Hyperinflation in Zimbabwe

The historic Zimbabwean $100 trillion bill is now a novelty item.

One hundred trillion dollars—that's 100,000,000,000,000—is the largest denomination of currency ever issued.[1] The Zimbabwean government issued the Z$100 trillion bill in early 2009, among the last in a series of ever higher denominations distributed as inflation eroded purchasing power. When Zimbabwe attained independence in 1980, Z$2, Z$5, Z$10 and Z$20 denominations circulated, replaced three decades later by bills in the thousands and ultimately in the millions and trillions as the government sought to prop up a weakening economy amid spiraling inflation.

Shortly after the Z$100 trillion note began circulating, the Zimbabwean dollar was officially abandoned in favor of foreign currencies. From 2007 to 2008, the local legal tender lost more than 99.9 percent of its value (Hanke 2008). This marked a reversal of fortune from independence, when the value of one Zimbabwe dollar equaled US$1.54.

Zimbabwe's extreme and uncontrollable inflation made it the first—and so far only—country in the 21st century to experience a hyperinflationary episode. Hyperinflation devastates people and countries. Zimbabwe, once considered the breadbasket of Africa, was reduced to the continent's beggar within a few years; its citizens were pushed into poverty and often forced to emigrate. The country's experience shows how a relatively self-sustaining nation at independence fell victim to out-of-control inflation and the severe erosion of wealth. The causes of Zimbabwe's hyperinflation, its effects and how it was stopped are particularly instructive.

In his seminal work, Phillip Cagan defined hyperinflation as beginning when monthly inflation rates initially exceed 50 percent. It ends in the month before the rate declines below 50 percent, where it must remain for at least a year (Cagan 1956). Zimbabwe entered the hyperinflationary era in March 2007; the period ended when the nation abandoned its currency in 2009 (*Chart 1*). The evolution of the Zimbabwean dollar in the post-independence period is shown in the timeline on page 10.

Bouts of hyperinflation are mostly accompanied by rapidly increasing money supply needed to finance large fiscal deficits arising from war, revolution, the end of empires and the establishment of new states. Hyperinflation, as Cagan defined it, initially appeared during the French Revolution, when the monthly rate peaked at 143 percent in December 1795. More than a century elapsed before hyperinflation appeared again. During the 20th century, hyperinflation occurred 28 times, often associated with the monetary chaos involving two world wars and the collapse of communism (Bernholz 2003). Zimbabwe's hyperinflation of 2007–09 represents the world's 30th occurrence as well as the continent's second bout (after a 1991–94 episode in the Congo).[2]

Zimbabwe's History

Zimbabwe is located in the southern region of

the African continent and is bounded to the north by Zambia, to the east by Mozambique, to the south by South Africa and to the west by Botswana and the Caprivi Strip of Namibia. At 390,757 square kilometers (150,871 square miles), Zimbabwe is about the size of California, with a population the United Nations estimated at 12.7 million in 2011. Its capital is Harare. The nation's name is derived from historical structures called "Great Zimbabwe" (houses of stone), the largest stone sculptures in Africa after the pyramids of Egypt.

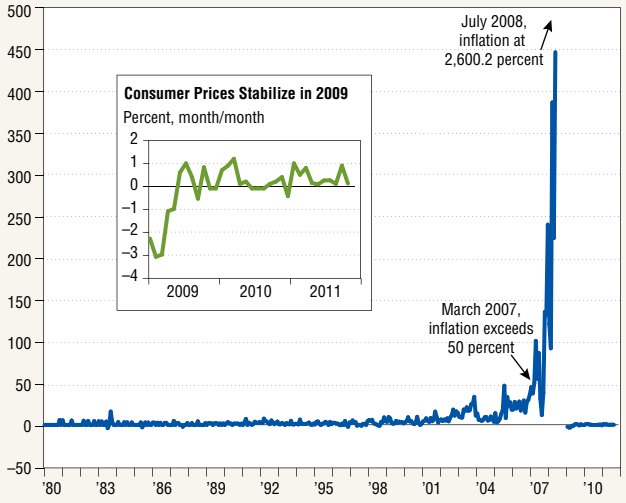
The country was settled by the British in 1890, when Cecil Rhodes, a businessman who made his fortune mining diamonds in South Africa, pushed northward in search of more bounty. Rhodes successfully persuaded the British to grant a royal charter to his British South Africa Co., which he used to promote the colonization of the region. The country was renamed Southern Rhodesia in 1895 in his honor. It became a self-governing British colony in October 1923, following a 1922 referendum. In 1953, in the face of African opposition, Britain consolidated the colonies of Rhodesia (Northern and Southern Rhodesia) with Nyasaland into the Federation of Rhodesia and Nyasaland. Growing African nationalism and dissent, particularly in Nyasaland, persuaded Britain to dissolve the union in 1963 and form three colonies—Northern Rhodesia, Southern Rhodesia and Nyasaland.

During much of the colonial period, from 1890 to 1979, blacks and whites fought over land and political involvement, as the local population resisted marginalization. Several uprisings were mostly quickly ended, the leaders imprisoned. Two political parties that formed in the 1960s proved resilient—the Zimbabwe African National Union (ZANU) under Robert Mugabe and the Zimbabwe African Peoples Union (ZAPU) under Joshua Nkomo.

In the early 1960s, as colonial rule ended throughout the continent and as African-majority governments assumed control in neighboring Northern Rhodesia (now Zambia) and Nyasaland (now Malawi), the white-minority Southern Rhodesia government led by Ian Smith issued a Unilateral Declaration of Independence from the United Kingdom on Nov. 11, 1965. The move scuttled Britain's plan for a multiracial democracy, prompting sanctions from the former colonial power, which deemed the independence declaration illegal. Still, the white-minority government claimed nation status as the Republic of Rhodesia, or simply Rhodesia, in 1970.

A civil war ensued, with African guerrilla groups under ZAPU and ZANU leadership taking

Chart 1
Zimbabwe Consumer Price Inflation Soars Amid Hyperinflationary Period



SOURCES: International Monetary Fund's International Financial Statistics database; Reserve Bank of Zimbabwe's *Monthly Economic Reviews*.

up arms from bases in Zambia and Mozambique. In 1979, an agreement on a new constitution, transitional arrangements and a ceasefire were reached at a conference convened in Lancaster House in London. Following elections the next February, Mugabe became the first prime minister and formed a coalition government that included former ZAPU leader Nkomo. Zimbabwe became a recognized independent nation on April 18, 1980. The Mugabe government has ruled ever since.[3]

Before and During Hyperinflation

To trace the economy's deterioration and understand the causes of the extreme price changes, it helps to compare 1980 (when newly independent Zimbabwe left behind its identity as Rhodesia) with 2008–09, the height of hyperinflation.

At independence, annual inflation was 5.4 percent; month-to-month inflation averaged 0.5 percent. The largest currency denomination was Z$20, and the Zimbabwean dollar was the most widely used currency—involved in more than 95 percent of transactions. Officially, US$1 bought Z$0.647, and real GDP in 1980 grew 14.6 percent over 1979 levels (*Chart 2*). On a per capita basis, real GDP (purchasing-power-parity adjusted) in 2005 prices equaled US$232; the unemployment rate was 10.8 percent in 1982.

By July 2008, when Zimbabwe's Central Statistical Office released its last inflation figures for that year, the month-over-month (nonannualized) rate had reached 2,600.2 percent—more than 231 million percent on a year-over-year basis. The International Monetary Fund (IMF) put the annual inflation rate in September 2008 at 489 billion percent, with some independent analysts estimating it much higher.[4] The largest currency denomination in 2009 was the Z$100 trillion note. However, the most widely used currencies in almost all transactions were the U.S. dollar, South African rand and the Botswana pula. At the official exchange rate on Dec. 31, 2008, US$1 traded for Z$4 million, although parallel black-market rates were much greater. In 2008, real GDP contracted 17 percent (Chart 2), with per capita GDP at US$136—41 percent below what it was at independence. The unemployment rate stood at 94 percent, according to a report by the U.N. Office for the Coordination of Humanitarian Affairs, and the country became the bread beggar of Africa (Makochekanwa 2009).[5]

Signs such as this one appeared in Zimbabwe during its hyperinflation episode.
Photo credit: Eugene Baron

Zimbabwe's Inflation Nightmare

Zimbabwe's economic crisis and subsequent hyperinflation were preceded by several years of economic decline and mounting public debt. Weakening began in 1999, coinciding with periods of drought that adversely affected the agriculturally dependent nation. External debt as a share of GDP increased to 119 percent in 2008 from 11 percent in 1980. Land reallocation in 2000 and 2001, which redistributed large agricultural tracts, depressed commercial farming output. Output fell 50 percent between 2000 and 2009, led by a decline in the country's major foreign-exchange cash crop, tobacco, which slid 64 percent in 2008 from 2000 levels (*Chart 3*). Commercial production of maize,

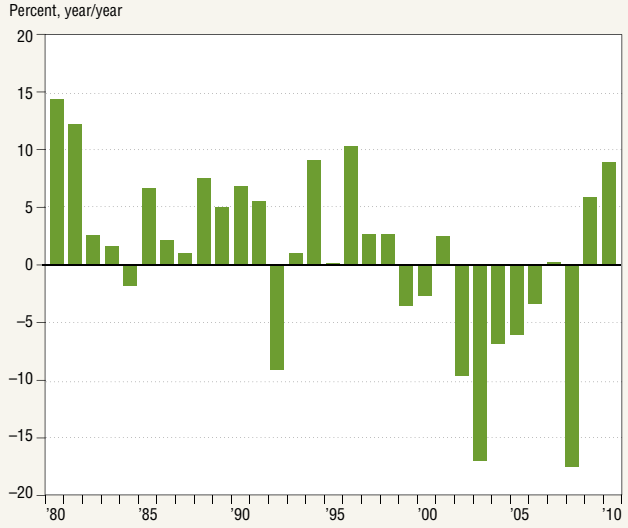
the national staple, dropped 76 percent during the same time (FAOSTAT Database 2011).

Uncontrolled government spending accompanied the weak economy. In 1997, authorities approved unbudgeted expenditures, amounting to almost 3 percent of GDP, for bonuses to approximately 60,000 independence war veterans. Efforts to cover the payment with tax increases failed after trade-union-led protests, prompting the government to begin monetization (printing additional money to "pay" for the expenditure). In 1998, the government spent another significant share of gross national product (GNP) for its involvement in Congo's civil war. Additionally, authorities faced debt obligations to the IMF. In 2006, Zimbabwe still had substantial overdue obligations to the IMF's Poverty Reduction and Growth Facility and Exogenous Shocks Facility Trust, totaling about US$119 million.[6] These funds were intended to foster development and reduce poverty.

The dire economic conditions prompted a wave of emigration to neighboring countries, contributing to a population and labor force decline beginning in 2003 (*Chart 4*). Zimbabwe emigration totaled 761,226, about 6 percent of the population in 2005. This number increased to 1.25 million in 2010, representing 9.9 percent of the population (World Bank 2008 and 2011). With a shrinking tax base and revenue that could not support expenditures and obligations, the government printed yet more money. Currency lost value at exponential rates amid an imbalance between economic output and the increasing money supply (*Chart 5*).

Hyperinflation and economic troubles were so profound that by 2008, they wiped out the wealth of citizens and set the country back more than a half century. In 1954, the average GDP per capita for Southern Rhodesia was US$151 per year (based on constant 2005 U.S.-dollar purchasing-power-parity rates). In 2008, that average declined to US$136, eliminating gains over the preceding 53 years (*Chart 6*).

Chart 2
Zimbabwe Real GDP Contracts During Most of the Past Decade



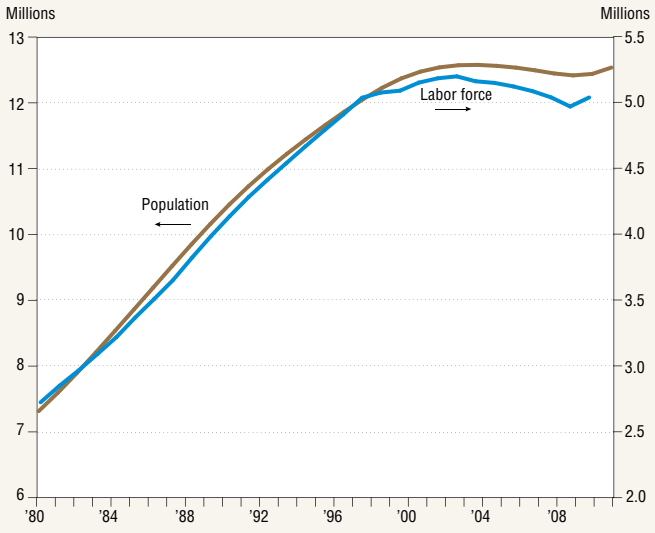
NOTE: Data plotted are the growth rates of GDP in constant 2000 U.S. prices.
SOURCE: World Bank's World Development Indicators database.

Chart 3
Zimbabwe's Tobacco Production Declines

SOURCE: Food and Agriculture Organization of the United Nations.

As Zimbabwe printed money in higher and higher denominations, nearly everyone was a billionaire—of a worthless currency. *Photo credit: Howard Burditt/Reuters*

Chart 4
Weak Economy Squeezes Zimbabwe Population, Labor Force Growth



SOURCE: World Bank's World Development Indicators database.

Starving Billionaires—Effects of Hyperinflation

Zimbabwe's official annual rate of inflation exceeded 231 million percent in 2008, quickly eroding the currency's purchasing power. The *Economic Times* newspaper noted on June 13, 2008, that "a loaf of bread now costs what 12 new cars did a decade ago," and "a small pack of locally produced coffee beans costs just short of 1 billion Zimbabwe dollars. A decade ago, that sum would have bought 60 new cars."[7]

At the height of the hyperinflation, prices doubled every few days, and Zimbabweans struggled to keep their cash resources from evaporating. Businesses still quoted prices in local currency but revised them several times a day. A minibus driver taking commuters into Harare still charged passengers in local currency but at a higher price on the evening trip home. And he changed his local notes into hard currency three times a day.[8]

The government attempted to quell rampant inflation by controlling the prices of basic commodities and services in 2007 and 2008. Authorities forced merchants—sometimes with police force—to lower prices that exceeded set ceilings. This quickly produced food shortages because businesses couldn't earn a profit selling at government-mandated prices and producers of goods and services cut output to avoid incurring losses. People waited in long lines at fuel stations and stores. While supermarket shelves were empty, a thriving black market developed where goods traded at much higher prices. Underground markets for foreign exchange also sprang up in back offices and parking lots where local notes were converted to hard currencies at much more than the official central bank rate.

Some commodities, such as gasoline, were exclusively traded in U.S. dollars or the South African rand, and landlords often accepted groceries and food items as barter for rent. When currency is almost worthless, the use of foreign exchange or barter frequently occurs—a situation previously

experienced in Germany, Hungary and Argentina in the 20th century.

Inflation Is a Monetary Phenomenon

Hyperinflation, which rapidly destroys a currency's value, is fundamentally a monetary phenomenon. Deprived of conventional means of raising revenue, such as taxation, governments borrow without limit from the central bank (*Chart 7*). Then, as inflation accelerates, fiscal policy makers begin administering monetary control.

Besides Zimbabwe, there have been 29 other bouts of hyperinflation (*Table 1*). Recent macroeconomic studies focusing on high and sustained levels of inflation offer evidence of a causal relationship between variations in money supply and variations in aggregate price levels.

In his study of hyperinflation, Cagan (1956) assessed the statistical relationship between money and price changes by looking at seven instances of hyperinflation from six European countries from 1920 to 1946. Assuming that inflation expectations played a primary role in the determination of hyperinflation, Cagan concluded that the demand for real money balances declined as inflation rates increased, contributing to the phenomenon.

Milton Friedman's monetarist view that "inflation is always and everywhere a monetary phenomenon" is based on the quantity theory of money that asserts aggregate prices P and total money supply M are related, according to the following equation, where Y is real output and V is velocity of money—the rate at which money turns over in the economy.

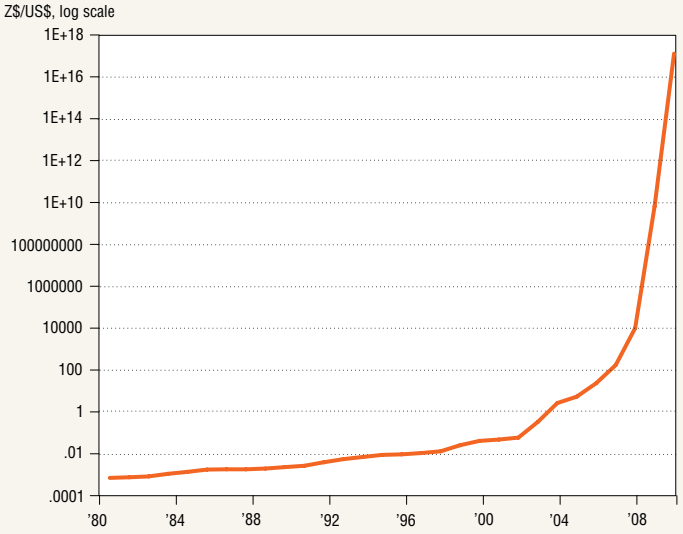
$$M \times V = P \times Y$$

Transforming each variable into a growth rate, with lowercase letters denoting percentage changes, the quantity theory of money can be expressed as:

$$p = v + m - y,$$

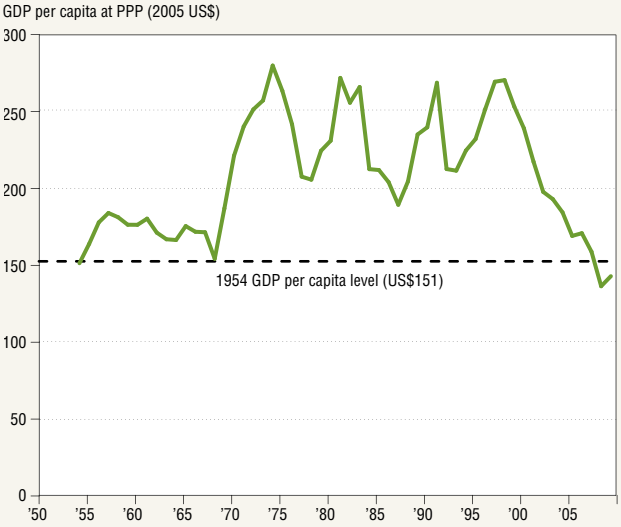
where p is the rate of inflation and v, m and y are growth rates of velocity, money stock and output,

Chart 5
Zimbabwe Dollar Depreciates Sharply During Hyperinflation Era



SOURCE: Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 7.0, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, May 2011.

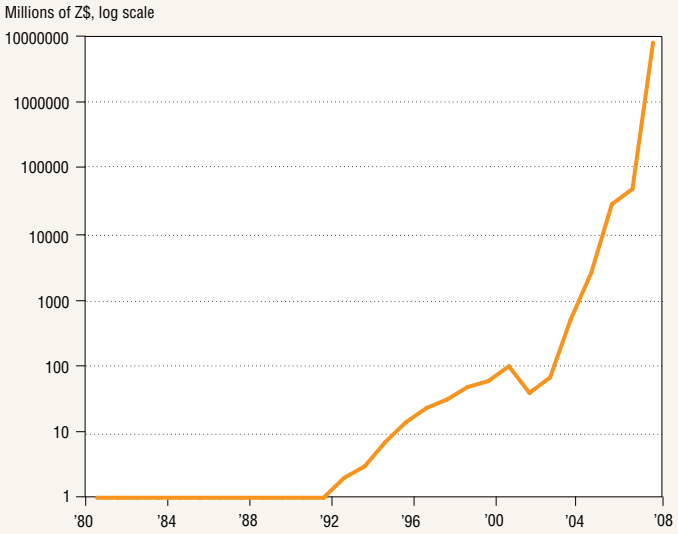
Chart 6
Economic Decline Wipes Out 53 Years of Income Growth in Zimbabwe



NOTES: Data used are real GDP per capita (Laspeyres series) in 2005 constant prices. Data reporting started in 1954.

SOURCE: Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 7.0, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, May 2011.

Chart 7
Zimbabwe Central Bank Government Debt Holdings Jump After 2003



NOTE: Central bank's holdings of government debt were zero or near zero between 1980 and 1989.
SOURCE: International Monetary Fund's International Financial Statistics database.

Supermarket shelves emptied because of price controls.
Photo credit: Eugene Baron

respectively. The implication of this relationship is that inflation will increase when money supply growth exceeds the expansion of real economic activity, assuming that the velocity of money (the number of times it changes hands) remains unchanged.

In Zimbabwe, money supply and prices moved in tandem, as expected from the quantity theory of money. In addition, the velocity of money increased as people opted to spend immediately rather than hold on to depreciating cash. This rise in velocity as well as the increase in the stock of money through printing of new currency produced the exponential increase in prices, shown in Chart 8.

Stopping Spiraling Inflation

Expectations play a major role in perpetuating higher prices during bouts of hyperinflation, and the effect of those expectations on money and inflation is amplified relative to other influences, such as the business cycle. To blunt exponential price increases, government finance must change in a credible way so the public believes there is real commitment to eliminating abuses that caused rapid inflation and currency devaluation.

Past chronic inflation episodes have been stabilized through the adoption of an independent central bank, an alteration in the fiscal regime and by instituting a credible exchange rate stabilization mechanism. In most cases, price stability was achieved virtually overnight following exchange rate stabilization. For example, Hungary and Germany experienced average monthly inflation rates in the 12 months prior to stabilization of 19,800 and 455.1 percent, respectively. After stabilization, the monthly rates over a year's time dropped to 1.3 and 0.3 percent, respectively (Vegh 1991). Table 2 shows the monthly averages for the rates of devaluation and inflation before and after the exchange rates were stabilized during eight hyperinflation episodes.

Fundamental fiscal policy changes are also needed to ensure the change in fiscal policy regime

Table 1
Hyperinflation in History

Country	Year(s)	Highest inflation per month (percent)
France	1789–96	143.26
Germany	1920–23	29,525.71
Austria	1921–22	124.27
Poland	1921–24	187.54
Soviet Union	1922–24	278.72
Hungary	1923–24	82.18
Greece	1942–45	11,288
Hungary	1945–46	1.295×10^{16}
Taiwan	1945–49	398.73
China	1947–49	4,208.73
Bolivia	1984–86	120.39
Nicaragua	1986–89	126.62
Peru	1988–90	114.12
Argentina	1989–90	196.6
Poland	1989–90	77.33
Brazil	1989–93	84.32
Yugoslavia	1990	58.82
Azerbaijan	1991–94	118.09
Congo (Zaire)	1991–94	225
Kyrgyzstan	1992	157
Serbia	1992–94	309,000,000
Ukraine	1992–94	249
Georgia	1993–94	196.72
Armenia	1993–94	438.04
Turkmenistan	1993–96	62.5
Belarus	1994	53.4
Kazakhstan	1994	57
Tajikistan	1995	78.1
Bulgaria	1997	242.7
Zimbabwe	2007–09	2,600.2*

*Zimbabwe's last official month-to-month recording of inflation by the country's Central Statistics Office, July 2008, although estimates are much higher. The official annual rate recorded for July 2008 is 231 million percent, and the International Monetary Fund estimated the annual inflation rate for September 2008 at 489 billion percent.

SOURCE: *Monetary Regimes and Inflation: History, Economic and Political Relationships*, by Peter Bernholz, Northhampton, Mass.: Edward Elgar Publishing, 2003, Table 2.1.

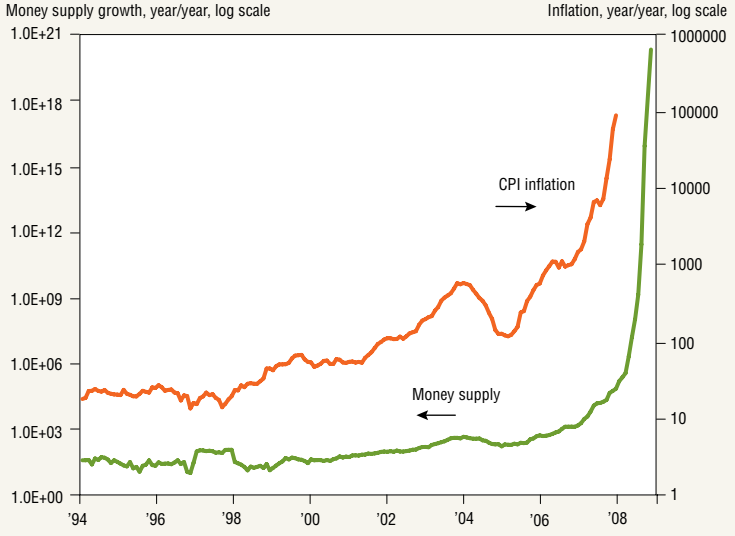
alters public expectation of future government actions, essential in ensuring continued disinflation.

In late 2008, the Zimbabwe dollar was replaced in transactions by widespread dollarization amid hyperinflation. The official demise of the currency occurred in February 2009, when authorities established a multicurrency system. Transactions in hard foreign currencies were authorized, and payment of taxes in foreign exchange was subsequently allowed.[9] While the South African rand, Botswana pula and the U.S. dollar were granted official status, the U.S. dollar became the principal currency. Budget revenue estimates and planned expenditures for 2009 were denominated in U.S. dollars, and the subsequent budget for 2010 was also set in U.S. dollars. An estimated four-fifths of all transactions in 2010 took place in U.S. dollars, including most wage payments (Kramarenko et al. 2010).

Even after adopting U.S. monetary policy by dollarizing, post-hyperinflation Zimbabwe still faces challenges: rebuilding public finances, instituting and maintaining credible policies to control government spending, reducing poverty and promoting economic growth. Data for 2010 showed encouraging signs of recovery. Real GDP expanded 9 percent from 2009 levels, marking the second year of growth. Inflation subsided to single digits since dollarization and has remained at those levels. According to the Reserve Bank of Zimbabwe, the October 2011 consumer price inflation was 4.2 percent on a year-over-year basis, compared with 4.3 percent in September.[10] Real GDP per capita in 2009 increased 4.8 percent from 2008 levels, the second positive reading after nine years (since 1998) of mostly negative growth rates.

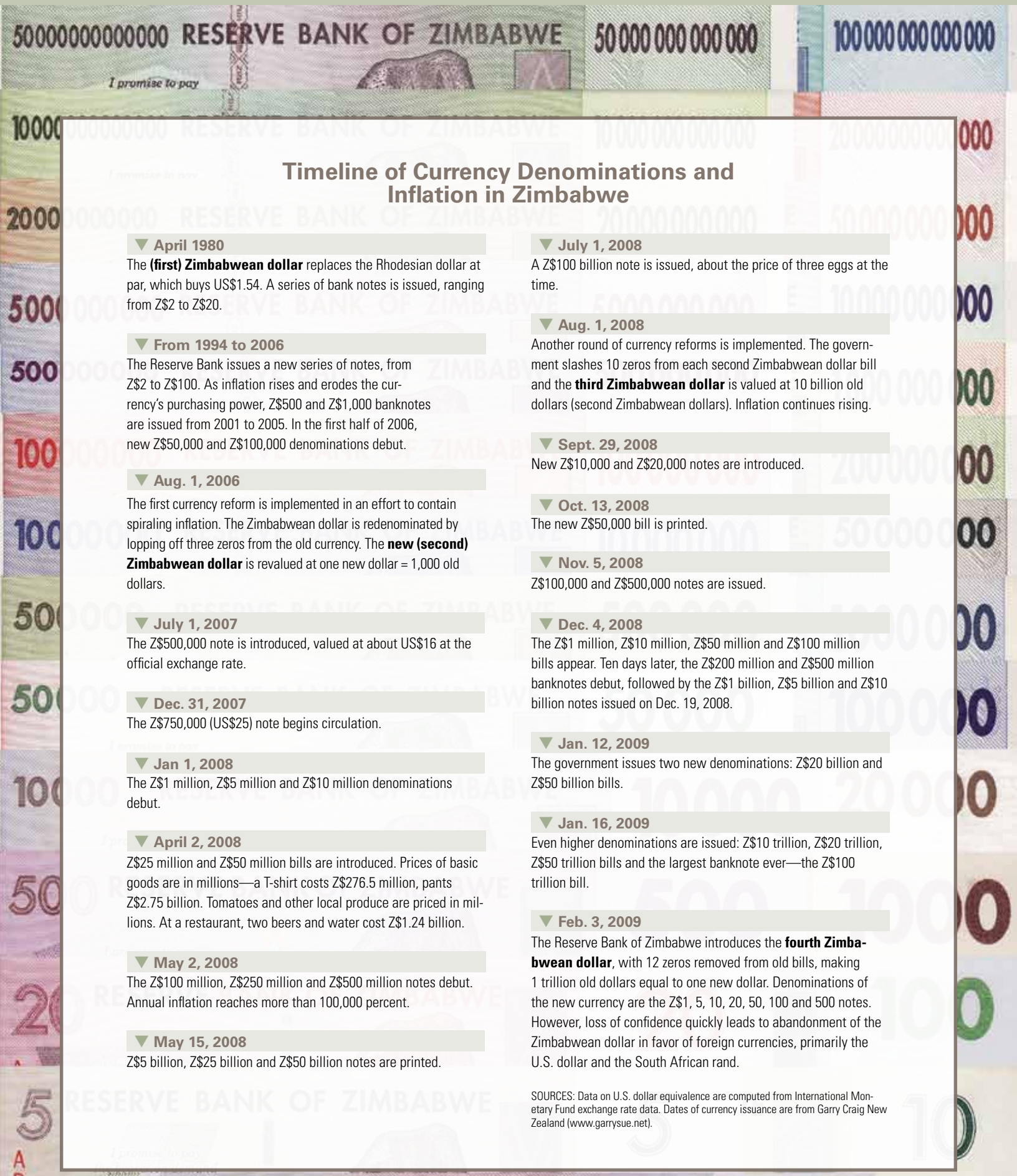
(continued on page 11)

Chart 8
Inflation, Money Supply Rise in Tandem in Zimbabwe



NOTE: Money supply measure plotted is M3, which is the sum of notes and coins in circulation plus demand, savings and time deposits in the banking system.

SOURCE: Reserve Bank of Zimbabwe's *Monthly Economic Reviews*.



Timeline of Currency Denominations and Inflation in Zimbabwe

April 1980

The **(first) Zimbabwean dollar** replaces the Rhodesian dollar at par, which buys US$1.54. A series of bank notes is issued, ranging from Z$2 to Z$20.

From 1994 to 2006

The Reserve Bank issues a new series of notes, from Z$2 to Z$100. As inflation rises and erodes the currency's purchasing power, Z$500 and Z$1,000 banknotes are issued from 2001 to 2005. In the first half of 2006, new Z$50,000 and Z$100,000 denominations debut.

Aug. 1, 2006

The first currency reform is implemented in an effort to contain spiraling inflation. The Zimbabwean dollar is redenominated by lopping off three zeros from the old currency. The **new (second) Zimbabwean dollar** is revalued at one new dollar = 1,000 old dollars.

July 1, 2007

The Z$500,000 note is introduced, valued at about US$16 at the official exchange rate.

Dec. 31, 2007

The Z$750,000 (US$25) note begins circulation.

Jan 1, 2008

The Z$1 million, Z$5 million and Z$10 million denominations debut.

April 2, 2008

Z$25 million and Z$50 million bills are introduced. Prices of basic goods are in millions—a T-shirt costs Z$276.5 million, pants Z$2.75 billion. Tomatoes and other local produce are priced in millions. At a restaurant, two beers and water cost Z$1.24 billion.

May 2, 2008

The Z$100 million, Z$250 million and Z$500 million notes debut. Annual inflation reaches more than 100,000 percent.

May 15, 2008

Z$5 billion, Z$25 billion and Z$50 billion notes are printed.

July 1, 2008

A Z$100 billion note is issued, about the price of three eggs at the time.

Aug. 1, 2008

Another round of currency reforms is implemented. The government slashes 10 zeros from each second Zimbabwean dollar bill and the **third Zimbabwean dollar** is valued at 10 billion old dollars (second Zimbabwean dollars). Inflation continues rising.

Sept. 29, 2008

New Z$10,000 and Z$20,000 notes are introduced.

Oct. 13, 2008

The new Z$50,000 bill is printed.

Nov. 5, 2008

Z$100,000 and Z$500,000 notes are issued.

Dec. 4, 2008

The Z$1 million, Z$10 million, Z$50 million and Z$100 million bills appear. Ten days later, the Z$200 million and Z$500 million banknotes debut, followed by the Z$1 billion, Z$5 billion and Z$10 billion notes issued on Dec. 19, 2008.

Jan. 12, 2009

The government issues two new denominations: Z$20 billion and Z$50 billion bills.

Jan. 16, 2009

Even higher denominations are issued: Z$10 trillion, Z$20 trillion, Z$50 trillion bills and the largest banknote ever—the Z$100 trillion bill.

Feb. 3, 2009

The Reserve Bank of Zimbabwe introduces the **fourth Zimbabwean dollar**, with 12 zeros removed from old bills, making 1 trillion old dollars equal to one new dollar. Denominations of the new currency are the Z$1, 5, 10, 20, 50, 100 and 500 notes. However, loss of confidence quickly leads to abandonment of the Zimbabwean dollar in favor of foreign currencies, primarily the U.S. dollar and the South African rand.

SOURCES: Data on U.S. dollar equivalence are computed from International Monetary Fund exchange rate data. Dates of currency issuance are from Garry Craig New Zealand (www.garrysue.net).

Hyperinflation Consequences

Zimbabwe is the first country to experience a hyperinflationary episode in the 21st century. Hyperinflation is rare and often associated with wars, regime change and unstable political and economic environments where revenues are insufficient to cover government expenditures and printing more currency becomes a solution. Excess money supply not backed by economic growth leads to a loss of confidence in the currency, which ultimately can result in abandonment of the local currency in favor of foreign ones.

Hyperinflation produces adverse impacts—wealth and savings are wiped out within months, and prices of basic commodities become out of reach to many, especially those on fixed incomes. Governments often implement price controls in an attempt to control inflation. This frequently leads to shortages, as producers opt for alternative markets to avoid the mandated price ceilings that don't cover production costs. A thriving black market ensues, where basic goods and foreign currencies are traded at premium prices. Economies also resort to barter and trade in foreign currencies when the home currency has lost its value.

In Zimbabwe, the printing presses worked overtime, delivering ever-increasing currency denominations that lost value faster than they could be printed. The Z$100 trillion bill, issued in January 2009, was the largest denomination in the history of money. At the time of issuance, this note was worth US$300,[11] and its value diminished by the hour as the inflation rate soared in the millions.

Recently, this historic Z$100 trillion bill has become a hot commodity among collectors and novelty buyers, selling for about US$5 on eBay. This historical keepsake is a stark reminder of what happens to a currency when inflation and fiscal balances go unchecked.

—Janet Koech

Table 2
Devaluation, Inflation and Money Growth in Hyperinflations (in percent per month)

Country	Devaluation rates	Inflation rates	Money growth
Austria (October 1922)			
October 1921–September 1922	32.6	46.0	35.7
October 1922–September 1923	–0.4	0.4	8.7
Poland (February 1924)			
February 1923–January 1924	63.7	66.2	62.7
February 1924–November 1924	0.8	1.2	11.1
Greece (February 1946)			
February 1945–January 1946	—	27.0	31.6
February 1946–December 1946	—	–0.8	13.4
Taiwan (June 1949)			
January 1948–May 1949	—	30.7	23.7
June 1949–December 1950	—	6.7	11.4
Germany (January 1924)			
January 1923–December 1923	409.8	455.1	419.7
January 1924–December 1924	–3.9	0.3	12.0
Hungary (April 1924)			
April 1923–March 1924	28.0	33.3	28.1
April 1924–March 1925	0.0	0.2	8.5
Hungary (August 1946)			
August 1945–July 1946	—	19,800	12,200
August 1946–July 1947	—	1.3	14.2
Bolivia (October 1985)			
October 1984–September 1985	44.0	57.6	48.5
October 1985–September 1986	4.9	5.7	8.3

NOTES: The date in parentheses following the country name indicates the month in which the exchange rate stabilized. Money refers to notes in circulation, except in Bolivia and Taiwan where it indicates M1—notes in circulation plus demand deposits.

SOURCE: "Stopping High Inflation: An Analytical Overview," by Carlos A. Vegh, International Monetary Fund, IMF Working Paper no. 91/107, November 1991.

Notes

[1] The Z$100 trillion note was issued after two currency reforms—in 2006 and 2008—where a total of 13 zeros were slashed from currency, making the 100 trillion (10^{14}) note technically equivalent to 10^{27} pre-2006 Zimbabwean dollars. By this measure, the Z$100 trillion takes the lead as the largest currency ever issued. The 100 million Hungarian B-pengo (10^{20} pengo) put into circulation in 1946 is historically recognized as the world's largest currency—but comes in second when Zimbabwe's currency revaluations are considered.

[2] Hungary maintains the top spot for the highest hyperinflation rate, with its monthly rate peaking at 1.3×10^{16} percent in July 1946.

[3] Mugabe served as prime minister from 1980 to 1987 and has been president since 1987.

[4] Hanke and Kwok (2009) estimated the inflation rate as of December 2008 at 6.5 quindecillion novemdecillion percent (that is, 65 followed by 107 zeros).

A Zimbabwean $100 billion note was needed to purchase three eggs in July 2008.
Photo credit: Philimon Bulawayo/Reuters

[5] Zimbabwe's 94 percent unemployment rate is mentioned by IRIN—a humanitarian news and analysis service of the United Nations—in its article "Zimbabwe: Poverty for a Few Dollars More," Jan. 30, 2009, www.irinnews.org/report.aspx?reportid=82674.

[6] International Monetary Fund press release no. 06/33, Feb. 15, 2006, www.imf.org/external/np/sec/pr/2006/pr0633.htm.

[7] "Zimbabwe Inflation Now over 1 Million Percent," *Economic Times*, June 13, 2008, http://articles.economictimes.indiatimes.com/2008-06-13/news/27696937_1_zimbabwe-inflation-zimbabwe-dollars-harare.

[8] "A Worthless Currency: The Local Dollar Is Fast Shriveling Away," *The Economist*, July 17, 2008, www.economist.com/node/11751346.

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