

# Big Mac Currencies

The Economist's Big Mac index of currencies offers food for thought

IT IS time for our annual bite at burger-nomics. The Economist's Big Mac index was first launched in 1986 as a gastro-nome's guide to whether currencies were at their correct exchange rate. It is not intended to be a precise predictor of currency movements, but simply a way to make exchange-rate theory a bit more digestible.

Burgernomics is based upon one of the oldest concepts in international economics: the theory of purchasing-power parity (PPP). This argues that the exchange rate between two currencies should in the long run move towards the rate that equalises the prices of identical bundles of traded goods and services in each country. In other words, a dollar should buy the same amount everywhere.

Our "bundle" is a McDonald's Big Mac, which is produced to more or less the same recipe in about 120 countries. The Big Mac PPP is the exchange rate that would leave hamburgers costing the same in each country. Comparing a currency's actual exchange rate with its PPP is one test of whether the currency is undervalued or overvalued.

The first column of the table shows local-currency prices of a Big Mac; the second converts them into dollars. The average price of a Big Mac in America is \$2.54 (including sales tax). In Japan, Big Mac scoffers have to pay ¥294, or \$2.38 at current exchange rates. The third column calculates PPPs. Dividing the yen price by the dollar price gives a Big Mac PPP of ¥116. Comparing that with this week's rate of ¥124 implies that the yen is 6% undervalued.

The cheapest Big Macs are found in China, Malaysia, the Philippines and South Africa, and all cost less than \$1.20. In other words, these countries have the most undervalued currencies, by more than 50%. The most expensive Big Macs are found in Britain, Denmark and Switzerland, which by implication have the most overvalued currencies.

## THE BIG MAC FOCUS

Sterling, for example is 12% overvalued against the dollar—less than two years ago, it was overvalued by 26%.

The greatest triumph of the Big Mac index has been in tracking the euro. When Europe's new currency was launched in January 1999, virtually everybody predicted that it would rise against the dollar. Everybody, that is, except the Big Mac index, which suggested that the euro started off significantly overvalued. One of the best-known hedge funds, Soros Fund Management, admitted that it chewed over the sell signal given by the Big Mac index when the euro was launched, but then decided to ignore it. The euro tumbled; Soros was cheesed off.



The average price today in the 12 euro countries is €2.57, or \$2.27 at current exchange rates. The euro's Big Mac PPP against the dollar is €1=\$0.99, which shows that it has now undershot McParity by 11%. That, in turn, implies that sterling is 26% overvalued against the euro.

Overall, the dollar has never looked so overvalued during 15 years of burgernomics. In the mid 1990s the dollar was cheap against most currencies; now it looks dear against all but three. The most undervalued of the rich-world currencies are the Australian and New Zealand dollars, which are both 40-45% below McParity. They need to ketchup.

All the emerging-market currencies are undervalued against the dollar on a Big Mac PPP basis. That, in turn, means that a currency such as Argentina's peso, which is undervalued only a tad against the dollar, is massively overvalued compared with other currencies, such as the Brazilian real and virtually all of the East Asian currencies.

Some of our readers find the Big Mac index hard to swallow. Not only does the theory of purchasing-power parity hold only for the very long run, but hamburgers are a flawed measure of PPP. Local prices may be distorted by trade barriers on beef, sales taxes, or big differences in the cost of property rents. Nevertheless, some academic studies of the Big Mac index have concluded that betting on the most undervalued of the main currencies each year is a profitable strategy.

## The hamburger standard

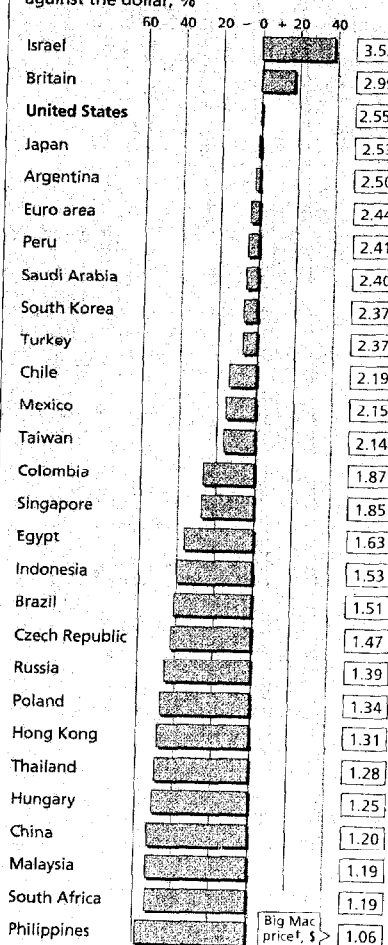
	Big Mac prices		Implied PPP* of the dollar	Actual \$ exchange rate 17/04/01	Under(-)/over(+) valuation against the dollar, %
	in local currency	in dollars			
United States†	\$2.54	2.54	—	—	—
Argentina	Peso2.50	2.50	0.98	1.00	-2
Australia	A\$3.00	1.52	1.18	1.98	-40
Brazil	Real3.60	1.64	1.42	2.19	-35
Britain	£1.99	2.85	1.28‡	1.43‡	12
Canada	C\$3.33	2.14	1.31	1.56	-16
Chile	Peso1260	2.10	496	601	-17
China	Yuan9.90	1.20	3.90	8.28	-53
Czech Rep	Koruna56.00	1.43	22.0	39.0	-44
Denmark	DKr24.75	2.93	9.74	8.46	15
Euro area	€2.57	2.27	0.99§	0.88§	-11
France	FFr18.5	2.49	7.28	7.44	-2
Germany	DM5.10	2.30	2.01	2.22	-9
Italy	Lire4300	1.96	1693	2195	-23
Spain	Pta395	2.09	156	189	-18
Hong Kong	HK\$10.70	1.37	4.21	7.80	-46
Hungary	Forint399	1.32	157	303	-48
Indonesia	Rupiah14700	1.35	5787	10855	-47
Japan	¥294	2.38	116	124	-6
Malaysia	M\$4.52	1.19	1.78	3.80	-53
Mexico	Peso21.9	2.36	8.62	9.29	-7
New Zealand	NZ\$3.60	1.46	1.42	2.47	-43
Philippines	Peso59.00	1.17	23.2	50.3	-54
Poland	Zloty5.90	1.46	2.32	4.03	-42
Russia	Rouble35.00	1.21	13.8	28.9	-52
Singapore	S\$3.30	1.82	1.30	1.81	-28
South Africa	Rand9.70	1.19	3.82	8.13	-53
South Korea	Won3000	2.27	1181	1325	-11
Sweden	SKr24.0	2.33	9.45	10.28	-8
Switzerland	SFr6.30	3.65	2.48	1.73	44
Taiwan	NT\$70.0	2.13	27.6	32.9	-16
Thailand	Baht55.0	1.21	21.7	45.5	-52

\*Purchasing-power parity: local price divided by price in United States  
 †Average of New York, Chicago, San Francisco and Atlanta ‡Dollars per pound §Dollars per euro  
 Source: McDonald's; The Economist

# EMERGING-MARKET INDICATORS

■ **BURGERNOMICS** The Economist's Big Mac index offers a light-hearted guide to whether currencies are at their correct levels, according to the notion of "purchasing-power parity". Under PPP, exchange rates should adjust to equalise the price of a basket of goods and services across all countries; the Big Mac PPP is the exchange rate at which hamburgers would cost the same in America as in other countries. The chart shows the under- or overvaluation of emerging-market currencies, the euro, sterling and the yen against the dollar. Dividing the price, in shekels, of a Big Mac in Israel by the price, in dollars, of an American Big Mac produces a Big Mac PPP of 5.68 shekels to the dollar. Since the market rate is 4.13, this suggests the shekel is 38% overvalued. At the other extreme, the Philippine peso is almost 60% undervalued: the market rate is 51 to the dollar, against a Big Mac PPP of 21. After its recent recovery, the euro is now only 4% undervalued. The yen is close to its Big Mac mark. But sterling is 17% overvalued.

**The Big Mac index**  
Local currency under(-)/over(+) valuation against the dollar, %



**ECONOMY** China's GDP growth slowed to 7.4% in the year to the fourth quarter, falling below 8% for the first time in 2000. Argentina's economy recorded no growth in the 12 months to the third quarter. In December, the annual inflation rate edged up to 9.0% in Mexico. Russia's current-account surplus widened to \$43.8 billion in the year to the end of the third quarter.

	% change on year earlier			Latest 12 months, \$bn		Foreign reserves*, \$bn	
	GDP	Industrial production	Consumer prices	Trade balance	Current account	Latest	Year ago
China	+ 7.4 Q4	+10.6 Nov	+ 1.3 Nov	+24.1 Dec	+15.7 1999	160.1 Sep	154.7
Hong Kong	+10.4 Q3	- 0.1 Q3	- 2.0 Nov	-10.6 Nov	+ 9.2 Q3	104.2 Nov	92.1
India	+ 7.2 Q4†	+ 6.6 Oct†	+ 2.7 Nov	- 9.0 Nov	- 5.6 Q3	35.5 Nov	32.0
Indonesia	+ 5.1 Q3	+38.4 Q4†	+ 9.4 Dec	+30.5 Oct	+ 6.2 Q1	29.0 Nov	26.3
Malaysia	+ 7.7 Q3	+11.1 Nov	+ 1.9 Nov	+16.8 Nov	+11.3 Q2	30.1 Oct	30.0
Philippines	+ 4.8 Q3	+21.0 Oct	+ 6.0 Nov	+ 5.8 Oct	+ 9.1 Aug	13.0 Sep	12.7
Singapore	+10.4 Q3	+17.1 Nov	+ 1.8 Oct	+ 4.0 Nov	+21.6 Q3	77.8 Sep	75.9
South Korea	+ 9.2 Q3	+ 6.4 Nov	+ 3.2 Dec	+12.1 Dec	+11.7 Nov	96.2 Dec	74.0
Taiwan	+ 6.6 Q3	+ 1.6 Nov	+ 1.7 Dec	+ 8.4 Dec	+ 7.5 Q3	109.1 Oct	102.7
Thailand	+ 2.6 Q3	- 2.0 Nov	+ 1.3 Dec	+ 5.8 Nov	+ 9.5 Nov	31.7 Nov	32.1
Argentina	nil Q3	- 4.6 Nov	- 0.7 Dec	+ 0.6 Nov	-11.4 Q2	23.3 Oct	22.4
Brazil	+ 4.5 Q3	+ 4.9 Nov	+ 5.5 Nov	- 0.7 Dec	-24.9 Nov	32.5 Nov	42.2
Chile	+ 5.8 Q3	+ 5.2 Oct	+ 4.7 Nov	+ 1.1 Nov	- 0.7 Q3	14.2 Oct	14.3
Colombia	+ 3.1 Q3	+10.3 Oct	+ 8.8 Dec	+ 2.2 Oct	+ 0.1 Q2	8.4 Nov	8.9
Mexico	+ 7.1 Q3	+ 7.1 Oct	+ 9.0 Dec	- 7.6 Nov	-16.4 Q3	35.3 Oct	32.3
Peru	+ 0.2 Oct	+ 0.8 Oct**	+ 3.7 Dec	- 0.4 Oct	- 1.6 Q3	8.9 Sep	8.9
Venezuela	+ 3.3 Q3	na	+13.4 Dec	+14.4 Jul	+11.8 Q3	14.3 Oct	11.8
Egypt	+ 6.5 2000†	+ 9.4 2000†	+ 2.5 Oct	-10.8 Q3	- 0.9 Q3	13.4 Aug	16.1
Israel	+ 7.3 Q3	+ 1.6 Oct	+ 0.1 Nov	- 7.4 Nov	- 0.7 Q3	22.0 Nov	21.4
South Africa	+ 4.5 Q3	+ 3.6 Nov	+ 7.1 Nov	+ 2.6 Nov	- 0.7 Q3	6.1 Oct	5.9
Turkey	+ 7.4 Q3	+10.5 Nov	+ 39.0 Dec	-25.7 Oct	- 9.2 Oct	24.3 Sep	23.7
Czech Republic	+ 2.2 Q3	+ 9.0 Oct	+ 4.0 Dec	- 3.1 Nov	- 1.9 Q3	13.1 Dec	12.9
Hungary	+ 4.6 Q3	+13.3 Nov	+ 10.6 Nov	- 2.2 Nov	- 0.6 Nov	10.1 Oct	10.2
Poland	+ 5.2 Q2	+ 7.2 Oct	+ 9.3 Nov	-14.4 Oct	-11.6 Oct	26.1 Oct	24.8
Russia	+ 7.9 Q3	+ 7.6 Nov	+19.8 Nov	+57.3 Oct	+43.8 Q3	22.3 Oct	7.1

\*Excluding gold, except Singapore; IMF definition †1999 ‡Year ending June. \*\*New series

**FINANCIAL MARKETS** Istanbul soared by 26.3% as lower interest rates and plans to reform the banks boosted the market out of its crisis-induced slump of late last year. Moscow gained 18.1%, thanks largely to strong foreign investment. Speculation over merger activity among banks, and continued buying of electronics shares, helped Taipei to rise by 11.1%.

	Currency units		Interest rates	Stockmarkets	% change on		
	per \$	per £			one week	in local currency	in \$ terms
	Jan 10th	year ago	Jan 10th	Jan 10th			
China	8.28	8.28	12.3	5.40	2,248.3	+ 0.1	+ 54.8
Hong Kong	7.80	7.78	11.6	5.24	15,435.8	+ 5.8	- 9.0
India	46.6	43.5	69.5	8.75	4,047.6	- 0.3	- 19.1
Indonesia	9,538	7,210	14,214	14.84	417.5	+ 2.9	- 38.3
Malaysia	3.80	3.80	5.66	3.30	679.8	+ 3.4	- 16.3
Philippines	51.1	40.6	76.2	13.94	1,534.2	+ 5.7	- 28.4
Singapore	1.73	1.67	2.58	2.56	1,969.9	+ 5.8	- 20.6
South Korea	1,270	1,144	1,893	6.64	560.8	+ 7.6	- 45.5
Taiwan	32.7	30.7	48.7	5.50	5,436.8	+11.1	- 35.7
Thailand	43.1	37.5	64.3	3.13	293.7	+ 7.9	- 39.1
Argentina	1.00	1.00	1.49	8.69	494.5	+10.1	- 9.9
Brazil	1.94	1.84	2.90	15.80	16,918.6	+ 1.9	- 1.0
Chile	574	520	855	4.55*	4,952.9	+ 1.5	- 4.2
Colombia	2,230	1,905	3,323	13.33	709.8	+ 0.5	- 28.9
Mexico	9.83	9.54	14.6	17.07	5,815.0	- 0.7	- 18.4
Peru	3.52	3.52	5.2	10.92	1,235.0	+ 2.9	- 32.7
Venezuela	699	652	1,041	13.54	7,382.6	+ 7.9	+ 36.3
Egypt	3.86	3.42	5.75	9.09	7,327.4	- 2.4	- 43.8
Israel	4.12	4.12	6.14	5.93	457.7	- 0.7	- 6.1
South Africa	7.91	6.07	11.8	10.45	8,514.4	+ 5.0	- 0.3
Turkey	669,190	540,550	997,294	46.00	11,540.0	+26.3	- 21.1
Czech Republic	37.3	35.0	55.6	5.34	488.4	+ 5.6	- 0.3
Hungary	282	248	420	11.49	7,755.4	+ 3.3	- 12.1
Poland	4.14	4.07	6.17	18.98	16,996.9	- 2.9	- 6.0
Russia	28.4	28.8	42.4	25.00	154.7†	+18.1	- 10.1

\*Inflation-adjusted. †In dollar terms.

Sources: National statistics offices, central banks and stock exchanges; Thomson Financial Datastream; EIU; Reuters; Warburg Dillon Read; J.P. Morgan; Hong Kong Monetary Authority; Centre for Monitoring Indian Economy; FIEL; EFG-Hermes; Bank Leumi Le-Israel; Standard Bank Group; Garanti Bank; Deutsche Bank; Russian Economic Trends.

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