



Time for Brazil to Reject Capital Controls, and End Failing Statist Policies

James M. Roberts and Ryan Olson

SPECIAL REPORT

from THE CENTER for INTERNATIONAL TRADE and ECONOMICS (CITE)

No. 143 | OCTOBER 17, 2013

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James M. Roberts and Ryan Olson

About the Authors

James M. Roberts is Research Fellow for Economic Freedom and Growth in the Center for International Trade and Economics at The Heritage Foundation.

Ryan Olson is Research Assistant in the Center for International Trade and Economics.

This paper, in its entirety, can be found at:
<http://report.heritage.org/sr143>

Produced by the Center for International Trade and Economics (CITE)

The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
(202) 546-4400 | heritage.org

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Abstract

In 2010, Brazil's Finance Minister, Guido Mantega, publicly declared the advent of the "currency wars." According to Mantega, serial competitive devaluations by the world's largest economies aimed at boosting First World exports and monetizing their budget deficits were undermining the health of emerging economies—particularly his own. The battlefields of these conflicts were to be the world financial markets, as emerging economies would have to fend off "hot money" flows that would overvalue their currencies.

By branding the United States and other developed nations "enemy combatants" in this financial conflict, Mantega ignored the roots of his country's own economic problems. As the research presented in this Heritage Foundation Special Report demonstrates, quantitative easing (QE) and the "hot money" it spawned certainly had some role in the appreciation of Brazil's currency, the real, over the past few years. However, it appears that the most important factors driving the currency appreciation in commodity-exporting countries were the commodity markets themselves.

Now that the Fed has signaled the eventual end ("tapering off") of QE, yields on 10-year T-bills are beginning to rise—and prices for commodities and the value of the Brazilian real are beginning to fall. It is time for Brazil to address the fundamental structural problems that are holding back its economy.

In 2010, Brazilian Finance Minister Guido Mantega fired off the first of a series of rhetorical salvos in what he called the "currency wars." According to Mantega, serial competitive devaluations by the world's largest economies aimed at boosting First World exports and monetizing their budget deficits were undermining the health of emerging economies—particularly his own. The battlefields of these conflicts were to be the world financial markets, as emerging economies would have to fend off "hot money" flows—flows of speculative capital into portfolio investment accounts—that would overvalue their currencies.¹

By branding the United States and other developed nations "enemy combatants" in this financial

conflict, however, Mantega cleverly ignored the roots of his country's own economic problems. As the research presented in this *Special Report* demonstrates, quantitative easing (QE) and the "hot money" it spawned certainly had some role in the appreciation of the value of the *real* over the past few years. However, it appears that the most important drivers of the appreciation of the currencies of commodity-exporting countries were the commodity markets themselves.

Now that the Fed has signaled the eventual end of QE via the "tapering off" of bond purchases, yields on 10-year Treasury bills are beginning to rise. At the same time, prices for commodities and the value of

the Brazilian *real* are beginning to fall. It is time for Brazil to address the fundamental structural problems that are holding back its economic growth—problems that Minister Mantega apparently preferred not to confront three years ago.

A Short History of Brazil's “Currency Wars”

In 2008, as the global recession began to unfold, the U.S. Federal Reserve Bank implemented a new open market policy known as quantitative easing (QE). This policy was meant to provide liquidity to the banking system by printing money and distributing it through the purchase of bonds on the open market. In Brazil, the government feared that this excess liquidity would flood into Brazilian markets as “hot money,” contributing to the overvaluation of the *real*, and diminishing the country’s international competitiveness.

In response to these policies, in 2009 the Brazilian government began to implement a series of short-term controls on capital inflows to limit these effects. The most significant of these controls was a 6 percent financial transactions tax that was maintained for more than two years until it was abolished in June 2013.²

Brazil’s imposition of these controls, however, was based on a false premise—that the strengthening of the *real* was due solely, or mostly, to “hot” capital inflows as a result of First World monetary policies. In fact, while monetary policies of the Fed and the central banks of other developed countries likely played some role, the strengthening of the *real* was primarily the consequence of two policies of the Brazilian government: (1) the laudable maintenance of high *real* interest rates over the long term to prevent Brazil from backsliding into the hyper-inflation of the past³ and (2) a concerted effort to focus economic policy not on additional internal reforms but on export and commodity-driven growth. This made Brazil vulnerable to “Dutch disease,” a phenomenon that occurs when currencies appreciate as commodity exports rise, while non-commodity exports become less competitive.⁴ Brazilian leaders and policymakers also used these export windfalls and cheap credit to fund spending and consumption, rather than investments that could stabilize the long-term macroeconomy.⁵

The Brazilian example is an important case study in the decades-long battle over the role and

value of capital controls in the international financial system, especially for emerging market economies. In recent years some International Monetary Fund (IMF) economists have urged the reversal of long-standing IMF policy⁶ by calling for financial controls in some cases to prevent or mitigate international financial crises.⁷ As Heritage Foundation analysts have argued in urging U.S. policymakers to oppose these controls, rather than choking off potential inward investment by imposing capital account constraints, the Brazilian government (and all others) should focus on internal reforms to lower transaction costs, remove distortionary regulations, and promote domestic economic growth, thereby making Brazil more attractive to foreign investors.⁸

The free flow of capital between countries is vital for future global growth; it is the most efficient and productive way to connect the world’s creditors to entrepreneurs who will generate the economic growth needed to drive prosperity and reduce the debts of sovereign nations and individuals. In short, Brazil should stop making excuses (such as blaming “hot money”) for its ongoing failure to achieve optimal economic growth.

Blaming the Fed Did Not (and Will Not) Solve Brazil’s Problems

In December 2012, Federal Reserve Chairman Ben Bernanke announced an expansion of the Fed’s third round of quantitative easing (QE3). This latest round of purchases of mortgage and government debt is a continuation of efforts by the Fed to stimulate U.S. economic growth. Unfortunately, QE1, QE2, and QE3 have had an insufficiently positive impact on U.S. economic growth rates. These policies have tripled the Federal Reserve’s balance sheet to historically unprecedented levels and have distorted asset prices, hampering the U.S. economic recovery and creating enormous future problems as the Fed considers strategies to unwind these positions and dispose of these assets. Past rounds of quantitative easing have failed to stimulate the economy noticeably, and it seems unlikely that the diminishing returns of further rounds will be much more effective.⁹

The Fed’s QE policies were matched by comparable monetary easing policies by the European Central Bank and the Bank of Japan—which together have provoked a chorus of similar complaints from export-driven economies. These unorthodox monetary policies prompted calls for capital controls not

just from Brazil, but also from South Korea, Peru, and Thailand.¹⁰

In Brazil's case, since 2009 the government implemented several measures to try to curb excess inflows of hot money, including the so-called tax on financial operations. In addition, the government increased duties on dozens of foreign-made goods to help domestic manufacturers.¹¹ Such controls did succeed in limiting the flow of capital into the country, but also limited freedom of trade and hurt economic growth by distorting markets. They also narrowed connections between global creditors and debtors (which function as vital "feedback" loops) and encouraged corrosive cronyism (firms that benefit the most from controls are often the ones closest to the government).¹²

Brazilian Case: Currency Appreciation and "Dutch Disease"

The Federal Reserve's QE policies began during, and helped fuel, a remarkable worldwide run-up in commodity prices. Since 2002, spurred by demand from China and elsewhere, oil production in Brazil has risen nearly 45 percent, from 1.8 million barrels per day to 2.6 million barrels per day in 2011.¹³ Production was led by Petrobras, the massive, partially state-owned Brazilian oil company. When enormous new reserves of oil were discovered in the Tupi Field off the southeast coast, then-President Luiz Inácio "Lula" da Silva boasted that these reserves would represent Brazil's "second independence."¹⁴ In addition, the huge partially state-owned mining multinational Vale has become one of the world's largest producers of iron ore, and its exports make up 16 percent of *all* Brazilian exports.

Lula's decision to emphasize oil exploration and commodity exports instead of prioritizing further domestic reforms (begun by his predecessor, President Fernando Henrique Cardoso) to liberalize and diversify the economy aggravated symptoms of Dutch disease, and contributed to the rapid appreciation of the *real* in recent years. Revenues from the commodity-export boom caused a "spending effect," which funneled capital flows to non-tradable sectors, such as services. These capital flows increased the demand and price of labor, subsequently raising prices within the country and appreciating the *real* exchange rate.¹⁵

As illustrated in Chart 1 (below) the *real* appreciated against the dollar roughly in line with the rise in oil prices over the past decade. The price of

the *real* rose from about 45 centavos on the dollar in 2006 to over 60 centavos in 2008, when the commodity bubble deflated with the world economy. As a result of this appreciation, Brazilian non-commodity exports gradually became less competitive, falling from 16.5 percent of GDP in 2004 to 13.5 percent of GDP in 2010.¹⁶

The Effects of U.S. Federal Reserve Policies on the Brazilian Economy

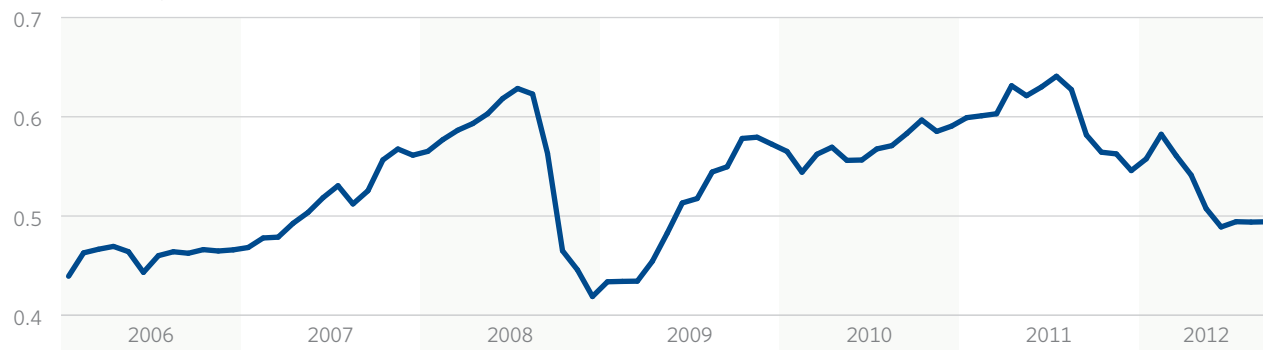
The analysis of the effects of the Fed's quantitative easing policies on Brazilian currency and investment regimes begins by examining data on the monetary base of the U.S. Federal Reserve, historical exchange rates for the *real*, and the relationship between the value of the *real*/dollar cross-rate and the spot price for West Texas Intermediate crude oil (WTI) from November 2008 to August 2012 (which encompasses the QE1 and QE2 programs). Weekly averages for monetary base, *real*/dollar exchange rate, and WTI are used throughout. The monetary base¹⁷ is used as a reflection of the Federal Reserve's open market policies; data on exchange rates track the movement of the *real* and the dollar over that time frame. WTI is a proxy for Brazilian oil prices and was chosen because the composition of WTI, as a light crude oil, is similar to the composition of Brazilian export crude from the Tupi Oil Field off Brazil's southeast coast. Since oil is traded on the international market, prices between WTI and Tupi oil should be comparable. In these analyses weekly monetary base volumes, exchange rates, and WTI spot prices were used to maximize the number of observations in the regression. Monetary base data was—at first—lagged at zero, three-month, six-month, and 12-month intervals. Ultimately, the 12-month lag was used in this analysis because it produced the strongest results. This 12-month lag will reflect the delayed impact that monetary policy has on the market. For example, the effects of monetary policy in 2010 are analyzed with foreign exchange and investment data from 2011. Use of the 12-month lag limited the analysis to QE1 and QE2.

The Real and Monetary Base: QE1 and QE2. Regression analysis provides statistically significant indicators of the relationship between the *real* and the Federal Reserve's monetary base so as to determine whether Fed policies had any effect on trading of the *real* and, in turn, on the competitiveness of Brazilian exports.

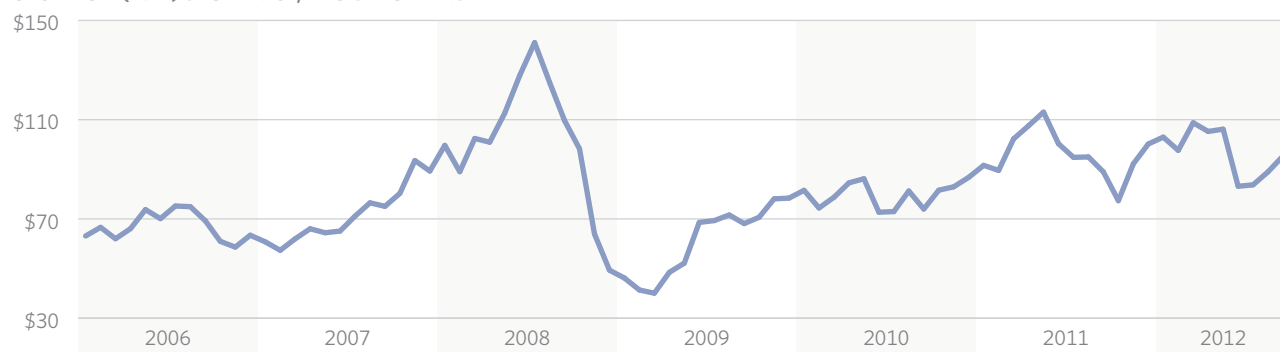
CHART 1

Brazilian *Real* Rises and Falls with Oil Prices

EXCHANGE RATE, BRAZILIAN *REAL* AND U.S. DOLLAR



CRUDE OIL (WTI) SPOT PRICE, IN U.S. DOLLARS



Sources: U.S. Energy Information Agency, “Spot Prices,” http://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm (accessed September 18, 2013), and Oanda, “Historical Exchange Rates,” <http://www.oanda.com/currency/historical-rates/> (accessed September 18, 2013).

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The first regression obtained analyzed the relationship between the monetary base and the price of the *real* to the dollar over the entire sample period from November 2008 (at the start of quantitative easing policies) to August 2012. Again, monetary base numbers were lagged 12 months. The results indicated a statistically weak relationship between the Fed monetary base and the value of the *real* at a low level of confidence, with $r=0.24$ and $r^2=0.06$.¹⁸

The data is more telling, however, when decomposed according to the periods of the various QE time periods. QE1 lasted from November 2008 to March 2010. A regression analysis of the monetary base and the *real* during that time period does show a strong correlation between the monetary base and the *real* ($r=0.82$ and $r^2=0.67$).¹⁹ However, the regression analysis of QE2 paints a less certain picture. An analysis of the Fed’s monetary base between November 2010

and June 2011 and the *real*, using the 12-month lag, shows a weaker relationship. In this regression the “ r ” and “ r^2 ” values both drop to statistically less significant levels (at 0.43 and 0.18, respectively),²⁰ indicating a reduced relationship between Fed policy and the *real* during QE2.

The *Real* and Oil Prices. Although the evidence above certainly indicates that there is some relationship between the Fed’s actions and the value of the *real*, another hypothesis was also tested: Were oil prices an even more significant causative factor accounting for the appreciation of the *real*?

A broad regression of WTI prices and the *real* between November 2008 and August 2012 indicates a significant correlation between the price of oil and the price of the *real* during the same time period, with $r=0.75$ and $r^2=0.56$.²¹ This could indicate that the price of oil and the run up in commodity prices

in Brazil contributed to a run-up in the *real*. This would have strengthened the price of the *real* due to Brazil's reliance on commodity exports.

A more in-depth analysis indicates a consistently strong trend. A regression of WTI and the *real* during QE1 generated the most statistically significant results in the analysis. With "r" and "r²" values at 0.95 and 0.89 the correlation appears to be extremely strong.²² Secondary data corroborate this conclusion at a high level of confidence. This may indicate that, at least during QE1, oil prices were a better indicator of the value of the *real* than was the size of the Fed's balance sheet.

The results obtained during QE2 tell a similar story. In this case the correlation is slightly stronger (r=0.77, r²=0.59) at high levels of confidence, with the outcomes of the t-tests and p-values strengthening the link.²³ This analysis still supports a conclusion that oil prices had a statistically significant impact on the value of the *real* during QE2.

This point is particularly important when the weaker relationship between monetary base and the *real* during QE2 is taken into consideration. The weak relationship between these variables, both across the whole period and separately in QE1 and QE2, when compared to the stronger correlation between both oil prices and the *real* across all periods, seems to indicate that oil prices are a much better indicator of the strength of the *real* than quantitative easing policies were. The *real's* persistent relationship with oil prices, as opposed to its relatively less significant relationship with quantitative easing policies, seems to call into question the Brazilian government's blanket denunciation that the U.S. Federal Reserve was responsible for its economic ills.

Monetary Policy as a Mediator of Oil Prices. These results indicate a stronger relationship between the price of the *real* and oil prices. But, to ensure that these results are robust, it is also important to determine whether monetary policy itself could be mediating oil prices. If that were the case, quantitative easing policies could be artificially inflating the price of oil on the international market, and thus as a secondary effect, distorting the price of the Brazilian exchange rate.

To do this it is important to diagnose whether the price of oil is determined by monetary policy or market conditions. In this analysis a monthly price of WTI was used as a benchmark for oil, worldwide

production of oil in barrels per day (BPD) was used as a proxy for supply, and monthly data on the monetary base for the U.S. Federal Reserve (Fed), the Bank of Japan (BOJ), and the European Central Bank (ECB) was used for monetary policy.

First, a regression was obtained on the price of oil and each monetary base series from the Fed, BOJ, and ECB.²⁴ In each regression, the monetary base from these central banks proved to be a poor indicator of the price of oil, registering relatively insignificant "r" and "r²" coefficients. Likewise, a combined monetary base for all three central banks produced r and r² scores of 0.02 and 0.00, respectively.²⁵ This indicates that the monetary base is not a good indicator of oil prices.

Second, it was necessary to determine whether market conditions are a better indicator. In this regression, oil prices are compared to worldwide oil supply. This returned a strong relationship at a high level of confidence (r=0.79, r²=0.62).²⁶

The results from these regressions indicate that monetary policy might not mediate oil prices and that, instead, market conditions may play a more significant role in determining oil prices. Therefore, it is likely that quantitative easing during the period examined did not inflate the price of oil. As a result, monetary policy does not appear to be the primary factor in the appreciation of the *real*.

U.S. Must Support Investment Freedom

Recent U.S. Federal Reserve policy has been risky, and likely will be shown by future economic historians to have been counterproductive to long-term U.S. growth²⁷—but Brazil should not use the Fed's actions as a scapegoat for its own bad policies. In the past decade, Brazil has tried to have its cake and eat it too—pursuing export-driven policies that lead to appreciation of the *real* while simultaneously complaining about that very appreciation.

While Brazil benefitted immensely from the run-up of commodity prices in recent years it did not take sufficient advantage of the resulting prosperity to continue the Cardoso-era reforms. Instead of focusing mostly on the expansion of state-owned enterprises and the exploitation of natural resources, sustainable economic growth and productivity could have been achieved more effectively by pursuing a series of reforms focused on economic freedom—to include additional privatizations of state-owned enterprises, liberalization of Brazil's rigid

regulatory environment, and harmonization of the country's many different taxation regimes (such as state vs. federal).

Further guidance for Brazilian policymakers can be found in the *2013 Index of Economic Freedom*,²⁸ published by The Heritage Foundation and *The Wall Street Journal*, which provides numerous details on Brazil's most needed reforms.

Conclusion

Overall, the findings of this *Special Report* support the conclusion that, while Fed policy certainly played a role in the appreciation of the *real*, it was rising oil prices and Brazil's dependence on commodity exports that had the strongest and more lasting impact on the value of the *real* between 2008 and 2011. This finding indicates that, while the inflow of hot money into Brazil certainly had an effect on the value of the *real*, the true source of Brazil's overvalued currency was its reliance on commodity exports. The increased prices for and volume of commodities exported flooded the Brazilian market with hard currency, appreciating the *real* and displacing manufacturing—a classic Dutch disease scenario.

Ultimately, if Brazil wants to fix its currency woes, it should cease its search for foreign scapegoats and look within. Diversifying its economy away from commodities would help its overvalued currency more than pointing fingers at the U.S. Federal Reserve and implementing ineffective and distortionary protectionist measures. Brazil should:

- **Revitalize, expand, and deepen privatization programs** begun under President Fernando Cardoso and continued during President “Lula” da Silva's first term. Public stakes in commodity firms like Vale and Petrobras create perverse incentives that encourage policymakers to

promote industries that enhance these companies' bottom lines, thus returning a windfall to the government. Privatizing national holdings in these firms would reduce these incentives and decouple the conflict of interest between policy and business.

- **Defer from introducing additional capital controls** to manage the capital account. These controls are a tax on investors and exacerbate distortionary effects. For example, such limitations can trap money in the Brazilian market (because investors want to avoid paying taxes on the capital gains) and exacerbate inflationary pressures.

As internal political pressures build (such as the widespread anti-government street demonstrations in 2013) and the windfalls from high commodity prices diminish, the government of Brazil must make serious efforts at reform in order to jump start an already sputtering economy. Low productivity, high labor costs, economic micromanagement, and industrial policies have all contributed to lethargic economic outcomes.

To regain a sustainable footing for long-term growth, the economy must diversify away from the commodity-centric growth that industrial policies and state ownership have encouraged. While there may be short-term advantages to such emphasis, Brazil is finally starting to see some of the long-term ramifications of such a narrow-minded growth strategy. It is not too late. By privatizing state-owned enterprises, lowering barriers for entrepreneurs, and reducing taxes on trade and investment, President Dilma Rousseff and Minister Mantega can return Brazil's economy to the path toward growth and economic freedom.

Appendix

APPENDIX TABLE 1

12-Month Lag, Federal Reserve Monetary Base and *Real*, November 2008–August 2010

Regression Statistics

Multiple R	0.244871
R Square	0.059962
Adjusted R Square	0.055214
Standard Error	0.059037
Observations	200

ANOVA	df	SS	MS	F	Significance F
Regression	1	0.044019	0.044019	12.62976	0.000475
Residual	198	0.690104	0.003485		
Total	199	0.734123			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.47343	0.02356	20.09481	1.1E-49	0.42697	0.51989	0.42697	0.51989
X Variable 1	3.8E-08	1.07E-08	3.553838	0.000475	1.69E-08	5.9E-08	1.69E-08	5.90E-08

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APPENDIX TABLE 2

12-Month Lag, Federal Reserve Monetary Base and *Real* QE1, November 2008–March 2010

Regression Statistics

Multiple R	0.81832
R Square	0.669648
Adjusted R Square	0.66506
Standard Error	114839.3
Observations	74

ANOVA	df	SS	MS	F	Significance F
Regression	1	1.92E+12	1.92E+12	145.9495	5.48E-19
Residual	72	9.5E+11	1.32E+10		
Total	73	2.87E+12			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	2907163	92758.58	31.34118	1.06E-43	2722252	3092074	2722252	3092074
X Variable 1	-2082808	172404.2	-12.081	5.48E-19	-2426490	-1739127	-2426490	-1739127

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APPENDIX TABLE 3

**12-Month Lag, Federal Reserve Monetary Base and *Real* QE2,
November 2010–June 2011**

Regression Statistics

Multiple R	0.427305
R Square	0.18259
Adjusted R Square	0.15782
Standard Error	236573.4
Observations	35

ANOVA	df	SS	MS	F	Significance F
Regression	1	4.13E+11	4.13E+11	7.371398	0.010459
Residual	33	1.85E+12	5.6E+10		
Total	34	2.26E+12			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	6909560	1702805	4.057751	0.000285	3445177	10373944	3445177	10373944
X Variable 1	-8269460	3045806	-2.71503	0.010459	-1.4E+07	-2072721	-1.4E+07	-2072721

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APPENDIX TABLE 4

***Real* and Oil Prices, November 2008–August 2012**

Regression Statistics

Multiple R	0.746968
R Square	0.557962
Adjusted R Square	0.555729
Standard Error	0.038618
Observations	200

ANOVA	df	SS	MS	F	Significance F
Regression	1	0.372732	0.372732	249.9252	6.01E-37
Residual	198	0.295292	0.001491		
Total	199	0.668024			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.350718	0.012628	27.77359	3.23E-70	0.325816	0.37562	0.325816	0.37562
X Variable 1	0.002421	0.000153	15.80902	6.01E-37	0.002119	0.002723	0.002119	0.002723

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APPENDIX TABLE 5

Real and Oil Prices QE1, November 2008–March 2010

Regression Statistics

Multiple R	0.945925
R Square	0.894775
Adjusted R Square	0.893313
Standard Error	0.019213
Observations	74

ANOVA	df	SS	MS	F	Significance F
Regression	1	0.226005	0.226005	612.2462	6.19E-37
Residual	72	0.026578	0.000369		
Total	73	0.252583			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.261859	0.010049	26.0589	2.15E-38	0.241828	0.281891	0.241828	0.281891
X Variable 1	0.003829	0.000155	24.74361	6.19E-37	0.00352	0.004137	0.00352	0.004137

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APPENDIX TABLE 6

Real and Oil Prices QE2, November 2010–June 2011

Regression Statistics

Multiple R	0.768072
R Square	0.589935
Adjusted R Square	0.577508
Standard Error	0.011633
Observations	35

ANOVA	df	SS	MS	F	Significance F
Regression	1	0.006425	0.006425	47.47498	7.21E-08
Residual	33	0.004466	0.000135		
Total	34	0.010891			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.453658	0.022172	20.46041	2.55E-20	0.408547	0.498768	0.408547	0.498768
X Variable 1	0.001599	0.000232	6.890209	7.21E-08	0.001127	0.002071	0.001127	0.002071

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AND END FAILING STATIST POLICIES**

APPENDIX TABLE 7

**12-Month Lag, Oil Prices and Bank of Japan Monetary Base,
November 2008–August 2012**

Regression Statistics

Multiple R	0.047488
R Square	0.002255
Adjusted R Square	-0.02042
Standard Error	22.65281
Observations	46

ANOVA	df	SS	MS	F	Significance F
Regression	1	51.0333	51.0333	0.099451	0.75398
Residual	44	22578.59	513.1498		
Total	45	22629.62			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	73.30511	32.76333	2.237413	0.030373	7.274946	139.3353	7.274946	139.3353
X Variable 1	9.85E-06	3.12E-05	0.315359	0.75398	-5.3E-05	7.28E-05	-5.3E-05	7.28E-05

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APPENDIX TABLE 8

**12-Month Lag, Oil Prices and European Central Bank Monetary Base,
November 2008–August 2012**

Regression Statistics

Multiple R	0.170561
R Square	0.029091
Adjusted R Square	0.007025
Standard Error	22.34609
Observations	46

ANOVA	df	SS	MS	F	Significance F
Regression	1	658.3228	658.3228	1.318365	0.25709
Residual	44	21971.3	499.3478		
Total	45	22629.62			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	62.68839	18.49396	3.389668	0.001486	25.41626	99.96052	25.41626	99.96052
X Variable 1	1.7E-05	1.48E-05	1.148201	0.25709	-1.3E-05	4.7E-05	-1.3E-05	4.7E-05

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APPENDIX TABLE 9

12-Month Lag, Oil Prices and Federal Reserve Monetary Base, November 2008–August 2012

Regression Statistics

Multiple R	0.14067
R Square	0.019788
Adjusted R Square	-0.00249
Standard Error	22.4529
Observations	46

ANOVA	df	SS	MS	F	Significance F
Regression	1	447.7944	447.7944	0.888248	0.351099
Residual	44	22181.83	504.1325		
Total	45	22629.62			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	101.0451	18.82097	5.368752	2.83E-06	63.11393	138.9763	63.11393	138.9763
X Variable 1	-8E-06	8.53E-06	-0.94247	0.351099	-2.5E-05	9.15E-06	-2.5E-05	9.15E-06

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APPENDIX TABLE 10

12-Month Lag, Oil Prices and Monetary Base Combined, November 2008–August 2012

Regression Statistics

Multiple R	0.018106
R Square	0.000328
Adjusted R Square	-0.02239
Standard Error	22.67468
Observations	46

ANOVA	df	SS	MS	F	Significance F
Regression	1	7.418954	7.418954	0.01443	0.904932
Residual	44	22622.21	514.141		
Total	45	22629.62			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	86.35212	23.28935	3.707795	0.000582	39.41552	133.2887	39.41552	133.2887
X Variable 1	-6.2E-07	5.19E-06	-0.12012	0.904932	-1.1E-05	9.84E-06	-1.1E-05	9.84E-06

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APPENDIX TABLE 11

Oil Prices and Global Oil Production, November 2008–August 2012

Regression Statistics

Multiple R	0.790327
R Square	0.624617
Adjusted R Square	0.616085
Standard Error	11.05139
Observations	46

ANOVA

	df	SS	MS	F	Significance F
Regression	1	8941.795	8941.795	73.2135	6.5E-11
Residual	44	5373.858	122.1331		
Total	45	14315.65			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-592.316	78.64261	-7.53174	1.91E-09	-750.809	-433.822	-750.809	-433.822
X Variable 1	0.007746	0.000905	8.556489	6.5E-11	0.005921	0.00957	0.005921	0.00957

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Endnotes

1. "Hot money" refers to capital inflows that are often short-term and speculative in nature. These flows generally move very quickly in and out of bond markets and other highly liquid investments. Sometimes reflecting excess liquidity in the financial system seeking higher returns, these flows generally come in the form of portfolio investments. The movement of billions of dollars in "hot money" in and out of countries around the world economy has been blamed for rapid increases in the value of emerging markets' currencies.
2. Paul Kilby, "Brazil IOF Tax Cut Casts Cloud Over Global Real Bond Market," Reuters, June 6, 2013, <http://uk.reuters.com/article/2013/06/06/markets-credit-idUKL1NOEH28J20130606> (accessed August 26, 2013).
3. For more on the recent history of economic policy in Brazil, see James M. Roberts, Mark Schreiber, and Derek Scissors, "Brazil: Restoring Economic Growth Through Economic Freedom," Heritage Foundation *Special Report* No. 118, September 20, 2012, <http://www.heritage.org/research/reports/2012/09/brazil-restoring-economic-growth-through-economic-freedom>.
4. In the 1970s, large reserves of natural gas were discovered in the North Sea off the coast of the Netherlands. This discovery caused the value of the Dutch guilder to appreciate rapidly, making the tradable sectors less competitive, displacing exports from more traditional sectors, such as manufacturing. Hence, such a phenomenon came to be known as the Dutch disease.
5. Eric Bellman and Thomas Catan, "Investors Prove More Selective in Latest Emerging-Market Selloff," *The Wall Street Journal*, August 27, 2013, <http://online.wsj.com/article/SB10001424127887323407104579038971412660980.html> (accessed September 4, 2013).
6. IMF policy is best outlined by the OECD "Code of Liberalization of Capital Movements," adopted in 1961 at a time when many OECD countries were in the process of economic recovery and development, and when the international movement of capital faced many barriers. The code provided a balanced framework for countries to progressively remove barriers to the movement of capital, while providing flexibility to cope with situations of economic and financial instability. Although the code recognizes that capital controls can play a role in specific circumstances, it also notes that "beggar-thy-neighbor" approaches can have negative collective outcomes; thus the code recommends transparency, non-discrimination, proportionality, and accountability for any country adopting capital controls. OECD, "OECD Code of Liberalisation of Capital Movements," 2013, http://www.oecd.org/daf/inv/investment-policy/CapitalMovements_WebEnglish.pdf (accessed August 27, 2013).
7. Olivier Jeanne, Arvind Subramanian, and John Williamson, *Who Needs to Open the Capital Account?* (Washington, DC: Peterson Institute Press, 2012).
8. Ryan Olson and Anthony B. Kim, "Congress Should Query IMF Support for Capital Controls," Heritage Foundation *Issue Brief* No. 3949, May 24, 2013, <http://www.heritage.org/research/reports/2013/05/congress-should-query-imf-support-for-capital-controls>.
9. J. D. Foster, "Bernanke's Quantitative Easing: Wrong Medicine for an Ailing Economy," Heritage Foundation *Issue Brief* No. 3729, September 13, 2012, <http://www.heritage.org/research/reports/2012/09/bernankes-quantitative-easing-wrong-medicine-for-an-ailing-economy>.
10. Stefan Wagstyl, "Currency Wars: Brazil-Style Capital Controls Have 'Zero' Effect," *The Financial Times*, September 18, 2012.
11. "Worried Nations Try to Cool Hot Money," *The Financial Times*, November 19, 2009.
12. Simon Johnson and Todd Mitton, "Cronyism and Capital Controls: Evidence from Malaysia," National Bureau of Economic Research *Working Paper* No. 8521, October 2001, <http://www.nber.org/papers/w8521> (accessed August 26, 2013). The recent financial problems of Brazilian billionaire Eike Batista, who made much of his fortune through his crony ties to the government, is a good illustration of the perverse effects of the interventionist policies of the Brazilian government over the past few years. Jessica Jerreat, "Brazilian Oil Tycoon Loses \$33 Billion in 16 Months—and His Position as Seventh Richest Man in the World," *Daily Mail* (U.K.), July 27, 2013, <http://www.dailymail.co.uk/news/article-2380130/Brazilian-oil-tycoon-Eike-Batista-loses-33-billion-16-months.html> (accessed August 27, 2013).
13. U.S. Energy Information Agency, "Countries: Brazil-Total Oil Production," <http://www.eia.gov/countries/country-data.cfm?fips=BR&trk=r#pet> (accessed August 26, 2013).
14. "Tupi Oil Is 'Second Independence for Brazil,'" *Upstream*, May 4, 2009, <http://www.upstreamonline.com/live/article1173884.ece> (accessed August 26, 2013).
15. W. M. Corden and J. Peter Neary, "Booming Sector and De-Industrialization in a Small Open Economy," *The Economic Journal*, Vol. 92, No. 368 (December 1982), pp. 825–848.
16. Ruchir Sharma, "Bearish on Brazil: The Commodity Slowdown and the End of the Magic Moment," *Foreign Affairs* (May/June 2012), <http://www.foreignaffairs.com/articles/137599/ruchir-sharma/bearish-on-brazil> (accessed August 26, 2013).
17. Monetary base (high-powered money) is the sum total of currency in the economy. Open market operations, such as those conducted in the Federal Reserve's expansionary quantitative easing (QE) program, directly affect the size of the monetary base. Under QE, the Fed purchased mortgage-backed securities and Treasury securities in the open bond market, thereby injecting more money into the economy and increasing the monetary base.
18. Pearson's coefficient of correlation (r) can have a value between -1 and 1 . The closer the value is to -1 or 1 , the stronger the association between the two variables. See Table 1.
19. See Table 2.
20. See Table 3.

**TIME FOR BRAZIL TO REJECT CAPITAL CONTROLS
AND END FAILING STATIST POLICIES**

21. See Table 4.
22. See Table 5.
23. See Table 6.
24. See Tables 7, 8, and 9.
25. See Table 10.
26. See Table 11.
27. Foster, "Bernanke's Quantitative Easing."
28. Terry Miller, Kim R. Holmes, and Edwin J. Feulner, *2013 Index of Economic Freedom* (Washington, DC: The Heritage Foundation and Dow Jones & Company, Inc., 2013), <http://www.heritage.org/research/features/index/downloads.html>.



214 Massachusetts Avenue, NE
Washington, DC 20002

(202) 546-4400
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