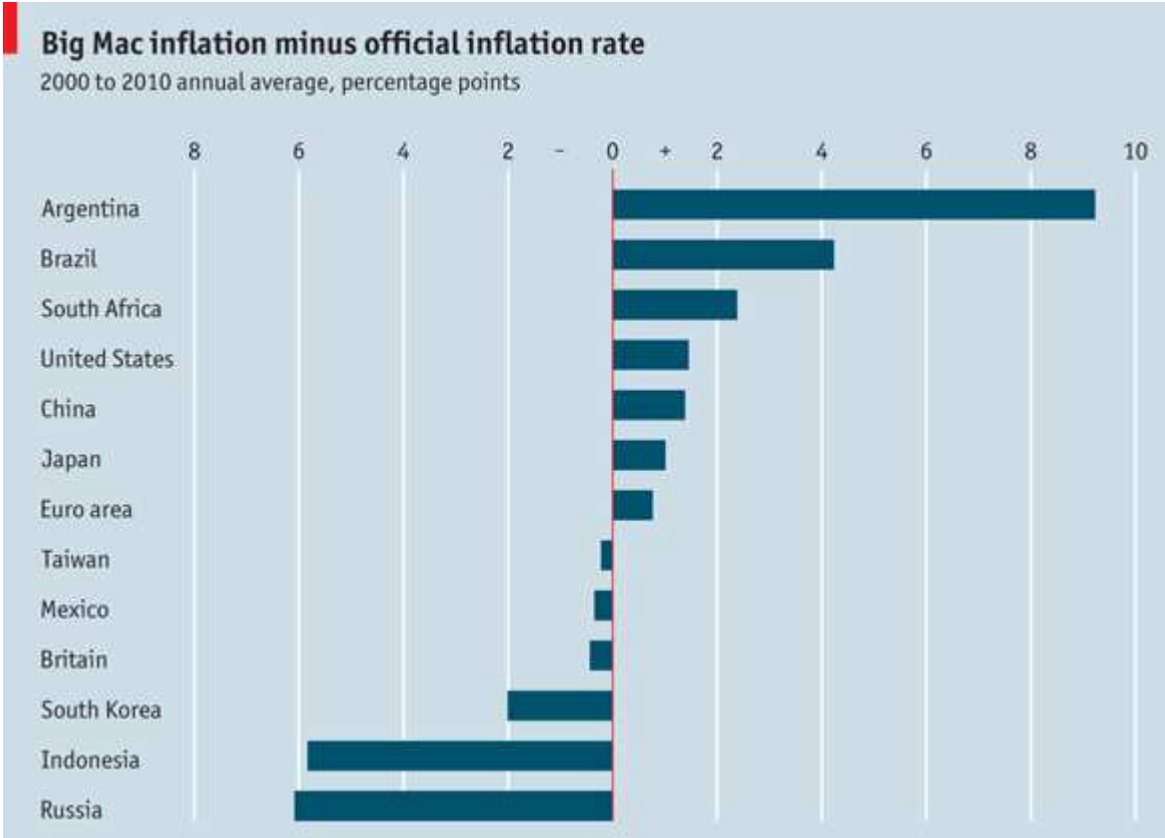


Figure 13: Reliability of officially reported inflation rates. The Economist online. 28.01.2011. Web. 05. Sep 2012. <http://www.economist.com/blogs/dailychart/2011/01/big_mac_index>.

In order to figure out the differences or, respectively, the discrepancies between officially reported inflation and Big Mac inflation, the chart subtracts the official rate from the Big Mac rate and, not really surprisingly, there are indeed several inconsistencies recognizable. The case of Argentina is the most extreme one. The officially reported inflation rate in 2010 was 10.7 % while the burger inflation amounted to almost 19 %, displaying an 8.3 % gap here, making Argentina’s inflation rate fall beyond the pale. When taking the Big Mac price as a reliable measure, one could say that the Argentinean government “deserves a good grilling” (“Overcooked, undercooked”) taking into account that “over the past decade, Big Mac prices there have, on average, risen by well over ten percentage points more each year than the official consumer-price index” (“Fast food for thought”). We will come back to

the case of Argentina later on when discussing the drawbacks of the BMI. The dollar and the Chinese Yuan behave similarly. Although China's reported inflation rate was 2.3 %, the Big Mac price comparison says it was 3.7 %. This relatively low number does not confirm claims that China's "government's figures hugely understate increases in the cost of living" ("Lies, flame-grilled lies and statistics"; cf. Bradsher). At the other end of the table, one can see that Russia and Indonesia behave exactly opposite. This is a bit astonishing, mainly for two reasons. First of all, their governments must have overestimated inflation. Secondly, "one might expect burger inflation to exceed overall inflation because food prices have risen faster than other prices" ("Lies, flame-grilled lies and statistics"), which obviously does not hold true for the countries in the negative scale.

Another interesting expansion of the use of a Big Mac as an economic tool has been introduced by UBS Wealth Management. The idea is to check how much time an average worker in a given city must work in order to be able to buy one Big Mac. Moreover, they included the working time required for 1 Kg of bread and 1 Kg of rice. And indeed, their "comparison shows that very different amounts of work are required around the world to earn the equivalent of one of these three products" (Flury et al. 11). The average working time around the world that is sufficient to buy a Big Mac is 35 minutes (cf. Flury et al. 11). The least amount of time required is in Chicago and Tokyo (10 minutes). The longest time you have to work for being able to purchase one Big Mac is almost 160 minutes in Nairobi. The following figure provides an overview on cities located worldwide.

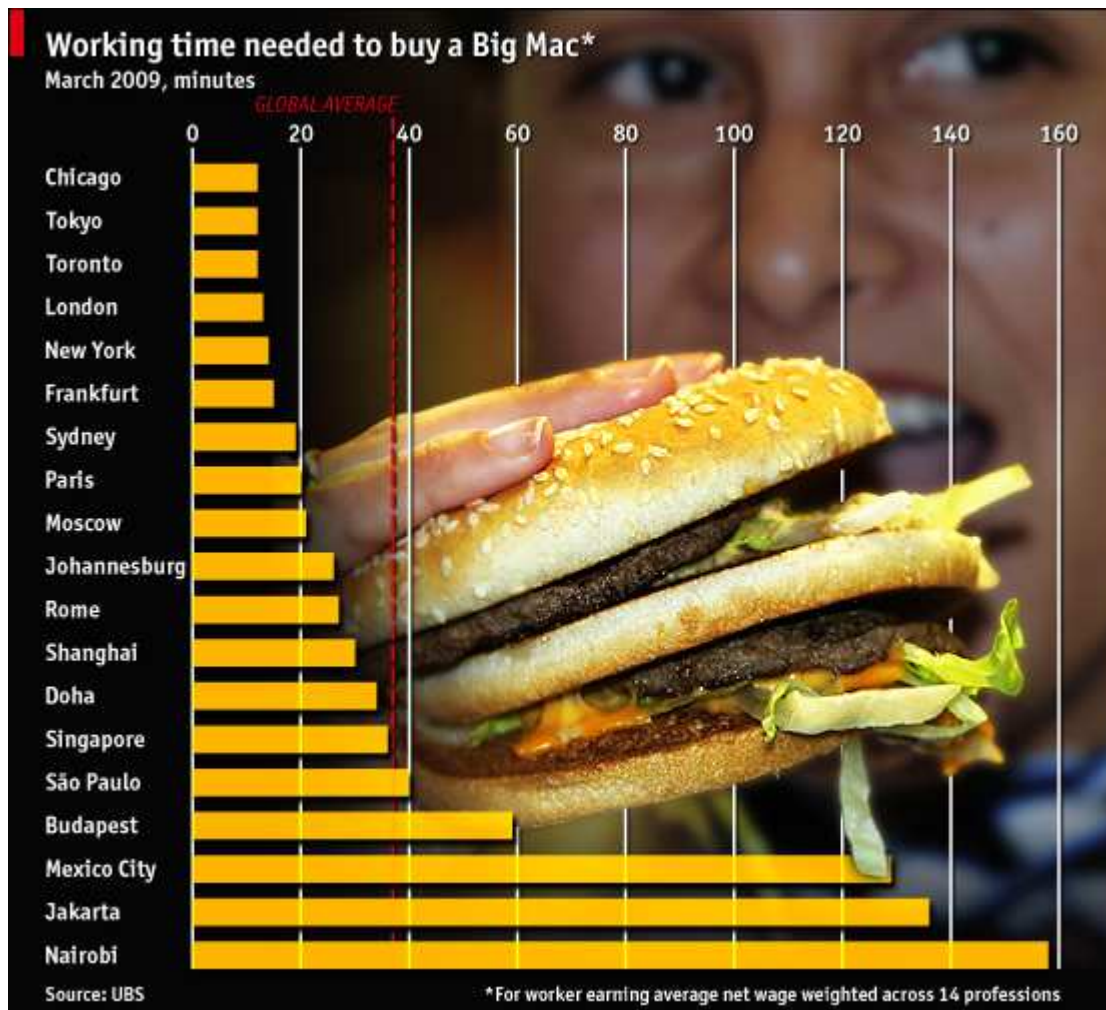


Figure 14: Working time needed to buy a Big Mac. The Economist online. 20.08.2009. Web. 05. Sep. 2012. <<http://www.economist.com/node/14288808>>.

What many claim is that the BMI is also good for predicting future currency movements if taking into account that undervalued currencies later might move closer to purchasing power parity level. Overvalued currencies alike are supposed to depreciate to get closer to their fair value in the long run. The underlying assumption is that “exchange rates sooner or later return to the relative level of purchasing power parity despite all fluctuations (Flury et al. 11). In this regard, one has to see the BMI as a long-term measurement without providing immediate results. Speculators, however, might see a venture in taking the BMI results for granted in order to speculate on a depreciation or appreciation of a currency. Indeed, Clements et al. found that undervalued currencies tend to appreciate while overvalued ones depreciate, but assign to these observations a period of three to six years (cf. 23). According to *The Economist* itself, the BMI did a good job during the introduction of the euro. While many experts were forecasting a rise in Europe’s common currency, the BMI

gave signals that the euro was already overvalued after its introduction, which finally proved true (cf. “Mcparity”).

As it can be seen in the above-mentioned examples of possible applications of the BMI and burgernomics, the index offers a wide range of possible investigations that can be carried out with it. By and large, one obtains remarkable and interesting results on exchange rates, purchasing power and also inflation. As mentioned before, the BMI enjoys a huge popularity given its simplicity of exclusively taking the price of one item into account and thus making exchange rate theory easily understandable and pellucid. Yet, it remains to be clarified up to what extent those results and inferences are reliable. Therefore, the following part will shed light on that issue.

5.3 The Big Mac Index: Disadvantages and Criticism

In spite of an ongoing trend of burgernomics (cf. “Return of the Mac”), all is not gold that glitters. Even *The Economist* itself claims that “bingeing on burgernomics can be unhealthy” (“Fast food for thought”). In the following, we will see if the informal and easily accessible BMI is trustworthy or not by means of looking at its disadvantages, downsides and limitations and thus at its actual economic value. It will be shown that the BMI “should be perceived with caution” (Haidar 11) and that burgernomics is indeed “hard to swallow” (“Fast food for thought”).

First of all, *The Economist* highlights that the Big Mac serves perfectly for a comparison of purchasing power parity given that the burger is sold world wide on all continents in the same way, a standardized size and with the same ingredients. That this is, however, not necessarily the case is shown in the following illustration.

Table 3: Differences in Big Mac Nutritional Content According to Country (% = % of Recommended Daily Allowance).²⁰

Country	Energy	Carbohydrates	Protein	Fat (total)	Dietary fiber	Sodium, Salt	Weight
Argentina	495 kcal	42g (14%)	24g (32%)	26g (47%)	2.5g (10%)	1083 mg (45%)	202g
Australia	493 kcal	35.1g (11%)	25.1g (50%)	26.9g (38%)		958 mg (42%)	
Austria	495 kcal	40g (15%)	27g (36%)	25g (37%)	3g (12%)	2300 mg (46%)	219g
Belgium	495 kcal	40g (15%)	27g (36%)	25g (37%)	3g (12%)	1023 mg (43%), 2300 mg (46%)	
Bosnia and Herz	495 kcal	40g	27g	25g	3g	2300 mg	
Brazil	504 kcal	41g (14%)	25g (33%)	27g (49%)	3.5g (14%)	1023 mg (43%)	
Canada	540 kcal	44g (15%)	24g	29g (45%)	3g (12%)	1020 mg (43%)	209g
Chile	555 kcal	57g	27g	28g		1098 mg	
Croatia	495 kcal	40g (15%)	27g (36%)	25g (37%)	3g (12%)	2300 mg (46%)	219g
Czech Republic	495 kcal (25%)	40g (15%)	27g (36%)	25g (37%)	3g (12%)	2300 mg (46%)	219g
Denmark	497 kcal	43g	27.1g	24.1g			219g
Egypt	522 kcal		28.235g	25.911g			
Finland	495 kcal	40g	27g	25g	3g	2300 mg	219g
France	492 kcal	38.9g	26.2g	25.8g	4.2g	900 mg, 2300 mg	
Germany	495 kcal	40g	27g	25g	3g	2300 mg	221g
Greece	490 kcal	42.5g	27g	24g	5g	2000 mg	
Hong Kong	510 kcal	39g	25g	28g		870 mg	
Hungary	495 kcal (25%)	40g (15%)	27g (36%)	25g (37%)	3g (12%)	2300 mg (46%)	
Ireland	490 kcal (25%)	41 g (15%)	28 g (37%)	24 g (36%)	4 g (16%)	2100 mg (42%)	
Italy	505 kcal	43g	27g	25g	4g		
Japan	555 kcal	45.4g	25.4g	30.2g	2g		
Malaysia	484 kcal	46g	26g	23g		730 mg	209g
Mexico	600 kcal	50g	25g	33g	4g	1050 mg	219g
Netherlands	495 kcal	40g	27g	25g	3g	2300 mg	
New Zealand	491 kcal (24%)	35.8 g (12%)	26.3 g (53%)	26.0 g (37%)		1080 mg (47%)	202 g
Norway	495 kcal (25%)	40g (15%)	27g (36%)	25g (37%)	3g (12%)	2300 mg (46%)	
Poland	495 kcal	40g	27g	25g	3g	2300 mg	
Romania	495 kcal	40g	27g	25g	3g	2300 mg	
Russia	495 kcal	40g	27g	25g	3g		
Serbia	493 kcal (25%)	40g (15%)	27g (36%)	25g (37%)	3g (12%)	2300 mg (46%)	219g
South Africa	559 kcal	49.3g	27.7g	24.89g	4.6g	801.98 mg	
South Korea	535 kcal	46g (14%)	27g (45%)	29g (57%)		750 mg (22%)	219g
Sweden	500 kcal	42g	26g	26g	3g	2400 mg	219g
Switzerland	495 kcal	40g	27g	25g	3g	2300 mg	
Turkey	480 kcal	43g	28g	22g		840 mg	
United Kingdom	490 kcal (25%)	41 g (15%)	28 g (37%)	24 g (36%)	4 g (16%)	2100 mg (42%)	
United States	540 kcal (27%)	45 g (15%)	25 g (45%)	29 g (45%)	3 g (13%)	1040 mg (43%)	214 g

Table taken over, reviewed and adapted from Wikipedia, The free encyclopedia. Wikimedia Foundation. Inc. 21.08.2012. Web. 10. Sep. 2012. < http://en.wikipedia.org/wiki/Big_Mac>.

As one can see, the Big Mac may look alike in every country, but its nutritional content may vary. Although the differences are not enormous, they do exist. To go into this in detail would take us too far afield of course, but just one example should be illuminated here. Whereas a Big Mac in Norway, Serbia, Hungary or Finland contains 2300g of sodium, in Malaysia it is only 730g and in Turkey 840g. Furthermore, as mentioned already in the 2011 index, the case

²⁰ For more information on how healthy a Big Mac actually is please confer <http://www.lowcosthealthinsurance.com/how-healthy-is-a-big-mac/>.

of India is a special one given that it is not called Big Mac and merely consists of chicken meat. The reasons for these differences supposedly lie in governmental regulations and controls. There are certainly other restrictions and regulations in the USA than in Asia or Europe, which could mean that the quality and thus cost of beef may be higher in several countries, especially in the EU (cf. Haidar 5). For those reasons, one can say that there are indeed nutritional differences recognizable within the Big Macs produced in different countries.

Apart from that, there are a number of other factors that seem to make it difficult to put your trust in the index. Big criticism comes, amongst others, from Haidar, who claims in his paper that the BMI is “a misleading measure of currency evaluation for economies whose markets are structurally different from the benchmark currency countries” (2). When having a look at the methodological limitations, we have to mention the difference in demand for a product like the Big Mac around the world. As Haidar points out, “the North American relationship with the Big Mac is much more ingrained into culture than it is in Asian cultures” (5). In the majority of countries it may be considered cheaper to buy national food instead of going to McDonald’s. In line with this, one has to mention local pricing or pricing to market. Depending on product demand, the populations’ interest in fast food and also a country’s prosperity level, companies are able to charge different prices in different countries in order to increase profits, which for McDonald’s is certainly a rational tool when it comes to profit maximization. Further, there is a distinct perception and appreciation of McDonald’s restaurants around the world. While in the US it is seen as a rather cheap place to eat fast-food at, in Europe it can certainly be regarded a fancy, pleasant and enjoyable place to go to and to hang out at, also with your family; and it is by far not as cheap as in the states (cf. Haidar 5). This is due to offers such as a playground for kids and a stylistically modern interior. Therefore, it can clearly be said that people “choose to frequent McDonald’s for more than the burgers” (Pakko and Pollard 22). As a consequence of that, one can say that European McDonald’s restaurants tend to have better locations and thus have to pay higher rents, which of course somehow influences the higher prices here. Furthermore, the price also varies depending on the concrete location of a restaurant. Presumably, the prices are higher at highways, airports, or downtown in the centre of a city. Also, the intensity of competition amongst different fast food restaurants within a country and thus different advertising costs and commercial strategies play undeniably a role.

These are, though, not all the reasons for price differences. On the contrary, there are more weighted factors that influence the price of a Big Mac. Haidar argues that especially a lot of developed economies subsidize basically all farm products that make up the ingredients of a burger; be it tomatoes, meat, bread, lettuce, onions, pickles or eggs (cf. 5). Taking these protectionist and mercantilist approaches into account, Haidar asks: “Thus, how can a Big Mac be a comparable item?” (5) when bearing in mind that the product is cheaper in countries subsidizing the ingredients, which makes the Big Mac rather inappropriate for price comparisons.

Apart from mere subsidies, one has to mention general legal trade restrictions such as tariffs and quotas that still exist in some countries and that can make the price of a Big Mac in a given country higher than elsewhere. Though, nowadays that issue is not as common as it used to be during the beginnings of the BMI in the late 1980s. The main ingredient, beef, has been especially affected by import restrictions. In Korea and Japan one could see those kinds of restrictions in the 1990s, but also the USA still restrict the amount of meat imported from all countries apart from Canada and Mexico (cf. Haidar 8). However, Pakko and Pollard even claim that “nearly every country restricts the importation of agricultural goods through the use of tariffs and / or quotas in order to protect its domestic farm sector” (16).

An interesting anecdote with regard to import restrictions is the case of the McDonald’s restaurants in Island. All of the three existing franchises had to close because McDonald’s required the franchise holder to import all the necessary goods from Germany. However, due to the fall in Island’s currency and several import tariffs the restaurants would have had to increase its prices accordingly so that its competitors would have gained a huge competitive advantage, taking into account that no one would have been willing to pay the high burger prices at McDonald’s. As a consequence, the restaurants were shut down.²¹

Not only subsidies and trade restrictions, but also different taxation systems can distort the results of the BMI since the index includes value added taxes and possible sales taxes that may exist. This, without any doubt, also provides an explanation for differences in purchasing power parity. Different local tax rates of course have an impact on the conclusions that can be drawn from the BMI. Thus, Haidar argues that higher taxes result in overvalued currencies

²¹ The full article regarding the closure of McDonald’s restaurants in Island can be found here: <http://www.cbsnews.com/stories/2009/10/26/world/main5422511.shtml>

and that tax adjustments lead to shifts in BMI parities (cf. 9). As a concrete case in point one can mention the 7% goods and services tax introduced in Canada in 1991, which made the price of a Big Mac rise and consequently made the Canadian dollar go from 14 % undervalued to only 9 % undervalued, which, however, does not at all mean that Canada and the USA suddenly were closer to purchasing power parity (cf. Pakko and Pollard 17).

There are, regrettably, more shortcomings of the BMI. Purchasing power parity holds true if the product is freely tradable across the world. A big Mac itself, of course, is not tradable. Sending a prepared Big Mac from Russia to Chile would certainly be possible, but the burger would not be edible anymore due to its perishable ingredients and a lack of freshness; it would therefore “probably not arrive in a very appetizing form” (Pakko and Pollard 16) . What can be traded, however, are the single ingredients that make up the burger. Therefore, the Big Mac is considered an adequate product for comparing purchasing power parity. Yet, the burger price is also a reflection of non-tradable elements. These non-tradable elements can be, for instance, wages, general labour costs, rent of the location (restaurant space lease), electricity, heating, grills, cooling utilities and cash registers, all of which roughly make up 93% of the whole hamburger price (cf. Shields: xii). Those factors have of course different prices and “there is no theoretical reason why prices of non-tradable goods and services should be equal in different countries” (Haidar 7), which basically shows why market exchange rates differ from purchasing power parity.

Turning to wages, one has to admit that this is a factor having a rather large influence on the prices of a product because it goes more or less hand in hand with the factor productivity, since preparing the burger and serving a customer is clearly a “service component” (Pakko and Pollard 17). Wages are generally seen to be higher in high income countries and countries with higher GDP per capita due to higher productivity. In lower income countries it is vice versa. Productivity and thus wages are both lower. Therefore, one can assume that also price levels are different in rich and poor economies. With regard to the production of a Big Mac, it is not very likely “that there are large differences in the productivity of workers cooking burgers regardless of the country of location of the McDonald’s” (Pakko and Pollak 18). The work of putting basically the same ingredients in every Big Mac can be seen to be identical. Yet, the difference in wage costs can be enormous depending on the country and thus is the pay for the same work, which may certainly distort results obtained from the BMI.

What we must not forget either is the general cost of transportation of the ingredients, especially the perishable ones, but moreover also the cost of oil, polish and the maintenance in the restaurants. These procurement costs are certainly different from location to location and the cost of transport may thus “drive a wedge between the prices of the same good in different markets” (Pakko and Pollard 16).

That the BMI or the Big Mac, respectively, can even be misused for distorting and manipulating economic data shows the case of Argentina. As could be seen before, the inflation rate of Argentina as measured by comparing BMI data and official data is much higher than officially reported by the Argentinean government. Following the results of those discoveries, the Big Mac price in Argentina took a rather strange development as compared to other burgers. The price of a Big Mac decreased while prices of other meals remained high in all of the Argentinean McDonald’s restaurants. What is even more, the Big Mac no longer was advertised. Instead, it was downplayed and “kept far from the lights” (Politi). This behaviour is indeed remarkable and soon government critics accused the government of actively intervening in companies’ decisions and pricing in order to “manipulate economic statistics in its interest” (Politi). In the concrete example, the government tried to influence Argentina’s performance on the BMI by keeping the Big Mac price comparatively low with the aim to make the Argentinean Peso appear less overvalued and to make inflation appear lower. Soon after the media reported about these phenomena, the Big Mac price suddenly rose by 26% and was close to its former price, which basically provided evidence that Argentina intervened in this case.²²

It goes without saying that here we have mainly investigated up to what extent the BMI can be used for comparing purchasing power parity among countries, but not what really influences exchange rates mechanisms and valuations. Exchange rates are not only established by the development of commodity prices or the flow of goods, but nowadays to a much greater degree by differences in interest rates between the currency areas and also by increasing foreign exchange speculation, economic trends in general and political factors.

²² For more information on the Argentina case please consult the following links:
<http://www.cronista.com/economiapolitica/Moreno-pierde-la-batalla-el-Big-Mac-sale-del-freezer-y-aumenta-26-su-precio-20120608-0012.html>
<http://latitude.blogs.nytimes.com/2011/11/24/argentinas-big-mac-attack/>

This is why also the forecasting power of the BMI as regards future exchange rate movements is rather poor. There are simply too many incalculable factors that play a role. Haidar claims that the raw index performs weak when it comes to predicting exchange rates, since “undervalued currencies remain too cheap and overvalued currencies remain too expensive (6).

Taking all the aforesaid facts and drawbacks into account, it is definitely true that the Big Mac is “not all about the ingredients” (Haidar 11-12) and that there is a huge number of price-influencing factors that are not attributable to local purchasing power and totally unrelated to currency values. Amongst them one finds trade barriers, different taxation systems, non-tradable goods, a difference in demand, in local competition and sometimes even in ingredients; and different commercial strategies of McDonald’s. While a Big Mac burger might look alike around the world in appearance, it is obviously not at all identical in the cost of its inputs. Therefore, an objective measurement of the Big Mac pricing is hardly possible and one can say that the BMI is to a large extent biased and “not foolproof” (“Mcparity”). Even within a single country the price of one product such as the Big Mac may differ according to the region. A Big Mac in Los Angeles can sell more expensive than in a rural area say in Texas, meaning that, in line with the BMI, “the value of a dollar, compared to other countries, is not the same across two different areas in the United States” (Haidar 11), which would even leave a layman with doubts because this would be really hard to accept. Clements et al. go so far to say that “the under- and over-valuations of currencies based on the BMI published by *The Economist* cannot be accepted as a reliable measure of mispricing” (16) and Haidar claims that “the BMI does poorly as a valuation tool” (11). A further interesting point is made by Fujiki and Kitamura, who conclude that the index is created with data that have been collected at one specific time in a year, and “that time might coincide with transitory exchange rate fluctuations that do not reflect exchange rates throughout the year” (10).

For these reasons, it can be said that the BMI is not really a reliable index when it comes to estimating a currency’s under- or over-valuation, but it serves perfectly for showing and understanding why purchasing power parity does not exist, without taking its findings too seriously. Yet, the fact that it is most probably neither reliable for carrying out solid and authentic research nor for basing speculative decisions on it does not take away any of its popularity. It has developed into one of *The Economists’* stars and has made itself a name

among its readers and economists alike. Still, one might consider the index nowadays as a mere marketing strategy in order to sell more copies of *The Economist*. It may in spite of that be reasonable to say that across the rich world or across economies that are basically in the same stage of development with similar income levels (cf. “Sandwiched”) a comparison makes much more sense than a comparison throughout the world. Anyway, one could see the index simply as “a beefy bundle of exchange rate fun” (“Calories and currencies”) without necessarily taking its results for granted.

5.4 The Wiggle Room Index: Explanations and Applications

After having analysed the BMI with regard to its usage but also its drawbacks, I would now like to turn the attention to a very recent index developed by *The Economist* in collaboration with The Economist Intelligence Unit, Haver Analytics, the IMF and UBS. The so called Wiggle Room Index has been elaborate in 2011 and was first published in January 2012. Since the index is rather new, it has hardly undergone any professional study heretofore. Therefore, we will have a closer look at it in this paper by trying to assess its strong and weak points.

The index looks at how much wiggle room²³ emerging markets have when it comes to a worsening of the economic crisis, especially of the European debt crisis. As it can be seen in the global economic overview, nowadays developed and emerging economies are so heavily intertwined that an economic downturn in developed countries is likely to also have severe impacts on emerging countries. The biggest threats are a possible deterioration of the euro crisis and the unsteady US recovery which could make things nastier for emerging economies (cf. “Shake it all about”). Apart from China, the majority of developing economies suffered a decrease in average growth rate to less than 3 % in 2011 (cf. “Shake it all about”). This, still, is a value that most European countries for example could only dream of. Yet, for emerging markets it displays a clear cooling down of activity due to weaker exports, less indirect investments and thus reduced capital inflows from rich but crisis-affected economies. For that reason, the WRI has been elaborate in order to have a look at which emerging economies could perform best in case the crisis worsens, i.e. which economies have possibilities for monetary and fiscal easing in order to spur demand and to get least affected by developments

²³ The term wiggle room here stands for scope or manoeuvring room.

in the rich world. *The Economist* bases its index on the fact that emerging economies performed reasonably well during the downturn of 2008 due to “lots of room for manoeuvre” (“Shake it all about”) Moreover, the magazine holds the view that while “most rich countries have no room to cut interest rates or to increase public borrowing, emerging markets as a group still have lots of monetary and fiscal firepower” (“Shake it all about”). As can be seen in the following chart, the WRI consists of several factors that have been taken into account.

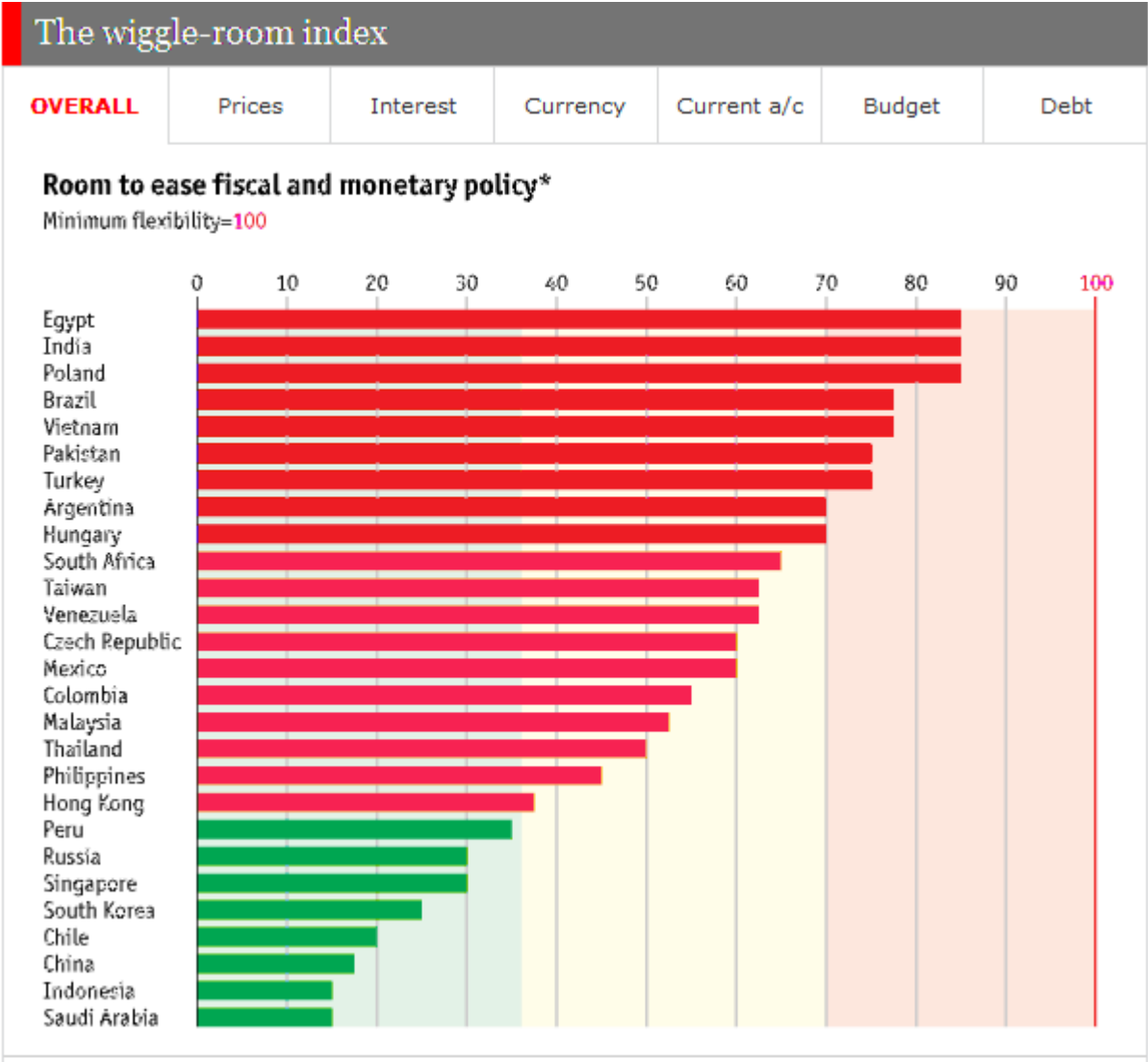


Figure 15: The Wiggle Room Index Overview. *The Economist* online. 26.01.2012. Web. 05. Sep. 2012. <<http://www.economist.com/blogs/graphicdetail/2012/01/daily-chart-11>>.

The chart provides a first interesting overview. The aforementioned factors that have been considered in order to assess a country’s wiggle room are prices (inflation), real interest rates, currency (exchange rates), current account balance, government budget balance, general government gross debt and excess credit. Each of the appearing countries has been evaluated with respect to all the influencing factors with finally adding the scores up to generate an

“overall measure of monetary manoeuvrability” (“Shake it all about”). In the following, we will have a look at each of these factors in detail.

As it is visible in the chart above, 27 emerging countries have been considered and subsequently have been assigned a colour according to the results. Red means that these countries have the least room for stimulus, yellow means a country is somewhere in between, and green means there is a lot of room for fiscal and monetary easing. The concept can be compared with a traffic light, with red signalling that the brakes need to stay on while green countries are safe to let out the throttle (cf. “Shake it all about”). Without going already into detail here, one can see in the chart that Egypt, India and Poland have the least flexibility while for instance Saudi Arabia and Indonesia, but also China get the green light, having a lot of scope.

When having a look at the factors in particular, one can see the differences in a much clearer way. The findings shall be described briefly here. I would like to begin with consumer prices and inflation.

Consumer prices

Latest, % increase on a year earlier

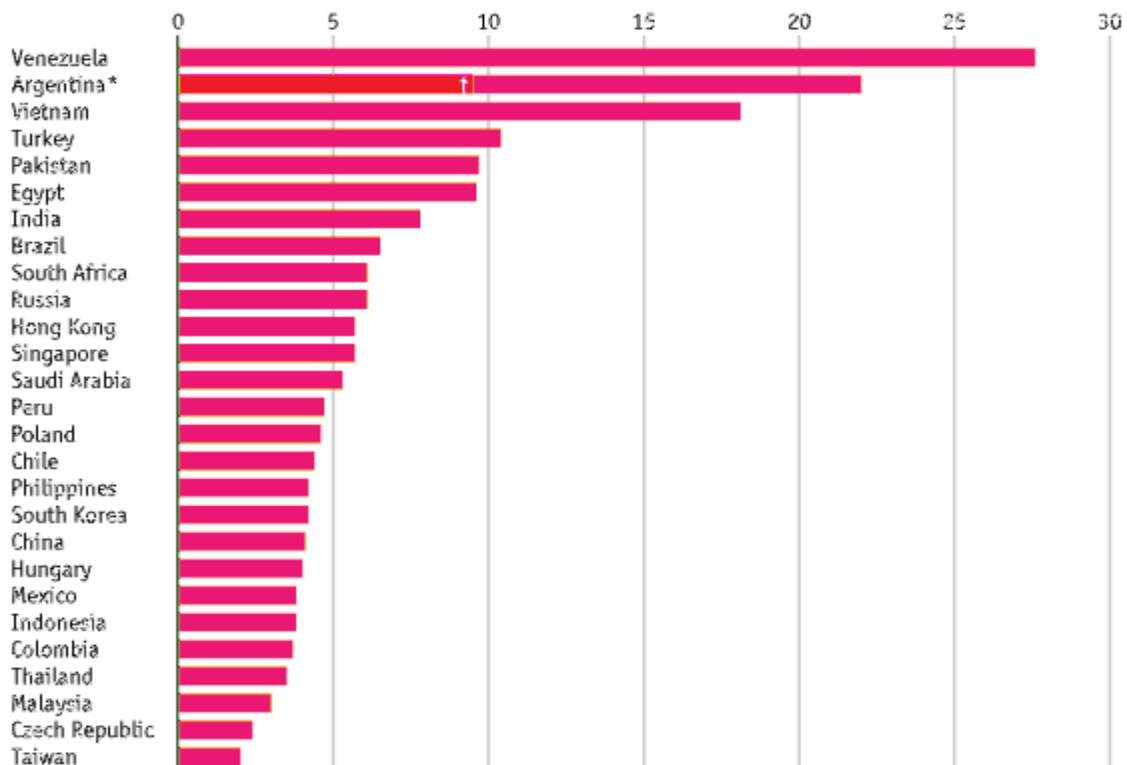


Figure 16: Consumer prices²⁴. The Economist online. 26.01.2012. Web. 05. Sep. 2012. <<http://www.economist.com/blogs/graphicdetail/2012/01/daily-chart-11>>.

Venezuela, Argentina and Vietnam have experienced the biggest increase in consumer prices in 2011. Especially Venezuela and Argentina are striking insofar as we encountered them also earlier when discussing the BMI. While Venezuela stroke the eye by a huge currency overvaluation, Argentina did so by discrepancies revealed with regard to the difference in officially reported inflation rate und burgenomics inflation rate. The chart shows its officially reported rate lying under 10 % and its rate as estimated by experts and as revealed by the BMI surpassing the 20 % border. This is one of the reasons why Argentina later will be labelled with the overall red light.

In spite of a worldwide decrease in food prices, roughly half of the countries rank above the 5 % border that can be seen to be already critical while the remaining countries do not surpass this border, amongst them China. The best-performing countries here are the Czech Republic and Taiwan. As mentioned in the economic overview, India is facing a

²⁴ Please note that the † (Argentina) stands for the officially reported rate.

relatively high inflation rate, which is confirmed by the chart. Together with India, there are two more BRIC states that are facing problems, namely Russia and Brazil. The following chart displays the real interest rates.



Figure 17: Real interest rates²⁵. The Economist online. 26.01.2012. Web. 05. Sep. 2012. <<http://www.economist.com/blogs/graphicdetail/2012/01/daily-chart-11>>.

The real interest rate basically comprises the nominal interest rate adjusted for price changes and thus is closely linked with inflation. The rate shows how much an investor expects to receive if subtracting the expected inflation rate. This shows especially how monetary assets can be affected by inflation taking into account that the value of a good may rise or fall accordingly. The expected inflation rate, however, varies because it is not always easy to anticipate future inflation rates, although one might use the BMI when being a venturesome and speculative investor.

Basically, all BRIC states display a positive value here due to low inflation, high nominal interest rates or a combination of both. The chart itself provides no particular

²⁵Please note that the * (Argentina) stands for “using average private-sector estimate of inflation.”

information about that, but when having a look at the inflation figures of the anterior chart one can shed more light on that. Obviously, the three worst performing countries with regard to the development of consumer prices, Venezuela, Argentina and Vietnam, also perform worst here since the high inflation numbers take away a lot of value of the assets. On the other hand, Brazil, Hungary and China are performing very well. Especially Brazil sticks out here despite a relative high inflation. Its nominal interest rates must, logically, be very high in order to compensate for that. Malaysia is the only country displaying a nil value here, meaning that the nominal interest rates are apparently identical with expected inflation. Next, I would like to turn to currencies and exchange rates against the dollar.

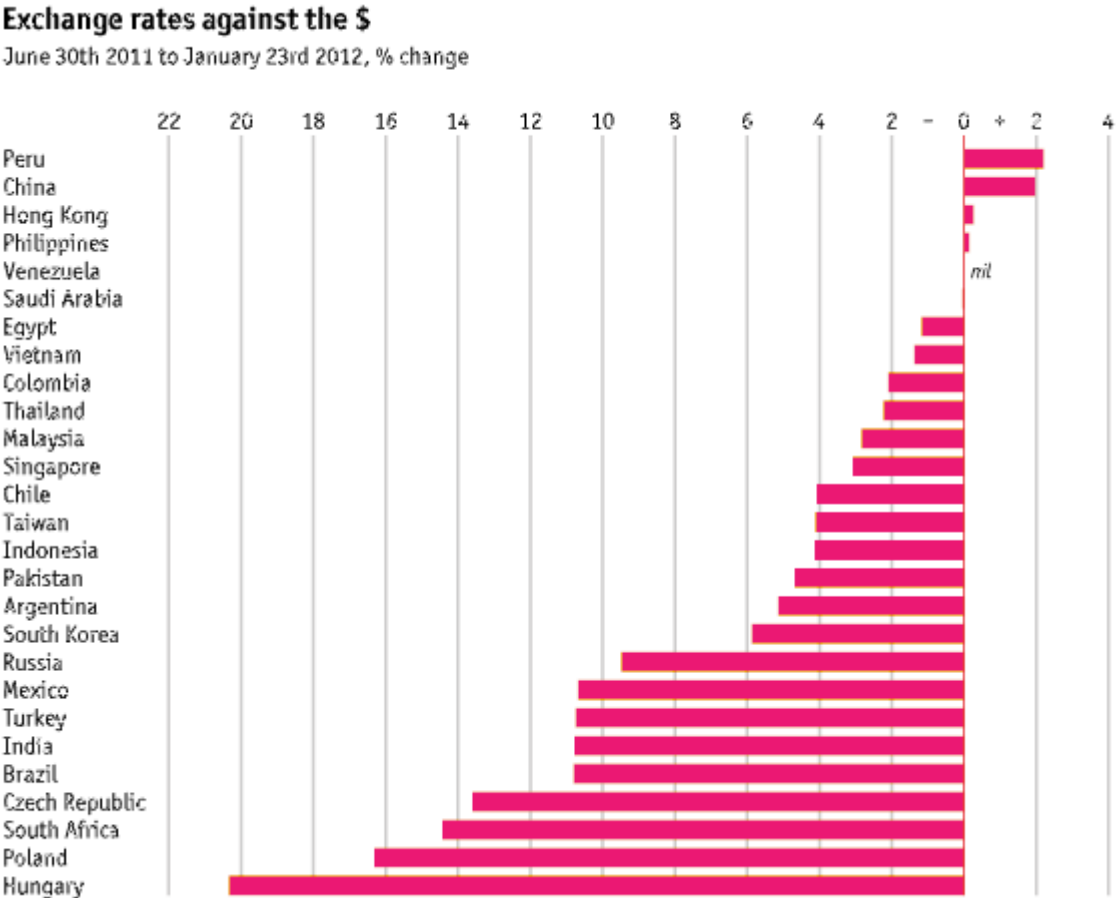


Figure 18: Exchange rates against the dollar. The Economist online. 26.01.2012. Web. 05. Sep. 2012. <<http://www.economist.com/blogs/graphicdetail/2012/01/daily-chart-11>>.

The chart shows up to what extent the currencies of emerging market countries have depreciated or appreciated in a period of half a year from June 2011 to January 2012.²⁶ The observations that can be made are extremely interesting when comparing them with the

²⁶ Please note here that these results have been established by using scientifically more trustworthy methods than the BMI.

results of the BMI. As one can see, only four currencies have appreciated within half a year, namely the ones of Peru, China, Hong Kong and The Philippines. The question now is to whether compare these results with the BMI raw index or the GDP adjusted index. The raw index has been used every single year whereas the GDP adjusted index has been applied only once in 2011, but is said to produce more accurate results. Therefore, we take the 2011 GDP adjusted index as a standard of comparison here.²⁷ China's slight appreciation is therefore not further surprising bearing in mind that the currency is not as undervalued as experts tend to believe. Nevertheless, the economic world still demands an appreciation of the renminbi in the near future. The case of Peru does not surprise much either. Peru's *Nuevo sol* is overvalued by almost 65 % anyway and the chart shows a further appreciation that has taken place. This, interestingly enough, might give the sensation that the BMI fails when it comes to forecasting exchange rate adaption to purchasing power parity in the short term. Saudi Arabia's Ryial and Venezuela's *bolivar fuerte* are the only currencies that have neither appreciated nor depreciated. In the case of Venezuela, this observation might be a bit surprising taking into consideration its development from fair value in 2007 to over 80% overvalued in 2012. However, as it was seen before, the reasons for a change like that have been various and after the introduction of the new currency the exchange rate relative to the dollar has normalized. Also, the currency has been pegged with the dollar, which explains the lack of movements.

22 out of 27 countries, though, have depreciated. The cases of Egypt, Vietnam and Colombia, for example, are not worrying. As one can see, there are several extreme cases at the other end of the spectrum, such as Hungary, Poland, South Africa, Czech Republic, but also Brazil. This is very interesting because according to the BMI index all these currencies are to a certain degree overvalued. Hungary's forint is overvalued by almost 60 % and has depreciated by almost over 20%. Likewise, Brazil's real is 150% overvalued and has depreciated by over 10%. The same developments occur with most of the other currencies. Singapore, Taiwan and India are the only countries whose currencies depreciated in spite of already being undervalued. When taking account of these observations, one could indeed claim that the BMI anticipates exchange rate movements for the future, also in the short run. This is striking in that it reverses what we found out before, that is to say that the BMI may be able to predict future exchange rate movements, but rather in the long run.

²⁷ The 2011 GDP adjusted index can be found on page 38.

Unfortunately, *The Economist* gives no answer on how these developments are incorporated when assessing the final and overall evaluation. Speculating though, one can say that a depreciation of an overvalued currency makes a good impact on the results and vice versa. On the other hand, a cheap currency boosts exports and therefore is not necessarily bad. The drawback of that is, however, that a cheap currency also makes imports much more expensive and that may increase inflation rates, which is already a problem in a lot of emerging countries as could be seen earlier. Also, care needs to be taken when comparing these results with the BMI mainly because of possibly different dates of data compilation. In this case, however, there is a very good fit. The GDP adjusted index dates from July 25th 2011 and the chart above makes use of the June 2011-January 2012 timeframe. In the following, we will have a brief look at the current account balance.

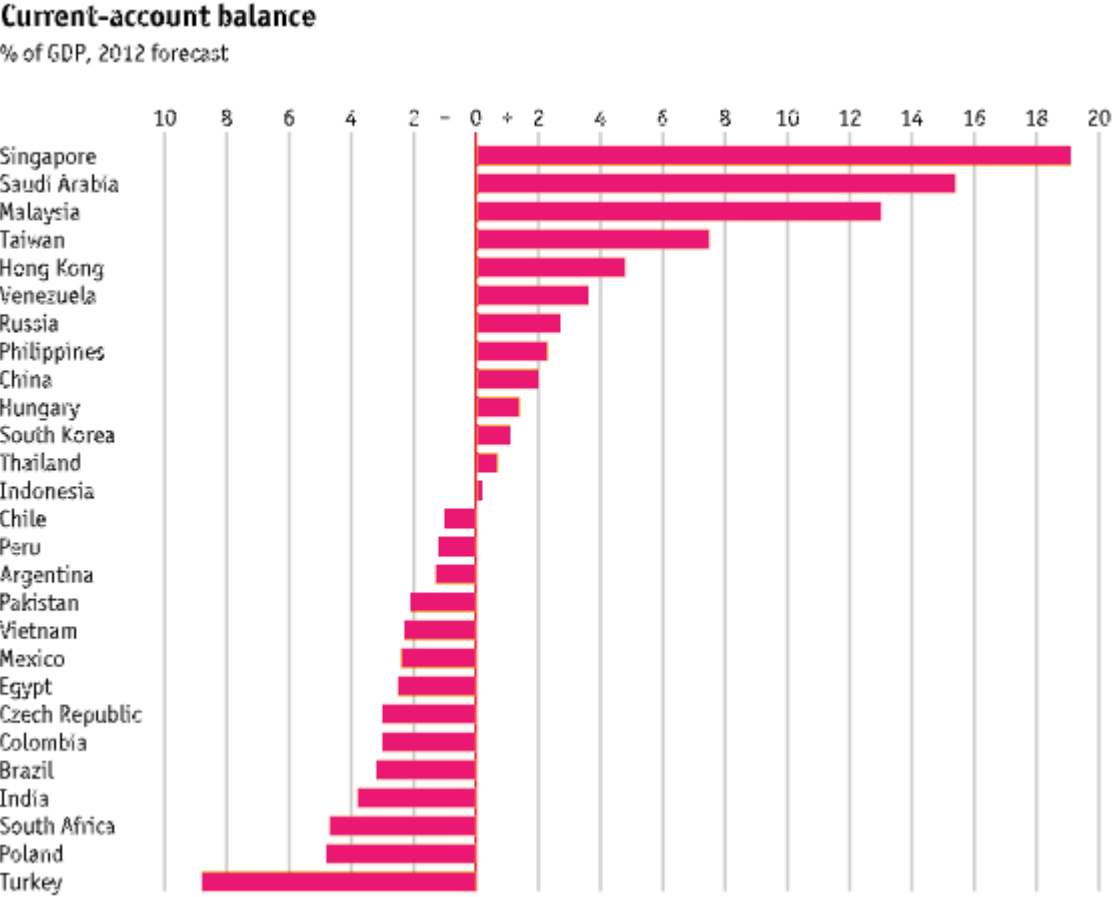


Figure 19: Current account balance. The Economist online. 26.01.2012. Web. 05. Sep. 2012.
 <<http://www.economist.com/blogs/graphicdetail/2012/01/daily-chart-11>>.

The current account balance belongs to the balance of payments and displays the factor income, the balance of trade and cash transfers. It shows a country’s current account

deficit or surplus. The most important measurement parameters here are exports and imports. Countries that export more goods than they import are likely to have an account surplus while countries that import more than they export have an account deficit. Two famous examples of the rich economies are Germany and the USA. Germany belongs to the world's top exporting countries with its exports surpassing its imports to a considerable degree. The USA, au contraire, are known for having a huge account deficit.

As one can observe, 13 emerging economies have a surplus while 14 have a deficit. There are three countries that have a large account surplus, namely Singapore, Saudi Arabia and Malaysia. Singapore and Saudi Arabia later get the overall green light and their account surpluses are one of the main reasons for that. A further observation is that while Indonesia almost shows the perfect fit with only a slight surplus, Turkey is in big trouble here, being the most fragile country with a deficit of 9%. The problem here is that in case of a tightening of global financial conditions, "it would be harder to finance a large current-account deficit, and so harder to cut interest rates" ("Shake it all about").

Three more factors are left over to provide the overall picture; mainly the general government cyclically adjusted budget deficit and the general government gross debt, both of which can be labelled as "fiscal-flexibility index" ("Shake it all about"). Firstly, we shall have a look at the cyclically adjusted budget balance.

General government cyclically-adjusted budget-balance

% of GDP, 2011

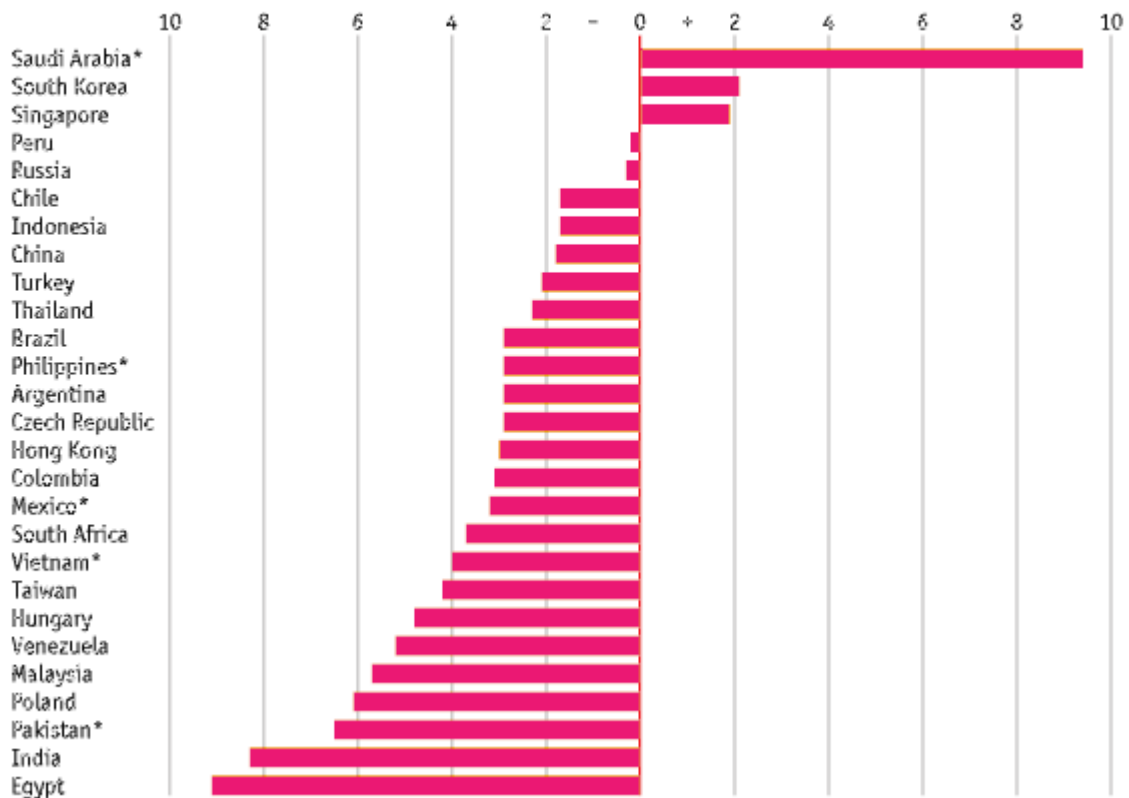


Figure 20: Cyclically adjusted budget balance²⁸. The Economist online. 26.01.2012. Web. 05. Sep. 2012. <<http://www.economist.com/blogs/graphicdetail/2012/01/daily-chart-11>>.

The general government cyclically adjusted budget balance basically displays the amount of government revenues such as tax receipts in relation to the amount of government expenditures such as investments in infrastructure for instance. A cyclically balanced budget over the economic cycle stands for a structural budget. The balance is an equal amount of both revenues and expenditure and the usual behaviour is having a surplus during an economic recovery and having a deficit during an economic downturn. Again striking is that South Arabia and Singapore are performing excellently here together with South Korea, which is also labelled with the green light. The remaining 24 countries, though, have a deficit and thus low wiggle room when it comes to boost government expenditures and thus the economy. Either their revenues are too low or their expenditures too big, but most probably it is a combination of both which causes these bad results in the developing markets. Egypt and India are performing worst. Especially India seems to become more and more a matter of

²⁸ Please note that the * stands for “not cyclically adjusted.”

concern here, basically performing poorly in all of the single influencing economic indicators. It is not for nothing that it is one of two BRIC states having the red light. Here, one can see which countries behave the most spendthrift and prodigally. Only Peru and Russia are close to having a perfect balance. Still, emerging economies perform much better than rich countries. The average budget deficit of the emerging economies amounts to roughly 2 % of GDP as it can be seen in the chart, whereas the average budget deficit of the G7 economies runs up to 8 % of GDP (cf. “Shake it all about”). Ultimately, we will have to discuss one of the weightiest factors, namely general government gross debt, which is displayed in the following figure.

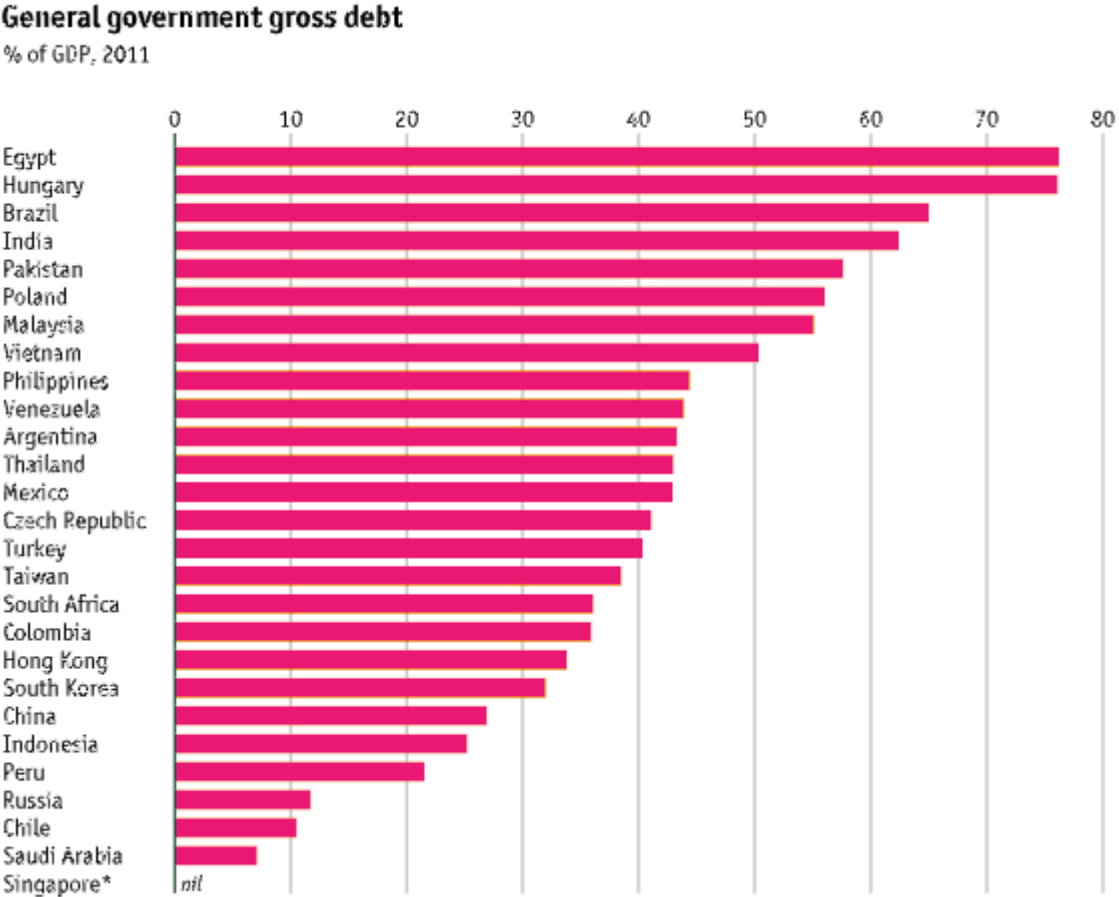


Figure 21: General government gross debt²⁹. The Economist online. 26.01.2012. Web. 05. Sep. 2012. <<http://www.economist.com/blogs/graphicdetail/2012/01/daily-chart-11>>.

Nowadays, almost every country runs a government gross debt.³⁰ This becomes also very obvious when glancing a look at the emerging markets. Countries having a large debt are in the majority of cases the countries that are subsequently assigned the red light, as in the cases of Egypt, Hungary, Brazil, India, Pakistan, Vietnam and Poland. Egypt and Hungary are

²⁹ Please note that the * for Singapore means that the value of its net debt is displayed rather than gross debt.
³⁰ The Economist provides the so called global public debt clock, which gives information on every single country. Please confer http://www.economist.com/content/global_debt_clock?fsrc=scn/fb/wl/bl/globaldebtclock

the outstanding countries with a government debt of roughly 75% of GDP. With Brazil and India we see again two BRIC states performing very poorly. A huge government debt combined with a budget deficit is indeed an almost insuperable barrier when it comes to responding to another global downturn (cf. “Shake it all about”). China seemingly has a rather low deficit with only 27% of GDP. According to *The Economist*, however, this is a value excluding bank lending to local governments, which could increase the debt to almost 60% if it were taken into account (cf. “Shake it all about”).

The deficits displayed here may at first sight seem large and alarming, but when comparing them with some of the developed economies the numbers become more relative. By means of example, Germany runs a deficit of 83 % of GDP, Belgium of 101%, Italy of 119% and Japan of almost 200% of GDP. Whilst the rich countries have an average government debt of 119% of GDP, the emerging countries’ average debt amounts to only 36% of GDP (cf. “Shake it all about”; Gray).

What catches the eye in the chart is Singapore. According to the chart there is no government debt at all. This, however, is caused by the circumstance that the value displayed here is the net debt instead of the gross debt. The net debt is the gross debt minus all financial assets and debt claims against other countries. Taking this into account, the amount of net debt is logically much lower. Its government gross debt is of course much higher and even approaches the 100 % boarder.³¹ Regardless of that, Singapore’s government claims to “not have any external debt” (Singapore Government Borrowings: An Overview 3). Therefore, one can observe some lack of consistency in the index. China and Russia perform very well, though. So do Saudi Arabia and South Korea. Those four countries can be seen to have the most fiscal flexibility when only considering government debt and structural budget balance.

Strangely enough, there is another factor that has been considered when compiling the index. As mentioned in one of *The Economist*’s articles about the WRI, the factor excess credit also plays a role in the overall assigning of a red, yellow or green light (cf. “Shake it all about”). For this factor, however, the magazine does not provide any single chart but only a tiny description of how well or bad some countries perform. Excess credit here means “the gap between the growth rate in bank credit and nominal GDP over the past year” (“Shake it

³¹ Please consult <http://www.gfmag.com/gdp-data-country-reports/181-singapore-gdp-country-report.html#axzz24h4LN48F> in order to get more accurate information on Singapore’s government gross debt.

all about”). To assess this, one has subtracted the growth in nominal GDP from the growth in bank lending. Without being able to provide a chart, the countries that come off badly are the usual problematic cases Argentina, Brazil, Turkey, but also Hong Kong, whereas China does very well with GDP rising faster than bank lending. Having briefly discussed the single factors in detail, it is worthwhile to have a look at the overall chart again here.

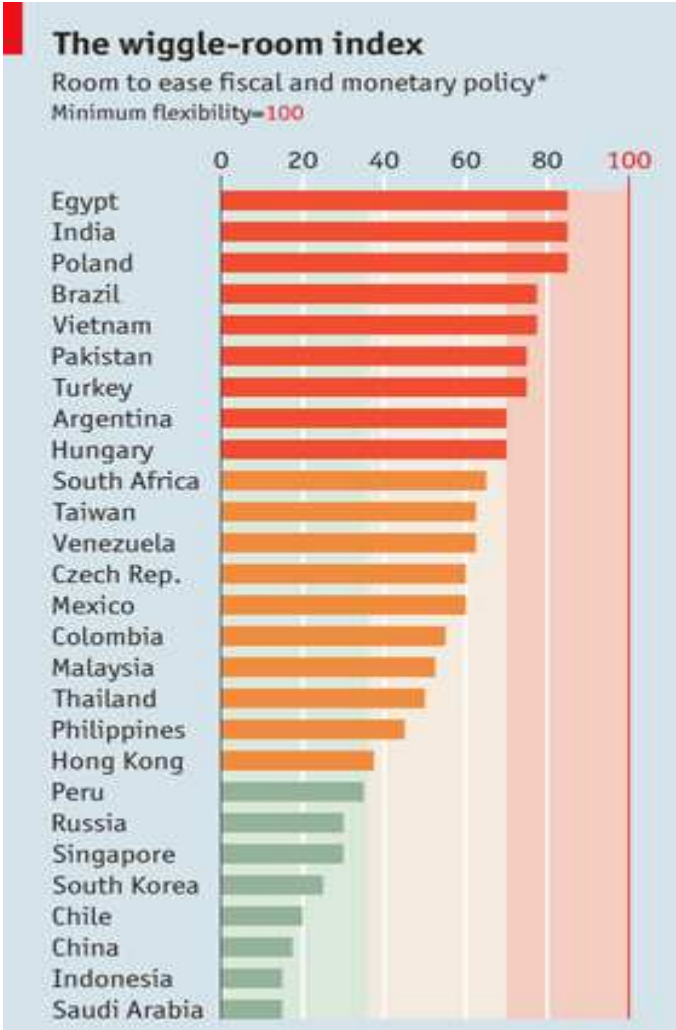


Figure 22: Overall Wiggle Room Index. The Economist online. 28.01.2012. Web. 05. Sep. 2012. <<http://www.economist.com/node/21543468>>.

In the chart one can see all seven aforementioned factors summed up in order to assess the amount of wiggle room for each one in terms of minimum flexibility. Nine countries get the red light, amongst them the two BRIC states India and Brazil. Ten countries have been labelled with the yellow light and the remaining eight obtained the green light, amongst others the two BRIC states China and Russia. Thus, countries having the biggest amount of flexibility with regard to monetary and fiscal policies are Saudi Arabia, Indonesia and China. This result does not surprise at all. Lots of Arab countries have performed decently during the

crisis mainly due to oil exports and a building boom. This has provided Saudi Arabia with a lot of financial flexibility and it becomes especially visible in its account budget surpluses. Indonesia is not much of a surprise either. As it was shown in the global economic overview, the country does remarkably well and is seen as one of the promising future markets. China meanwhile has become the world's top exporter. Its government understands well to keep inflation low and interest rates comparatively high, which provides China with enough scope to ease policy. As one could see earlier, China's economy is facing a soft rather than a hard landing due to having quite a lot of wiggle room for taking countermeasures, which is confirmed by the findings of the WRI.

The yellow spectrum goes from relative flexibility of Hong Kong to South Africa, which is close to getting the red light. The most extreme cases are, however, Egypt, India and Poland, which have the least wiggle room of all emerging economies. This is due to "excessive government borrowing, large current-account deficits, and uncomfortably high inflation" ("Who has the most wiggle room?"). Brazil is also suffering caused by a high inflation combined with account and budget deficits and large government debts. This is basically consistent with what we could see before in the economic overview. Brazil's central bank is recently advocating a course of reducing interest rates in order to stimulate economic growth, which is not necessarily bad, but may have the negative side effect of increasing an already relatively high inflation in the year to come (cf. "Shake it all about"). Therefore, the magazine claims that "desirable as it is to keep moving, ignoring red lights is risky" ("Shake it all about"). Also, the second red-light BRIC state, India, experiences an imbalance between a very high inflation and a big account and budget deficit. Furthermore, growth has sharply decreased as it was outlined already in the global economic overview. The high inflation certainly is the main reason for still not having reduced its interest rates and as a consequence of that India is very likely to remain in a veritable predicament.

As a matter of fact, *The Economist* recognizes a mismatch in the findings ("Shake it all about"). There are some big countries in the red light zone whose growth has slowed down a lot, as it is visible in the cases of India and Brazil, but which also holds true for say Argentina and Pakistan. These countries have much less monetary and fiscal room for easing than countries like China and Indonesia, which do not really have the need to do so, i.e. to stimulate growth (cf. "Shake it all about"). This basically confirms what was shown before in the global economic overview. China and Indonesia do comparatively well and are not hit by

the crisis as toughly as other countries. Having now briefly considered how the WRI works, I wish to turn to its shortcomings in the following part.

5.5 The Wiggle Room Index: Disadvantages and Criticism

As it has been shown, the WRI is able to provide interesting insights into the current state of health of emerging countries. This is due to the incorporation of several crucial economic factors. *The Economist* itself sees the index as a “healthy aggregate picture” (“Shake it all about”), but at the same time reduces its meaningfulness by saying it is just a “rough ranking” (“Shake it all about”). At first sight, an index like this is indeed of interest for the economic world and especially for investors. After all, the index may be seen to be more trustworthy than the BMI given the fact that it relies on more sophisticated measurements. However, similarly to the BMI, one has to interpret the results with care. The WRI is an index that has been published for the first time this year and thus lacks some professional investigation. This may be due to two reasons. First of all, it is still too new and fresh. Secondly, no one has encountered any bad points or has tried to do so. That this is, nevertheless, not the case will be shown in the following as a first attempt to assess the weak points of the index.

If turning a bit strict and meticulous, one could say that the organization of the overall chart is not really convenient. Ranking the worst performing countries on top and the best ones lowest is confusing at first sight. Usually, one would think about 100 being a perfect number for an index. Yet, in the case of the WRI, the higher you rank, i.e. the more percentage you get, the worse you perform. Therefore, it may be more coherent and easy to understand if the chart was ordered the other way round in order to show maximum flexibility on top rather than minimum flexibility.

Along with this, there is a lack of appropriate explanation of how each of the seven factors contributes to the overall chart. It is very informative by *The Economist* to provide every single chart apart from excess credit, as we could see before. Yet, the reader does not know which factors had the biggest weight when the index was compiled, i.e. which factor can be seen to be the most important one. Is not government debt maybe more important than exchange rates against the dollar when trying to estimate a country’s wiggle room? And what impact has the inflation rate on the overall chart? It would be desirable if the magazine shed more light on that and it will for the time being remain to be answered. Along with that, one

might wonder why there is a chart available for six of the seven factors but not for the factor excess credit, which seems to fall into oblivion here.

Furthermore, many readers may ask themselves on what grounds *The Economist* has chosen these 27 countries and, what is more, on what grounds are countries like Singapore, South Korea or Hong Kong emerging economies? Have they not already emerged? And are there not much more countries that might be considered emerging ones? The analysts of *The Economist* are the only ones that label Singapore as an emerging economy in spite of being considered by a lot of experts and also by the IMF to be an already emerged economy. Also, the Czech Republic, Hong Kong and South Korea are seen as advanced economies by the IMF (cf. World Economic Outlook Update 2012: 3). Therefore, it is inappropriate to include them in the index. On the other hand, there are countries that are missing. These are, for instance, Bulgaria, Latvia, Lithuania, Romania and Ukraine, which are labelled as emerging economies by the IMF (cf. World Economic Outlook Update 2012: 3). The FTSE group additionally adds Colombia and Morocco, but makes a distinction between advanced and secondary emerging countries (cf. FTSE Global Equity Index 2010: 2). Standard and Poor's also claim these two countries to be emerging ones (cf. S&P Global BMI Equity Indices 2011: 1). To show that there are a lot of inconsistencies when it comes to assessing if an economy is an emerging one or not shows the Dow Jones List, which says that both the Czech Republic and South Korea are emerging markets and thus totally contradicts the IMF claim (cf. Dow Jones Total Stock Market Index 2011: 2). In respect thereof, one certainly gets an idea of how tricky it is to label a country according to its economic strength. Concluding here, one might say that in spite of an overall disagreement on how to assess an emerging economy, the WRI is not consistent in that it could have added a few more countries in its analysis. Likewise, it was not necessarily needful to include the Czech Republic, Hong Kong, South Korea and Singapore.

Some more inconsistencies are observable when having a look at the single charts in detail. The data collection for Argentina is always a tricky thing because its officially reported data is generally seen to be not very trustworthy. Therefore, the data used for inflation and real interest rates are based on expert estimates while the data for the rest of the countries are based on government figures. When it comes to the countries' cyclically adjusted budget balance one can see that the data of some countries is not cyclically adjusted. This is the case for Saudi Arabia, The Philippines, Mexico, Vietnam and Pakistan. In a way, that makes

comparisons difficult and not perfectly feasible. The same applies for general government gross debt. Here, the data for all but one country are indeed gross debt. However, the data for Singapore is based on the net debt, and this is of course much lower than the gross debt as we have seen before. According to estimates, Singapore's gross debt may amount to almost 100% of GDP. In line with that, it would have to be on top of the corresponding chart and as a consequence may not have been assigned the overall green light but rather may have moved over to the yellow one. We disregard the fact here that Singapore actually is an already emerged economy. Still, there is no obvious reason for taking the net debt only for Singapore whereas the gross debt is used for the remaining countries. If the net debt were used for all of the countries included in the chart, the results may certainly look different. What is far more of an issue here is China, which is seen to have several unrecorded loans (cf. Li) and thus performs reasonably well on the government debt chart. The inclusion of these loans would certainly increase its debt and thus deteriorate its score in the chart. Even so, China would most probably receive the green light.

Another thing with regard to the charts is that some results may be the way they are by mere intention. Some countries particularly make use of the interest rates, exchange rates and inflation in order to cool down their economies. This is especially the case with China, which can be seen as a paramount example. Its government is said to slow down growth in order to avoid an overheating and to have reserves during bad times (cf. "Shake it all about"). Therefore, some results may not necessarily display a true value. Interest rates can be kept artificially high or low, and so can inflation and the exchange rates against the dollar. This, however, is too much nitpicking in detail. One can still believe that most of the results are reliable.

Furthermore, the chart misses some important points and "should only be used with other analysis" (Hogue). It is certainly true that most of emerging countries have large economic ties to the developed world. Yet, there are countries that have been assigned the red light but do not have very strong ties to euro zone countries. Brazil, for instance, has more ties to other emerging markets and China than to the euro zone (cf. Hogue). Likewise, Hogue argues that there is a continuance in resource demands from countries like China or the USA, "which will drive a strong export market for many of the resource countries". For that reason, threats coming from the euro zone may not affect Brazil or Venezuela in the same way as it

may affect countries like Poland, Hungary or the Czech Republic, whose ties to the euro zone are much stronger. Hence, the index only displays a partial picture of a more complex reality.

Speaking about resources, it would certainly be interesting to add a chart that gives information on up to what extent the financial assets of the petroleum exporters would be affected in case global demand drops. Here, one has to mention mainly Saudi Arabia, Russia and Venezuela. Although Saudi Arabia and Russia get the green light, there are definitely other factors that are to be taken into consideration and it is likely that a drop in oil prices has a big impact on these countries. So has an increase in oil demand, which may spur these exporting countries' economies. In respect thereof, it is obvious that the influencing factors as established by *The Economist* are appropriate, but not necessarily sufficient in order to assign green and red lights.

It would furthermore be very interesting to see how developed countries would perform on an index like that if taking the very same factors as a basis. When permitting a bit of intuitive speculation, surely 90% of them are likely to get the red light. Moreover, it would doubtlessly be curious to include more African countries in the index as one can get the feeling that this continent gets more and more forgotten regarding economic issues.

5.6 Comparison of the Indexes

Now that we have assessed the possible ways of applications and functions of the indexes together with their strong and weak points, we shall have a comprised look at these findings again in order to establish a reasonable comparison and in order to figure out which are the main differences, which are the possible similarities and which of the indexes is more reliable. In general, the BMI has been regarded as a rather humorous guide to exchange rates whereas the WRI is meant to be taken in a more serious way.

Both published by *The Economist*, the two indexes do not have much in common at first sight given their different applications. This, of course, is true to a certain degree. Nevertheless, a comparison between the two economic indexes published by the same magazine makes much more sense than for instance comparing the BMI with the Lipstick index or the WRI with the Shoe Thrower's index. While the BMI merely compares exchange rates and thus purchasing power parity, the WRI has a much wider scope because it takes much more factors such as the government debt or the inflation rate into account, which is one of the biggest differences here taking into consideration that the BMI focuses on one single factor while the WRI combines several ones. This, albeit, is not necessarily an advantage since we have seen some inconsistencies within the single charts, for example with regard to the net and gross debt. The BMI is more consistent in that way, using the worldwide price of a single item.

Their designs are fundamentally different. The WRI has already been criticised for ranking countries according to minimum flexibility and not for maximum flexibility. The BMI itself does not really offer a ranking but gives mere over- and under-valuations according to either a raw index or a GDP adjusted one. This does not include any warning or advice as does the WRI by giving green, yellow and red lights. The traffic light system may indeed be suitable also for the BMI in terms of future BMI's to come in order to provide a better initial assessment for the reader.

While the BMI is applicable for countries worldwide, i.e. countries that have a McDonald's regardless of their current state of development, the WRI can be exclusively used for having a look at emerging markets. Emerging market countries, though, have found their way into the BMI, whose amount of countries considered is subject to fluctuations as it was

shown. The index does not include the same countries every year. The 2011 BMI displayed 36 countries whereas the 2012 version includes 44.³² Several countries appear in both the BMI and the WRI and thus there is an overlapping for instance in the cases of Argentina, Brazil, China, Egypt, Peru and Poland. It is thus very interesting to have a look at the data of the BMI and the WRI when it comes to exchange rate over- / under-valuations. As could be seen in the WRI chart with regard to exchange rates, the majority of currencies have depreciated sharply within the time frame of June 2011 – January 2012. This, interestingly, goes along with the findings of the GDP adjusted BMI for 2011 saying that almost any investigated currency is in a way overvalued relative to the dollar, so that there is indeed plenty of room for depreciations. In this respect, the two indexes compliment each other very well. The same applies for inflation here, especially in the case of Argentina. However, the WRI only looks at official data, whereas the BMI makes use of both official inflation rate and Big Mac inflation rate. Yet, one can say that both indexes make use of exchange rates, which is, however, just a subcategory of the WRI whereas it is the nucleus of the BMI. The purchasing power parity is something that the WRI does not look at. What counts are the mere facts of the either under- or over-valuations of the currencies. Here, the WRI makes use of the officially assessed currency valuations which are not as biased as the BMI ones with factors like taxation, subsidies or competition. That is, by the way, an interesting observation. Apparently *The Economist* itself does not put much trust in its BMI because otherwise it could have easily taken that data for inclusion into the WRI rather than looking for official over- and under-valuation.

The BMI has been comparing exchange rates against the dollar since 1986, publishing every year new tables in order to keep it up to date. The WRI has been published for the first time in 2012 mainly due to the ongoing crisis. It remains doubtful whether the WRI will be published again in the following years or not. The BMI has been established for so long and has found so many followers inside and outside the economic world that its publication in the following years is a certain thing. The WRI, however, can only have a future in case it finds as much positive reception and popularity as the BMI. Regardless of that, it would certainly be curious if *The Economist* kept publishing the WRI in the following years, but also for developed countries. That would help to have a better means of comparison and it would mean to go on a more serious and sophisticated path as compared to the BMI.

³² Please note that the euro zone counts as one country while the USA have not been counted here due to the dollar being the currency of comparison.

As we could see, the BMI can not exclusively be used for comparing exchange rates. On the contrary, the economic use of a Big Mac can be expanded to check inflation rates, to investigate different economic time frames and also to have a look at wages and productivity. This is due to the availability of data for almost 26 years, which offers room for different sorts of comparative research. The WRI can not keep up with that, given that its existence is fresh and innovative. Yet, the WRI offers very different kinds of economic data and thus it also offers a lot of investigative potential. However, it does not offer many controversies as does the BMI, whose controversy, admittedly, nowadays has become a bit exhausted. The annual publication of the BMI has, beyond that, been misused by Argentina in order to manipulate it for the country's outward economic appearance. This is something the WRI has been adjusted for by not believing in government data but in external experts.

The WRI makes use of official data whereas the BMI makes use of the simple prices of Big Macs. A lack of trustworthiness may be mentioned here. Still, the BMI index method looks a bit simpler than the WRI method, whose entire functioning is not really well explained by *The Economist*. The BMI can be reviewed more easily while the WRI seems to be more complicated due to the inclusion of seven factors. The complicity of data collection for the creation of the indexes can be seen in the mere fact that for the BMI *The Economist* simply asks McDonald's restaurants worldwide for the Big Mac prices. Sometimes the magazine even asks its readers. The WRI, however, requires some more elaborate data collection. That is why the WRI has been developed with the assistance of other economic analysts such as the Economist Intelligence Unit or UBS.

When digging deeper into the drawbacks of both it becomes clear that the indexes are not perfect at all. As shown before, the BMI has so many downsides that it can by no means be taken seriously. Its popularity and simplicity, however, are so big and have been pushed to being very interesting that many do so. And yet, it was shown that it does not at all serve for carrying out reliable and stable research, but rather for producing interesting, curious and thought-provoking results. As regards its foreshadowing power, one can say that it exists to a certain degree since overvalued currencies tend to depreciate and undervalued ones tend to appreciate. It is, however, a matter of debate whether one really needs a BMI for that or not, since the finding is rather far from new.

Also the WRI has its shortcomings. In spite of not having been studied and investigated as much as the BMI, some weak points have been found in the present work. Hence, both indexes lack some more detailed measures to be totally sound and convincing and there is indeed some room for improvement. Nevertheless, both indexes can be seen to have a similar target group, although the BMI is less scientific. Readers of *The Economist* and investors alike can be regarded to be interested in both indexes, just like scientists, as one could see in the case of the BMI. Furthermore, both indexes basically have the same purpose and objective, namely to make complicated things more coherent and comprehensible. In this way, they both deserve the consideration of “innovative indexes” since nothing comparable existed before their first respective publication by *The Economist*. However, we know now that only the BMI has caused a stir in that it has provoked much public attention until the present day.

6. Conclusion

The objective of this study has been to provide a detailed overview on two unconventional but important indexes published by *The Economist*. We have firstly seen that the magazine itself is a very reliable source due to its history, its achievements and not least its readership worldwide. We have also discussed the current situation of the economic world in 2012 and found some important issues that have to be tackled with. Nevertheless, the main focus of our analysis has lied on the indexes. A number of unusual and humorous yet in a way serious indexes has been brought up as an appetizer. It was then shown in what way the BMI and WRI can be used and if they provide useful information for the reader. A more profound analysis of the downsides of these indexes has shown, however, that one has to interpret the available results with the necessary caution in order to avoid falling prey to their weak points.

Doubtlessly, the BMI is one of the most controversial ones given its unusual usage of a McDonald's burger price for a topic as sensitive and delicate as the purchasing power parity. Still, that is exactly what makes it so famous throughout the economic world. In spite of its fame, yet, we have not seen many advantages the index has apart from its simplicity. On the contrary, one could assess a lot of weaknesses and disadvantages which makes the index almost inapplicable and takes away much of its value. Hence, it should merely be considered that its results can by no means claim to be representative in such a way as to allow drawing trustworthy inferences. Astonishingly enough, the index has been used not only to assess the purchasing power parity, but its scope of applications has expanded ever since its first publication 26 years ago. This, indeed, is surprising when considering its lack of trustworthiness. However, some positive evidence has been found when it comes to foreshadowing a currency's future development. The doubts, even so, remain. So does the big amount of counterevidence that has been provided in this paper.

The WRI was the second index that has been analysed in the course of this research paper. We had a look at each of the six charts making up the index and tried to provide a short analysis of each in order to try to assess their contribution to the overall one. This, however, was difficult because *The Economist* itself withholds some information on that. Still, a solid insight to the working of the index was given. We have seen that the WRI is more complex than the BMI, as it makes use of several contributing factors. That is one of the points that make it much more reliable than the BMI. Yet, the creation of the WRI was due to a current

economic problem and should the crisis not worsen, it is not very likely to see the index again in the future in spite of being a very good attempt to assess the strengths of emerging markets. Though, we have seen that the index is not perfect either and should never be used without additional information. Some more research has to be carried out in order to obtain a clearer picture.

In terms of future research it might be interesting and certainly attractive to have a closer scrutiny at other unconventional indexes. As we could see before, there are quite a lot. The present study has by no means exhausted the possible applications of these indexes. In respect thereof, a truly reasonable idea could be to develop a Whopper or Big King index, both burgers by Burger King, one of McDonald's biggest competitors. It would be of high interest to look if comparing purchasing power parity through one of the well-known Burger King burgers arrived at similar results as those obtainable from the BMI. In addition, one could have a closer look at Big Mac prices within the European currency union in order to assess up to what extent the euro displays differences in purchasing power parity even within a single currency room. That there are differences is an open secret given that price levels in the north of Europe show the tendency to be higher than in the south. In order to offer another fruitful avenue for future research one could take another leading currency other than the dollar and compare purchasing power parity this way. Substituting the dollar with the pound sterling or the euro in the BMI could in fact be viable and worthwhile. Given the research carried out already, we might without any doubt hypothesize that interesting results would come up.

Coming one more time back to the two analysed indexes, one can say that in general, but by no means invariably, it is not recommendable for investors to rely on these kinds of indexes although they are developed and published by a magazine as prestigious as *The Economist*. The indexes' intentions are good, though, particularly when it comes to making difficult topics more intelligible for readers who are not so much involved in economics. They facilitate high-complex issues and are thus a welcome tool. In spite of a lot of criticism, the BMI has maintained its ground and has made its way. Many do not consider it as unreliable as it was shown throughout this paper; and that with fair reason, because even experts' opinions are in conflict when it comes to identifying the perfect measurement of exchange rate adequacy. The basic idea of the BMI, therefore, is a good one; also in trying to account for the reasons that the purchasing power parity is difficult to achieve. That this is, however, not

enough, has been shown by *The Economist* itself through the development of the GDP adjusted measurement, which is clearly an improvement when it comes to obtaining more accurate results. Here one can see that when enhancing and developing the incorporating factors of such an index, one is absolutely on the right path to approaching a good means of exchange rate measurement. The idea, as of today, has not yet been fully explored and there is positive optimism that the BMI may become a very reliable method if adjusted for several factors. In that way, the WRI could be seen as a model for future BMI's. By making use of several influencing variables, the index provides a much more accurate picture. This is what the BMI should aspire to achieve. A further objective would be to develop a BMI for countries that have a similar level of development because it has been mentioned that comparisons are more feasible among countries with a similarly strong and developed economy.

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Please note that the latest MLA version does not require the citation of the URL anymore taking into account that Web addresses are not static. The MLA says that most readers are able to find electronic sources with help of the author and title of a given work via an internet search machine. However, the opportunity to include them nevertheless in the bibliography is optionally given by the MLA. Therefore, I decided to provide every single URL since most of the works cited in this paper can be traced online.

8. Annex

2011 Raw Index



2011 Raw Index. The Economist online. 28.07.2011. Web. 05. Sep 2012.
<<http://www.economist.com/blogs/dailychart/2011/07/big-mac-index>>.

Comparison of BMI and Tall Latte Index as of 2004

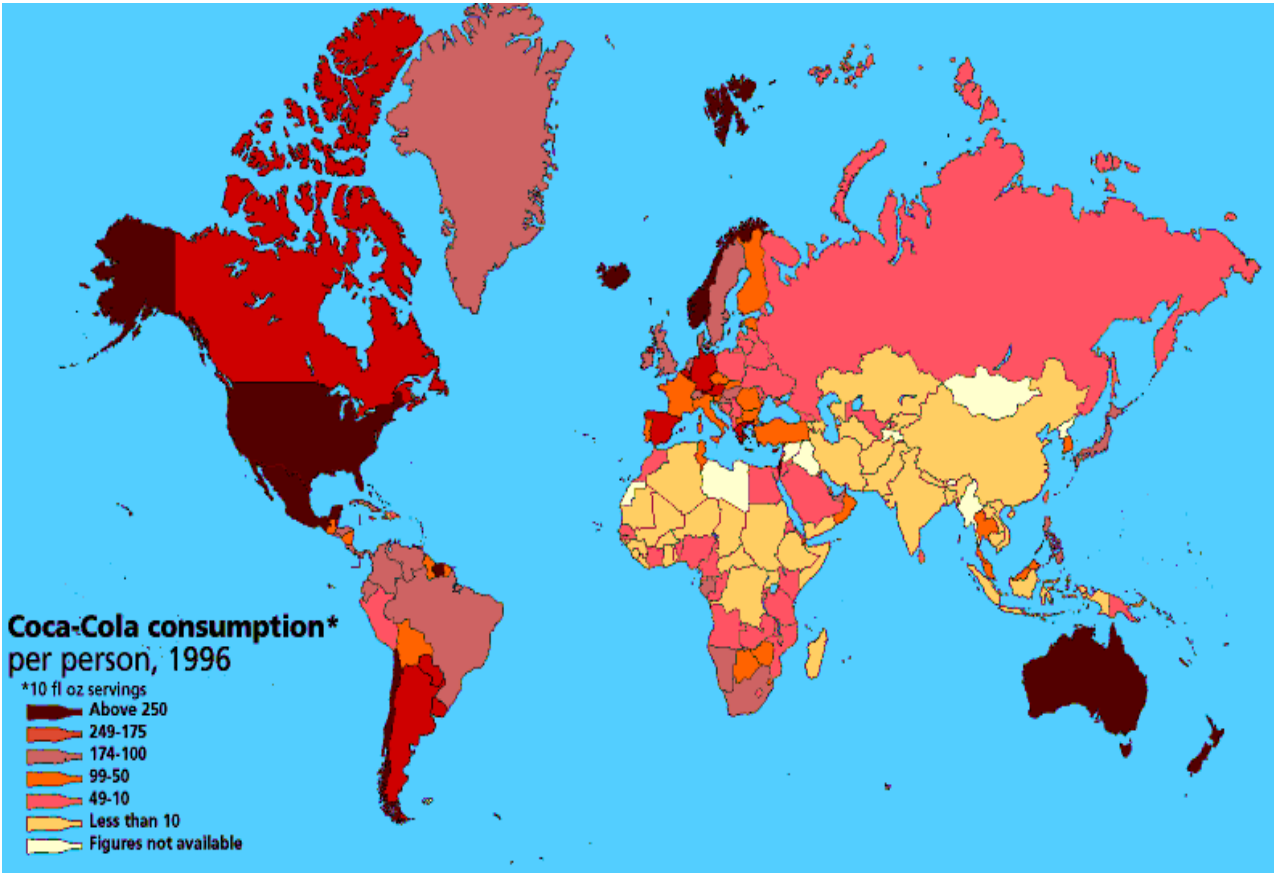
Our hot tips
Local currency under (-)/over (+) valuation against the dollar, %, using:

	Starbucks tall-latte index	McDonald's Big Mac index
Australia	-4	-17
Britain	+17	+23
Canada	-16	-16
China	-1	-56
Euro area	+33	+24
Hong Kong	+15	-45
Japan	+13	-12
Malaysia	-25	-53
Mexico	-15	-21
New Zealand	-12	-4
Singapore	+2	-31
South Korea	+6	0
Switzerland	+62	+82
Taiwan	-5	-21
Thailand	-31	-46
Turkey	+6	+5

Source: *The Economist*

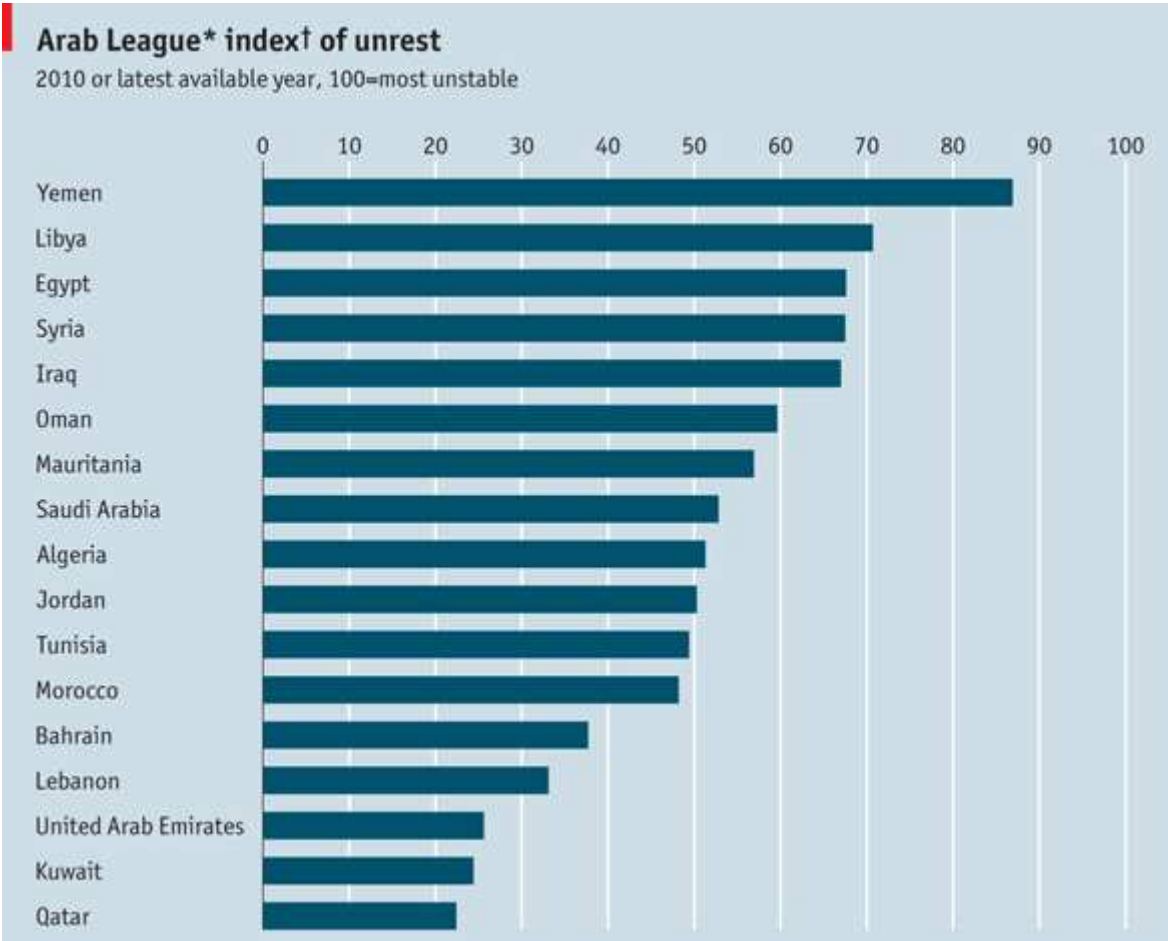
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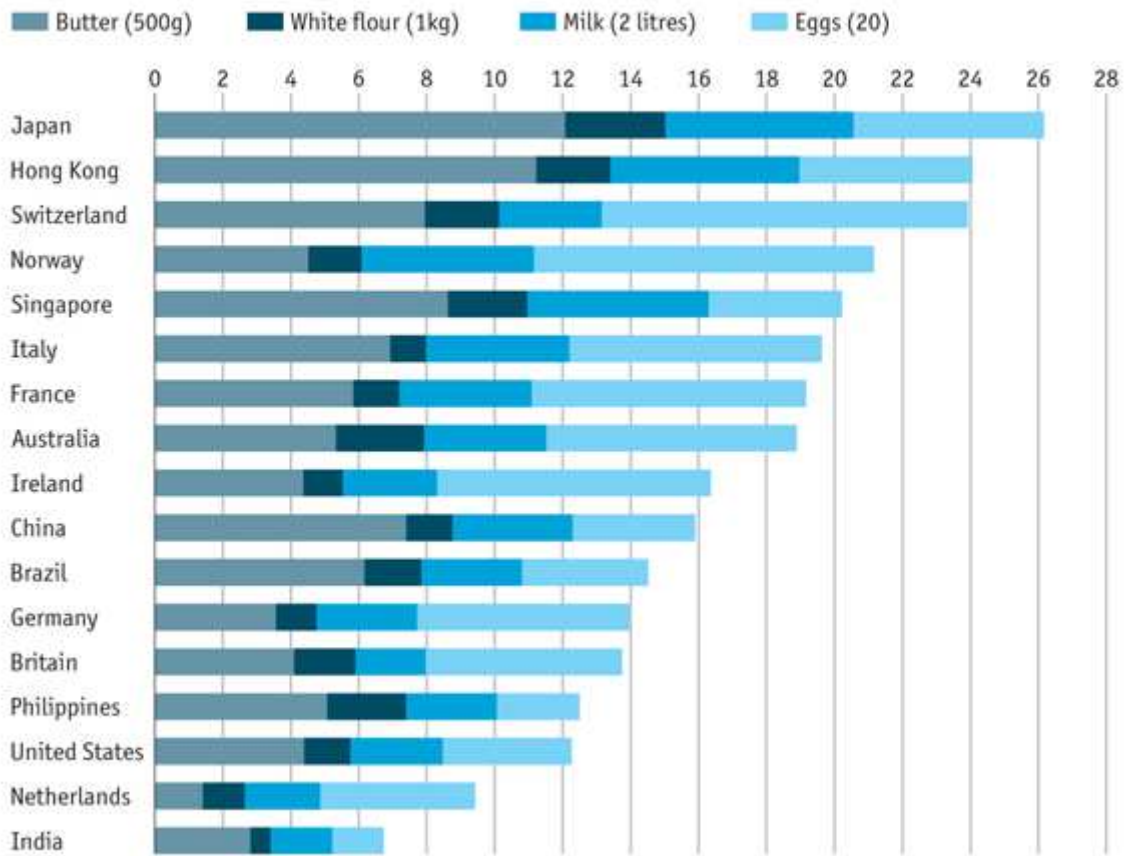


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The Pancake Index

Cost of pancake ingredients

2011, \$



Sources: Economist Intelligence Unit; *The Economist*

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The Banana Equivalent Dose

Number of bananas equivalent	Selected exposures to radiation
500 million	Ten minutes next to Chernobyl reactor core after explosion and meltdown
80 million	Fatal dose even with treatment
20 million	Severe radiation poisoning, fatal in some cases
500,000	Maximum legal yearly dose for a US radiation worker
70,000	Chest CT scan
40,000	Ten years of normal background dose, 85% of which is from natural sources
4000	Mammogram
1000	Approximate total dose received at Fukushima Town Hall in two weeks following accident
400	Flight from London to New York
300	Yearly release target for a nuclear power plant
200	Chest X-ray
50	Dental X-ray
1	Eating a banana
0.5	Sleeping with someone

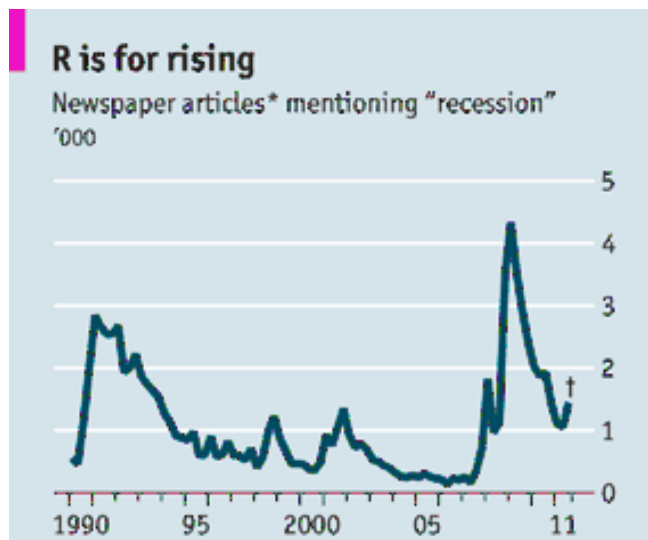
The Banana Equivalent Dose. BBC News. 13.11.2011 Web. 06. Sep. 2012. <<http://www.bbc.co.uk/news/magazine-15288975>>.

The Lipstick Index



The Lipstick Index. The Economist online. 23.01.2009. Web. 06. Sep. 2012. <http://www.economist.com/node/12998233?story_id=12998233>.

The R-word Index¹



The R-word Index. The Economist online. 17.11.2011. Web. 06. Sep. 2012.
<<http://www.economist.com/node/21529079>>.

¹ Based on *The Financial Times* and *The Wall Street Journal*.