Summary

The Indian Government's green light in 2003 to allow futures trading in multiple commodities ushered in a new era of agricultural risk management. Indian futures markets have proved highly successful, showcasing a diverse product base unmatched in the world of commodity futures exchanges. In a response to price hikes in domestic pulses and wheat during 2006, the government declared a halt to trading in pulses and a ban on new wheat contract listings. Those decisions have generated considerable debate on the causes of inflation among the policy officials who monitor domestic food prices and have led to the creation of the Sen Committee to review the issue of wheat futures trading. Although research conducted in India and elsewhere has convincingly demonstrated that producers realize sizable benefits both directly and indirectly from futures markets, the effect of these markets on wholesale and retail prices remains a question mark. This paper will examine the relationship of futures and end user prices, focusing on basic foodstuffs. It will also look at macro-economic trends possibly causing food price inflation on a global basis. Finally, an addendum will provide a general overview of inflation from a monetary perspective since the 1970's.

Price Impact of Futures

Studies by several policy and research organizations have persuasively shown that Indian futures markets have enhanced producer incomes. These studies describe how multiple efficiencies, including increased warehousing, standardized grading and testing facilities, quality production, and elevated producer awareness about marketing opportunities, have resulted in greater farm price realization. Because Indian futures allow direct producer participation in the delivery process, giving farmers the full price benefits from these instruments,[1] futures contracts have reflected this upward pricing. According to the GOI, year-on-year rise of food articles as of February 2007 was 12 per cent with cereals and pulses registering a 10 percent rise, compared to a 6.4 per cent rise in manufactured goods. The high food inflation figures have caused some policy makers to conclude that higher futures prices were directly fueling wholesale and retail price increases in the Indian food sector.

In the markets researched to date, however, the opposite effect has been observed: futures had a taming effect on the product price for the end-user. In the MCX mentha oil and cardamom futures, for example, end-users and exporters participated in long futures hedging and took delivery as a means of obtaining the best quality product at the cheapest price. In cardamom, the pricing efficiency has resulted in an Indian product of uniform high quality that is preferred by several importing regions over other country varieties. Similarly, the mentha oil contract has helped propel the Indian mint products industry into undisputed world dominance.

[1] With few exceptions, such as the CBOT rough rice contract which allows farmer delivery in public warehouses in Arkansas, US futures markets only allow delivery by grain terminal or barge loading station owners which often discount the cash price to the farmer by 5-10 percent of the futures traded price.

The NCDEX wheat futures market had a comparable moderating effect on end-user wheat prices. According to the cooperative HAFED, its accumulation of wheat stocks during harvest and wheat deliveries in post harvests months helped contain both prices and volatility - an outcome confirmed by independent statistical analyses. Since the contract did not allow for redelivery, long future holders without secondary physical buyers tended to sell their futures positions, causing the futures and cash price to converge each monthly delivery period. Significantly, the integration and price transparency in the markets studied have eliminated many middlemen that previously extracted margins without additive value.

Many infrastructure efficiencies spurred by futures markets, including the creation of environmentally controlled warehouses with video surveillance, are combating a pervasive spoilage problem in India. Spoilage and leakage rates in India, caused by improper storage, rodent and insect infestation or sometimes theft, are reported to be as high as 30% for some commodities. A recent study by Crisil, the Indian affiliate of Standard & Poor's, concluded that the absence of infrastructure investment is a key source of food inflation. The lack of navigable roads, cold storage facilities and organized retail chains[2] are preventing the delivery of quality assured products to consumers. The result, according to Crisil, is a dual loss; farmers realize only 35-40 percent of the retail price and consumers pay more for foodstuffs due to spoilage, market fragmentation and several intermediary mark-ups. The ecosystem approach by Indian futures markets is proving to be an effective remedy to this problem, suggesting the need for more exchange traded commodities.

Lending further insight into the futures markets and wholesale price inflation issue, an examination of price data reported for processed commodities[3] reveals that the prices of non-exchange traded goods have increased more sharply than the prices for halted commodity futures. For example, in February 2007 when the ban was announced, the prices of groundnut oil, sunflower oil and tea were up year-on-year 40.8 per cent, 54 per cent, and 23.4 per cent respectively.

Other country studies have similarly concluded that futures reduce price volatility. David Jacks's paper – *Populists versus Theorists: Futures Markets and the Volatility of Prices,* a comprehensive review of the price behavior of 16 commodities before and after futures, concludes that futures prices are associated with considerable dampening of seasonal price swings. Significantly, the study covers a time span of about 150 years and includes the countries Canada, Indonesia, Germany, India and the United States, thus illustrating the universal benefits of these instruments. Most recently, the *Economist* lauds the UN's World Food Programme (WFP) initiative to create a futures market in Ethiopia, a country notorious for its recurring famines but a major grower of wheat and maize. Extolling the efficiencies brought by futures

[2] Retail chains comprise only 1% of the Indian food and grocery trade

[3] These commodities include xxxxxxxx and are categorized under Manufactured Articles, see addendum.

trading and highlighting the strong-arm tactics plaguing grain markets, the *Economist* expresses confidence that the WFP's establishment of the Ethiopian Commodity Exchange (ECEX)[4] will help alleviate hunger.

In order to appreciate the price impact question more fully, an examination of futures prices in the US – a country with extensive experience with liquid futures markets – is instructive. There, futures on basic agricultural commodities such corn, wheat, soybeans , and soybean oil are so integrated into the price chain that most of these commodities are quoted on a basis level, as a plus or minus to a referenced futures month. Harvest time corn delivered to a Midwestern terminal might be quoted, for example, at minus 30 (-30) Dec CBOT Corn futures. Similarly, export levels are quoted basis the futures, e.g., +35 July Wheat for June shipment fob Atlantic or +150 July for shipment CIF Japan. Much of the trade is simply executed on the basis with "futures in exchange." Basis contracts limit the trade exposure to basis level changes that are primarily influenced by transportation costs and regional supply and demand fundamentals.[5] As a transparent geographic pricing matrix, the basis system has helped identify and correct infrastructure deficiencies,[6] reducing the margins on bulk shipments of grain to negligible levels. In fact, during the 1980's and 1990's, margins were often negative, forcing a rapid consolidation of the grain business. Therefore, US futures markets have proved beneficial to both producers and end-users by adding transparency, expanding infrastructure , promoting basis trading and stripping away layers of intermediaries.[7] If India were to develop basis trading techniques, efficiencies for exchange traded commodities would accelerate.

The Case of Wheat

Wheat is a crucial dietary staple in India. Although India is the second largest producer of wheat in the world, the GoI intervenes in both the price and stocking levels. Each harvest season, the GoI establishes a minimum support price (MSP) at which it secures buffer stocks. If the stock level is insufficient for the Public Distribution System administered under the State Trading Corporation, it can tender for additional wheat from foreign suppliers. In January 2007, fearing a harvest shortfall, the GoI suspended wheat export licenses and in February, it banned new contract listings in wheat futures permitting trade for liquidation only.

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[4] "Get the gangsters out of the food chain," the *Economist*, June 9-15, 2007

[5] For example a fob new Orleans corn contract bought at +32 July and sold at +31 July would have a loss of only 1cent per bushel regardless of the prices at which the futures are exchanged. A loss or gain in the futures would be offset by the loss or gain in the cash contract price.

[6] A steeply discounted basis level in a particular region would encourage more storage capacity.

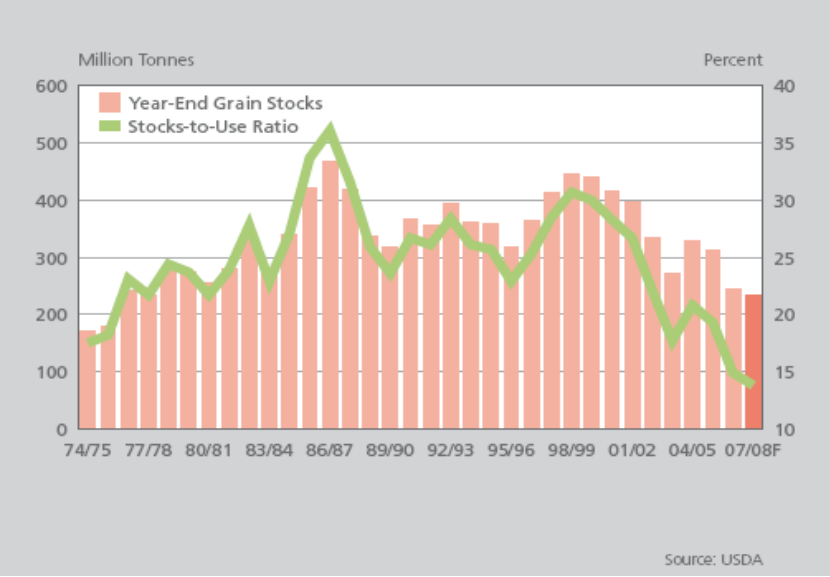
[7] Although the effect of futures prices on final retail prices is beyond the scope of this study, in general, as the retail product the moves further away from the basic commodity, the commodity price component becomes increasingly smaller in the final make-up of the retail price. For example, a one pound box of cereal is about the same price as a 60 pound bushel of wheat, reflecting processing, transportation, storage, advertising, packaging and store mark-ups.

Indian wheat index prices - *calculated on a base rate of 100 established 1993-1994*

Month Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	234.5	232.1	224.5	220.7	219.4	216.4						
2006	205.5	209	209.4	198.9	199.2	200	201.1	207.4	216.8	221.2	228.4	233.7
2005	188.5	189.6	187.2	180.9	180	183.6	186.1	184.8	184.9	187	191	196.2

Source - Reserve Bank of India

The GoI's decision has proved highly controversial. Farmers have protested the ban and both the farm communities and the media have criticized its subsequent efforts to obtain additional wheat stocks. During harvest the GoI invited several exporters to participate in a wheat options tender for about one million tons. A low response rate combined with high strike and option prices prompted the GoI to cancel the tender. Rejecting a recommendation to raise the MSP above Rs. 850 per quintal[8] and consequently securing only 10.7 million MT in intervention stocks during harvest, it has recently announced that it will tender for 3-5 million MT. Meanwhile, however, the world price of wheat has climbed about $60/MT between April and June - the equivalent of over Rs. 240 per quintal. [9] The GoI however, reports a decline in domestic prices since January.



World wheat stocks-to-use ratio

[8] The MSP was set at Rs. 750 per quintal with a bonus of Rs. 100.

[9] The GoI received offers on its options wheat tender at about $263 per MT. The price included about a 9% option premium, making the base price $240/MT delivered India. As of June 2007, wheat prices are about $300/MT.

The GoI's extensive interventions in the wheat market are producing a cascade of negative events. By trying to "outguess" market direction and tendering under unconventional terms, the GoI has missed a buying opportunity. By refusing to pay farmers fair market price, it will end up subsidizing foreign wheat farmers at a premium to Indian farmers. By banning futures it has lost a significant pricing signal, potentially leading to buffer stock procurement at a price exceeding the ten year high. And finally, by importing large quantities of wheat, it will push domestic prices down, punishing Indian farmers, thereby creating further disincentives for quality wheat production. In sum, these interventions are creating confusion, artificial distortions and harmful price expectations and will serve to perpetuate, not curb food inflation. In addition, the sharp rise in global wheat prices caused by low stocks to use ratios since the futures ban illustrates the faulty reasoning behind that decision.

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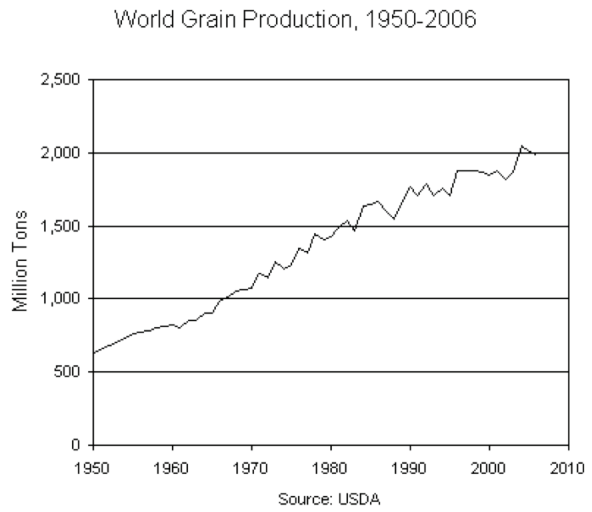
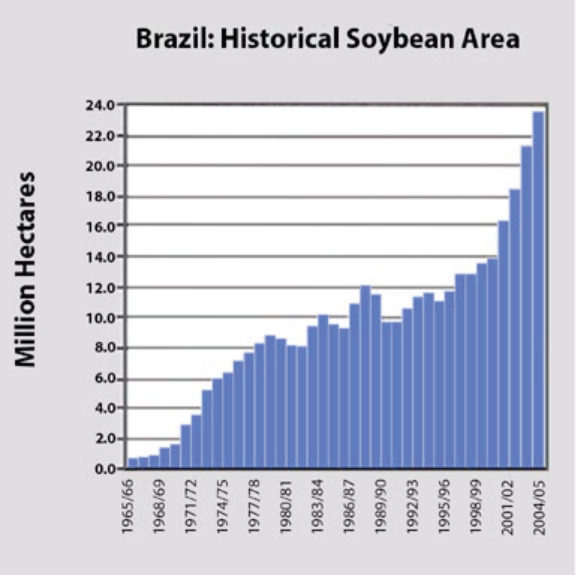
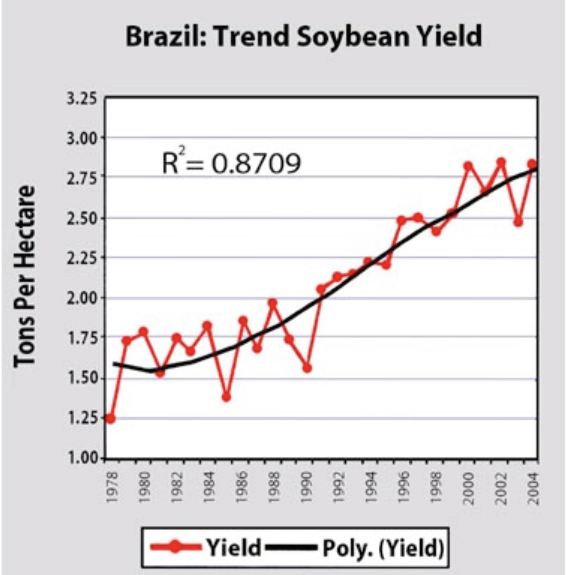
Food Inflation

Most countries have experienced relatively stable food prices over the last two decades, the legacy of many policies put in motion during the Cold War. Europe, a food deficit continent after WWII, created the Common Agricultural Policy (CAP) in the 1960's to ensure food security through price supports that would provide a buffer against Soviet encroachment. The CAP turned Europe into a major grain exporter by the late 1970's. In China, collectivist agricultural policies that ended in catastrophic failure, brought forth significant reform. Mao Zedong's Great Leap Forward, a policy designed to seed backyard pig iron furnaces in the midst of agricultural areas, resulted in an estimated 20 million dead of famine in 1960. The country revived agricultural production, particularly after normalizing relations with the US following President Nixon's 1972 visit, which paved the way for foreign investment and technology transfers. China quintupled its grain production in 5 decades (90 million MT – 490 million MT 1960 – 2007) and along with Europe, became a grain exporter in the 1990's.



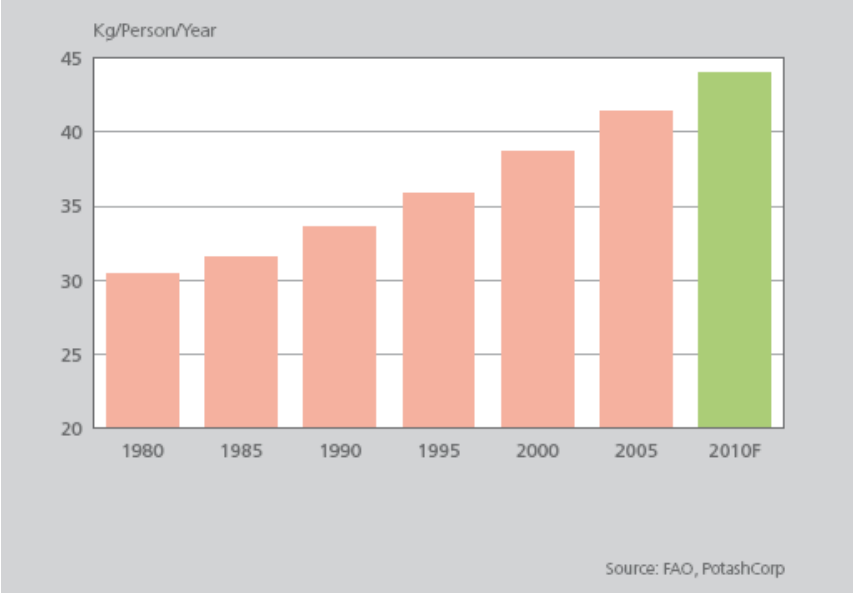
The European subsidy programs and land set aside programs in the US reverberated elsewhere - leading to rapid increases in arable land levels in Argentina and Brazil. During the 1990's, the CIS and the FSU also revived wheat production and reversed their position from importers to exporters. Grain surpluses in Europe were exported to deficit countries with hefty subsidies, keeping prices artificially low.





Recently, however, basic food prices show signs of rising. A constellation of factors is threatening to permanently alter the long period of price stability. For one, European subsidies have declined and its Common Agricultural Policy (CAP) has shifted focus from production levels to income stability and land conservation. Europe's mountains of wheat – which helped push world stocks to usage ratio to a record 36% during 1986, have gradually declined. In June, the USDA declared the 2007 wheat carryout of 112 million MT[10] to be the lowest in 30 years (19% stocks/use ratio). Also, emerging markets growth is increasing disposable incomes, raising the demand for foodstuffs, especially meat and dairy products. China, reaching arable land capacity in 1995 has since seen an 8 million hectare decline, and is resuming as a net importer. Finally rising energy prices and continued instability in the Mid East have catalyzed an industry in biofuels, which is diverting basic foodstuffs such as corn or canola into the manufacture of gasoline substitutes, namely ethanol and biodiesel.

[10] UN-FAO declared the 2007 wheat carryout of 147 million MT, 23% stocks to usage ratio.

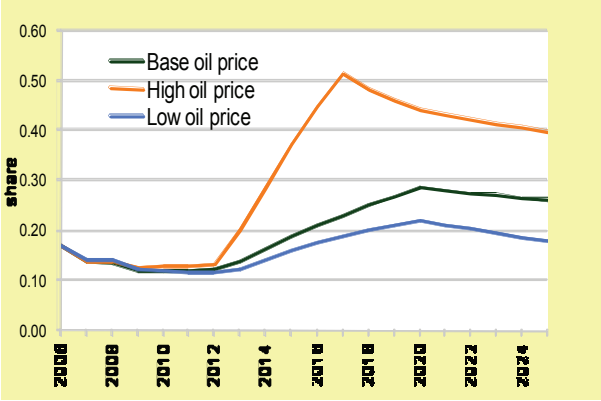


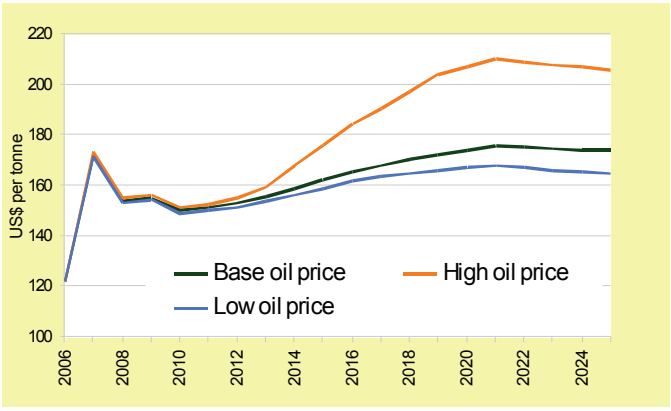
Per capita meat consumption

The impact of the last factor - biofuel production - cannot be overstated. While the decline of cereal inventories and disposable income growth of emerging markets have been relatively gradual, the ascent of ethanol industry has been meteoric.

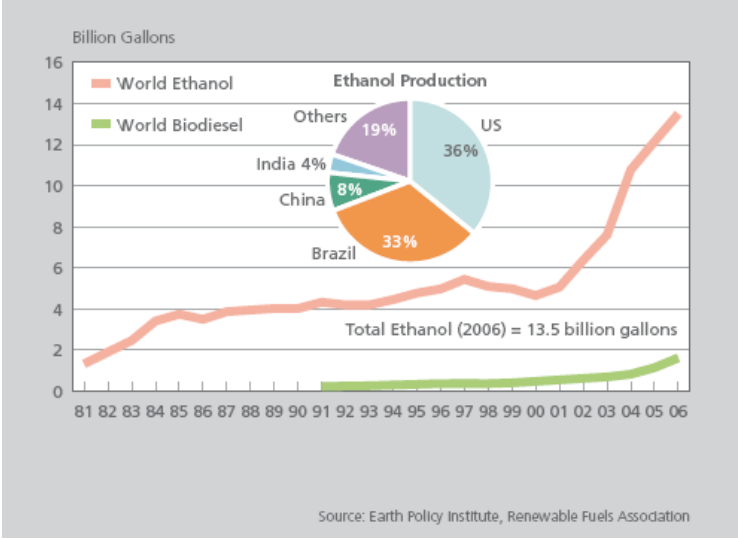
The US has long been the world's largest corn producer, comprising about 40% of the global production and 70% of corn exports. Most of the corn crop is fed into the gigantic meat products industry. The US beef, pork and poultry industries consume 46% the crop, estimated at 317 million MT for 2007-08. Exports will equal about 19 % of the crop and industrial use, including corn syrup, starch and seed consume another 12%. Finally, at 86 million MT, the USDA estimates record corn use for ethanol at 24%. With a push from the current administration to boost ethanol and generous subsidies granted by lawmakers, some experts predict that crop percentage dedicated to ethanol production could approach 35 – 50% within a decade, consuming as much as 150 million MT, or almost about a seventh of the world's corn supply. Although such projections must be tempered with the assessment that returns on corn based ethanol (unlike sugar based ethanol) are marginal at best, the rapid build-up in capacity cannot be ignored. Producing a little more than 4 billion gallons in 2005, the capacity in the pipeline and projected to be operational by the end of 2008 will nearly triple the ethanol production to 11.7 billion gallons.

The UN-FAO projects ethanol production as a share of US production and the effect on corn prices in the following graphs.





In addition to ethanol, biodiesel is gaining traction as another fossil fuel alternative. Made primarily from canola (rapeseed) and also derived from both plant and animal fats, it is reputedly the cleanest motor vehicle fuel produced so far and is less costly to produce than ethanol based on current commodity price levels. Although the biodiesel fuel industry is only about a tenth the size of the ethanol industry, its economics suggest high growth potential.

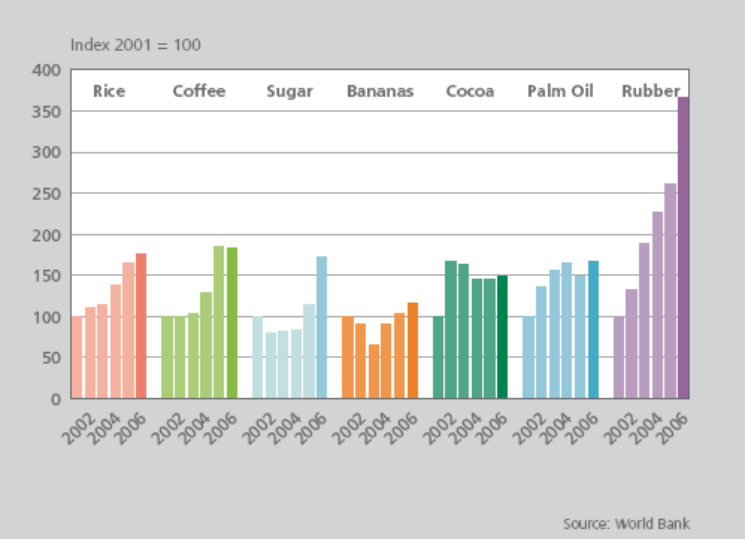


Already countries are feeling the effects of the price surges in wheat, corn and edible oils, but at widely different proportions. According to a University of Iowa Study, the heightened corn price attributed to the ethanol rush has already cost US consumers about $14 billion in increased meat[11] and dairy prices.[12] China reports hefty food inflation caused by a combination of rising

[11] Experts estimate that corn feed typically accounts for 40% of the cost of producing chicken and pork.

[12] The price of a gallon of milk in the US has surpassed $4.00 per gallon, exceeding the price of gasoline.

meat consumption, higher feed costs and hog culling due to disease. The FAO, however, claims that the least developed food-deficit countries will be hardest hit – experiencing an estimated 90 percent increase in food import bills. A recent Foreign affairs article – *How Biofuels Could Starve the Poor*, drives home the impact by saying that filling a 25-gallon SUV tank with pure ethanol would require 450 pounds of corn. This, according to the authors, is an amount containing enough calories to feed one person for a year. In a world where nearly 3 billion people live on less than $2 a day, the impact of this projected food/fuel shift would be devastating. World Bank data on other foodstuffs reveal that food inflation is a global phenomenon.



Although long range projections are always risky, several elements are in place to bring an end to the current benign environment of low food price inflation, including declining availability of arable land, rising per capita food consumption and a diversion of foodstuffs into biofuel production. Although production increases, particularly in South America can help alleviate the demand, it is doubtful that they can keep pace with biofuel demand that projects to be the largest ramp up in demand in the history of commodity markets. It is worth noting that during the early 1970's when the Soviet Union purchased 15 million MT of grain (the equivalent of 30 million MT based on today's production levels), it sent jolts through commodity prices, prompting the US Ford administration to denounce inflation as "Public Enemy No. 1." Therefore, large productivity surges and arable land expansion are unlikely to prevent a new secular trend in elevated food inflation.

While energy security preoccupies some of the developed world, particularly the US, food security will be the biggest challenge for food deficit emerging countries for the indefinite future. India, which is an agricultural giant but faces price hikes in several commodity groups, needs to grasp these challenges and understand the potential of its futures markets in achieving productivity gains, price stability and food security.

Addendum: Monetarism versus Inflation Indexing

Inflation – historical context

Most economists concur that the world has enjoyed a benign inflationary environment during the last 25 years, as evidenced by falling bond yields and other price-sensitive measures. Several factors have contributed to global price stability. Thanks to technological advances, including instantaneous information sharing and automation of complex tasks, worker productivity has surged. These productivity gains have translated into increased output at lower per unit costs, to the benefit of consumers. Also, markets liberalization and global labor integration, particularly from China and India, have lowered input costs in both the manufacturing and service sectors, putting downward pressure on wages. Moreover, farm productivity increases in China, India, South America, the CIS and the Russian Federation have allowed the food supply to keep relatively constant with demand.

How Inflation is Determined – India and the US

Determining inflation numbers is a complex process. Each country has its own basket of goods, methodologies and assumptions in collecting and interpreting price data. Some experts would argue that inflation numbers contain serious biases in order to understate inflation. The United States, for example, makes adjustments to Social Security increases based on inflation numbers and may exclude certain measurements deliberately. Others maintain that a data driven system ignores changes in the money supply is therefore fundamentally flawed.

India

The Reserve Bank of India (RBI) determines inflation primarily from a goods index based on wholesale prices (WPI). India first constructed the WPI in 1942 with a list of 23 articles under 4 categories: food & tobacco, agricultural commodities, raw materials, and manufactured articles. Each item was assigned equal weight and calculated from a single price quotation. After multiple revisions, the last in 1993, the WPI now features a dizzying array of 435 items (with 1,938 quotations) under 12 differently weighted categories. In a reflection of a new economy, items added to the latest index include Electricity for Railway Traction, Purified Terephthalic Acid(PTA), Injection Molded Plastic Items, Railway Sleepers, MS/SS Ingots, Cold Rolled Sheets, LPG Cylinders, Jelly Filled Telephone Cables, Color TV Sets, Computer and Computer based Systems.

Under *Primary Articles*, the category of *Food Articles* comprises 15.3 percent of the index weight and includes cereals, pulses, fruits, and vegetables. The category *Manufactured Articles* also contains food items such as sugar, edible oils, tobacco, and beverages (alcoholic and non-alcoholic) comprising 11.3 percent of the index. Therefore a little more than a quarter of the index is weighted with food. Quotes for the goods are received every Friday from particular pricing points. Although home ownership is increasing and the service sector accounts for about half the nation's economy, the index contains no category for either component. Various working groups have recommended that the WPI be revised to include such sectors.

US

The US determines inflation primarily from the Consumer Price Index, an amalgam of 200 plus prices of goods and services which is divided in two – CPI and core CPI. Contrary to the Indian system, core CPI excludes food and energy under the theory that these items are too volatile to determine the state of inflation. The CPI also contains certain assumptions about consumer behavior – such as goods substitution. If steak gets too high, then consumers will trade down to hamburger. Another CPI adjustment price tool is "hedonics." If the latest computer, priced the same as the old model, can store and play endless videos, then its price becomes discounted due to the extra pleasure it affords.

The CPI number calculates housing through a methodology called the *Owner Equivalent Rent*. Like all other data, the *OER* is derived from a surveys and diaries kept by about 10,000 reporting individuals. The Bureau of Labor Statistics obtains *OER* figures by asking the homeowner, "At what price could you rent your home on a monthly basis?" Objective data such as real estate transactions and property taxes are excluded from CPI numbers.

Similar to India's WPI, the US CPI does not factor asset inflation and is averse to addressing the issue. Arguing that targeted bubble popping of a single asset class would be a threat to the broad economy, US Federal Reserve Chairman Ben Bernanke warned, "One might as well try to perform brain surgery with a sledgehammer." Intriguingly, the basic components of the CPI are based on 1982-84, years that marked the peak of interest rates and inflation in the US.

The following goods and services make up the US CPI:

Food & beverages (breakfast cereal, milk, coffee, chicken, wine, service meals and snacks)

Housing (rent of primary residence, owners' equivalent rent, fuel oil, bedroom furniture)

Apparel (men's shirts and sweaters, women's dresses, jewelry)

Transportation (new vehicles, airline fares, gasoline, motor vehicle insurance)

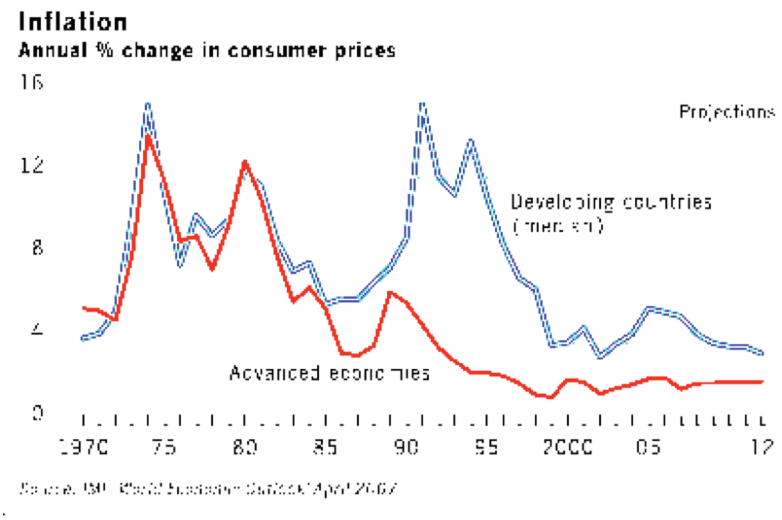
Medical care (prescription drugs and medical supplies, physicians' services, eyeglasses and eye care, hospital services)

Recreation (televisions, pets and pet products, sports equipment, admissions);

Education and communication (college tuition, postage, telephone services, computer software and accessories);

Other goods and services (tobacco and smoking products, haircuts and other personal services, funeral expenses).[13]

[13] Bureau of Labor Statistics, www.bls.gov



Inflation under the Gold Standard

Until the fall of the Bretton Woods agreement in 1973, the world currency system was a fixed (or pegged) rate system in which currencies were convertible to gold. Although some variant of a gold based or bi-metal system existed for millennia, the system became formalized in England under the Peel Act in 1844 that legislated the amount of gold reserves held by banks in relation to deposits. Under that system, inflation automatically corrected by what the 18th C. philosopher and economist David Hume first identified as the *specie flow mechanism*: Once a country amassed excess money (backed by gold) through exports, that excess would flow through the system and cause inflation. The export competitiveness would then cease and money would ebb out. The Nobel laureate economist, Robert Mundell has termed this market function provided by the gold standard "automaticity."

When President Nixon shut the gold window in 1973, a radical new monetary arrangement was born. Championed by the legendary economist Milton Friedman, the floating world of fiat currencies promised to function similarly to the gold standard by balancing trade and inflation through changes in currency valuations. Theoretically, the currency of a trade surplus country would automatically appreciate making exports less competitive. Vice versa, trade deficits would make currencies depreciate. This has not happened. Trade surplus countries such as China, Japan and petro-rich nations wanting to protect their competiveness have recycled export earned dollars into US treasury bills producing a tandem result – a 25 year period of declining global interest rates and a bulging US current account. Because the US dollar is still the world's reserve currency, dominating world trade and credit markets (Eurodollar[14]) for half a century, how the

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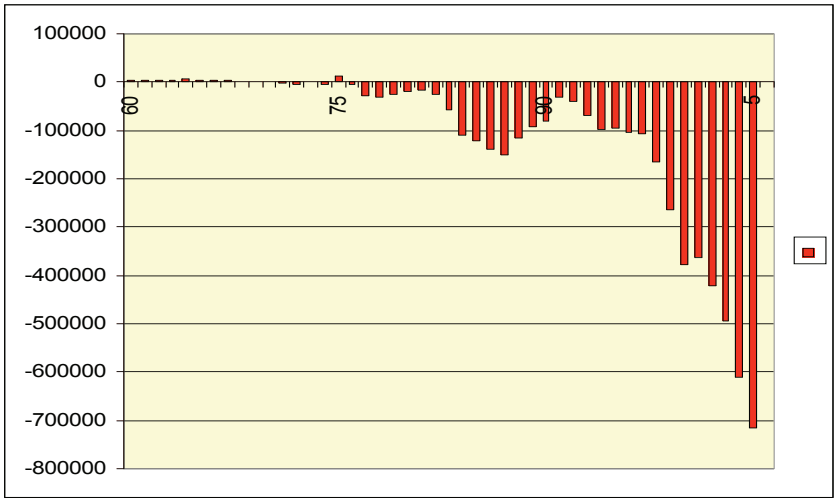
[14] Eurodollars are dollar time deposits in European banks freely lent on a global basis. This market came into existence in 1956 during the Suez Canal crisis, when Britain constricted foreign lending of the pound sterling, then the world reserve currency. The Eurodollar market is the largest credit market in the world.

global trade imbalance unwinds, most economists contend, will have enormous consequences for the global inflation picture.



GRAPH OF U.S. TRADE DEFICIT SINCE 1960 (in millions of dollars)

The Effect of Globalization since the 1990's

The end of the Cold War in the 1990's and the break-up of the Former Soviet Union caused massive structural changes in the global economy - changes that have accelerated since 2001. Capitalism in its variant forms has flourished. Its market building efficiency led to unprecedented global growth, surging particularly in the emerging countries of Brazil, Russia, India and China (BRIC). These and other less developed countries experienced rapid capital markets development, including the expansion of equities markets, cross border capital flows and foreign direct investment. Significantly, as inflation declined, many countries created short to medium term sovereign bond markets, reducing their reliance on external credit assistance.

While these structural changes were occurring, the money supply – what purists would call the true measure of inflation, expanded at a record rate, an event forewarned by many economists when currencies left the gold standard in 1973. The US Federal Reserve and the ECB - central banks representing the largest currencies – the US dollar and the euro –have increased the money supply multiple fold. Also, the creation of financial derivatives starting with the bond and currency contracts in 1975 and the OTC swaps market in the 1980's have vastly added to the liquidity of the global money system. Most recently, the explosion of complex derivatives

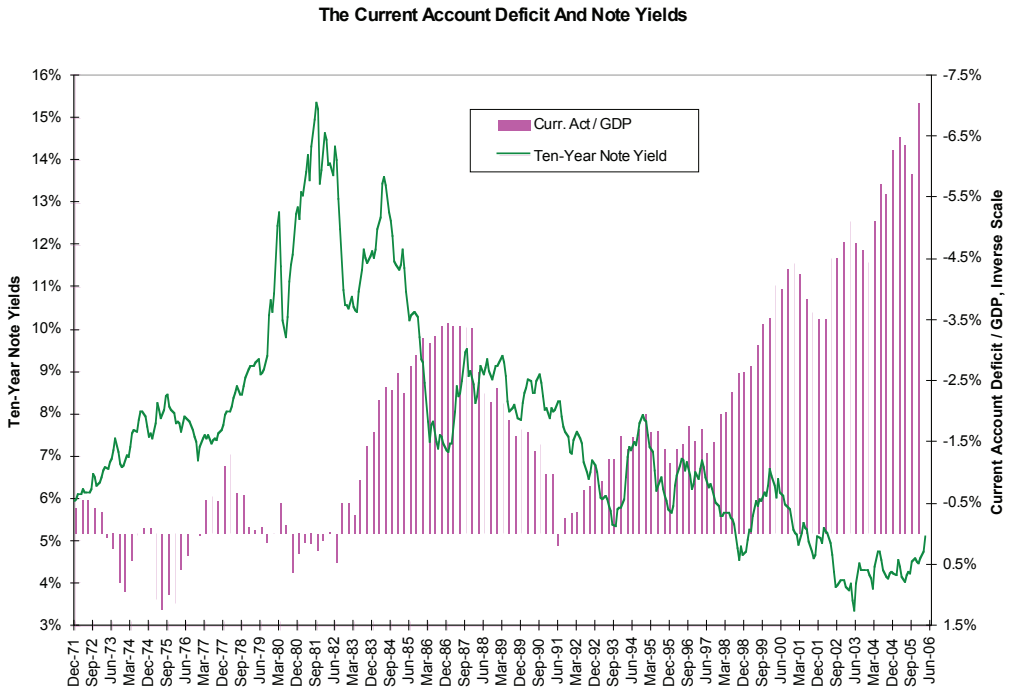
instruments, especially credit derivatives, is feeding what some economists call a liquidity bubble.

But this liquidity has not shown up in consumer goods or wages; it has instead fueled booms in asset and security prices, including equities, bonds and real estate. In what economists describe as a structural income shift from labor to capital, it has also flowed into mega-deal making and expanded pay packages for upper management elites that oversee a swelling global workforce or celebrities and sport stars that achieve global status. Finally, it has propelled private equity and hedge funds, unsaddled from a host of regulatory requirements, into the lending business, in a move described by the *Economist* as "Debt going Dark." As a result, even though the central banks still control the monetary base (M1) through their open market operations of buying and selling Treasury bonds or tinkering with the Fed Funds rate, they have lost their ability to gauge or control the broad money aggregates.[15]

Therefore, from the monetary perspective, inflation is robust but veiled by the data driven methodologies employed by central banks (especially the Federal Reserve) that focus on insulated pockets of price stability. Ludwig von Mises, the 20th century Austrian School economist in his prescient 1928 book entitled *The Causes of Economic Crisis* explained how inflation flowed through various sectors of the economy not uniformly but rather into areas where credit was plied. Such a theory helps explain the sizable inflation in the asset markets – real estate, mergers, etc., that are all highly leveraged. It also explains why emerging countries in the 1980's such as Brazil and Argentina experienced vicious cycles of price and wages inflation; because they had undeveloped equity, bond and housing markets, the liquidity from dollar loans (supplied by petrodollar lending) flowed directly into labor and consumer goods prices.

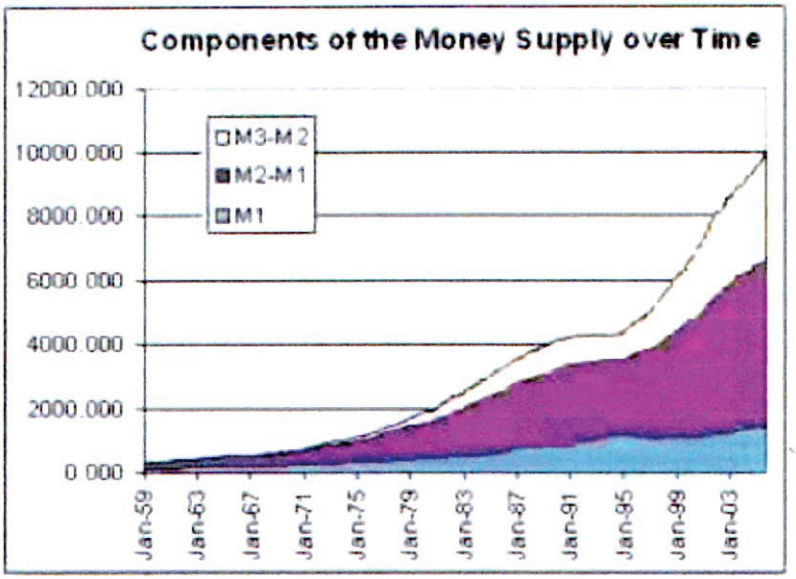
The demand for foodstuffs is now seeing a hefty application of credit as money is pouring into factories for the production of biofuels. The capacity created in this field is hoisting the entire food stuff sector. Central banks may therefore have to end the secular period of accommodation by raising interest rates further and contracting the money supply. This is already happening in various countries; the ECB has recently raised rates as has the central bank of New Zealand.

[15] The FR dropped publication of M3 in 2005 - the fastest growing component of the money supply.



According to conventional wisdom, interest rates over the last 35 years have failed to respond to the trade deficit. Since 1979, the U.S. enjoyed a multi-year trade surplus only once when interest rates (10-year note) were peaking in the early 1980's at 15%. Thereafter, the trade deficit expansion has been mostly synchronous with declining interest rates. In fact, the chart suggests the converse to the oft-repeated theory that deficits should create higher costs of borrowing: low interest rates promote trade deficits, high ones shrink them.

Since the US trade deficit is the flip side to its foreign indebtedness, any action the Federal Reserve takes will produce global reverberations. If mounting data forces it to raise rates, it will put a brake on consumer spending, which has been the global growth engine for the last two decades. The result could be a global recession. Similarly if central banks accelerate their switch out of US treasuries (as we are seeing with China), the US will be forced to raise rates in order to continue to attract capital. The former chief economist of the IMF, Kenneth Rogoff, has repeatedly warned about dangers of the money supply escalation, calling the export of dollars to foreign banks in exchange for cheap goods, "the world's largest foreign aid program." Once the universal lender and surplus exporter, the US global finance position has become the tail that wags the dog.



Recently, Jean-Claude Trichet, the president of the ECB has raised the issue monetarism in central bank policy – a move that some have greeted as near heresy. China, the nation threatened with trade sanctions by the US for not appreciating its currency has explicitly blamed the Federal Reserve for the huge trade imbalance between the two countries, stating that the US money supply growth and not the cheap renminbi was to blame. In India, some are asking policy makers to replace the WPI with a more Western style CPI. Given the stakes in the global order over inflationary signals, these are welcome beginnings to a much needed debate over the basis of sound monetary policy. The enormous structural change since the fall of Bretton Woods and current central bank policy-making based on narrow indexation would be the right starting point.

> Robert Mundell - floating rates vs. the gold standard:
>
> "The present international monetary system neither manages the interdependence of currencies nor stabilizes prices. Instead of relying on the equilibrium produced by [gold's] automaticity, the superpower has to resort to "bashing" its trading partners which it treats as enemies".