

Sumantra Chattopadhyay [REDACTED]

Prof. James Winder

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Short Paper 2: Deflationary and Inflationary Deleveragings

Cyclicality is among the most important concepts in finance and investment management. Understanding cyclicality enables a portfolio manager to properly position investments according to each phase of the market cycle. This dynamic adjustment aims to deliver better risk-adjusted returns than simply following the market. Though different academic experts and investment professionals have differing interpretations of what drives market cycles and their exact nature, American billionaire hedge fund manager Ray Dalio views debt as the primary driver. Debt is simply a borrower's promise to repay the amount they borrowed from the lender on credit.

Access to credit is a vital element for faster economic growth. This growth is driven by productivity gains from investments typically financed through credit. Easy access to this credit fosters an explosion of debt as people, companies, and governments rush to borrow funds. As long as this borrowing sustains real economic growth, income growth outpaces debt growth, enabling safe and timely debt service payments. These timely payments enable banks and other lenders to keep the flow of credit open and keep lending because they are profiting from outstanding loans. However, at some point, the borrowing ceases to finance productive investments that can sustain economic growth and keep income growth above debt growth. As debt growth overtakes income growth, it is a sign that credit is being overused and borrowing will become unsustainable. Once this happens, the economy will go through a deleveraging.

Deleveragings are necessary to rein in unsustainable borrowing and lending behavior and bring debt levels back to manageable levels, setting the stage for economic growth afterwards. Deleveraging is simply “getting rid of debt”, and in the context of a company, deleveraging can be done by raising capital to pay off debt or sell off assets to raise money (Estevez). An economy can behave similarly with government intervention to manage a deleveraging. Ray Dalio summarizes these policy responses into four levers: austerity, debt defaults/restructurings, the central bank printing money and making purchases (or providing guarantees), and redistributive transfers of wealth from the rich to the poor (Dalio 15). Successfully balancing these four levers will create what Dalio terms a “beautiful deleveraging—a reduction in debt/income ratios accompanied by acceptable inflation and growth rates” (Dalio 15). However, not all deleveragings are beautiful in terms of meeting the criteria laid out by Dalio. The specifics of each economy, especially the amount of its debt denominated in its domestic currency versus foreign currencies, indicate what type of deleveraging that economy will have.

Of the two main types of deleveragings, inflationary deleveragings are more painful and difficult to manage from a government’s standpoint than a deflationary deleveraging. Despite some differences, both types have some similar steps in their cycle.

The early part of the cycle starts with robust debt growth, but this debt finances activity that produces fast income growth, such as expanding a business and making it more productive and growing revenues. Overall, debt burdens are low, and balance sheets are healthy. The United States experienced year-over-year real GDP growth between 2 to 4% each year from late 2002 to 2007, helped by debt with a manageable debt service burden of under 60% of GDP from late 2002 to 2006 (Dalio 772, 778). At the same time, American debt remained denominated in USD; in fact, the foreign-denominated debt remained under 10% of GDP from 2002 to 2007 (Dalio 773).

America's control over its debt burdens played a large role in managing the aftermath of that bubble bursting. This distinction allowed the deleveraging to remain deflationary rather than inflationary.

In this early stage of the debt cycle, the nuanced difference between deflationary versus inflationary deleveragings is that countries that undergo inflationary deleveragings typically experience strong foreign capital inflows. Foreign investors may be attracted by the cheap, domestic currency and buy goods from the country (increasing exports for the country). This favorable balance of payments increases demand for the domestic currency relative to its supply, causing currency appreciation. According to Dalio, central banks may sell their domestic currency and buy foreign currencies to keep as reserves, preventing rapid currency appreciation that may deter continued foreign investment (Dalio 64). The Russian economy experienced this phase of its inflationary deleveraging debt crisis from late 2002 to 2007. As a percentage of Russia's GDP, annual capital inflows significantly grew from 0% in 2002 to almost 10% in late 2005, before spiking to 20% in 2007. These capital inflows largely came due to Russia's growing exports from about 10 billion USD annually in 2000 to 47 billion USD annually in 2007, which amounted to about 28% of GDP annually in 2002 to 45% of GDP annually in 2007 ("Russia Exports.," Dalio 1541). Aided by capital inflows and economic growth, the Bank of Russia accumulated foreign exchange reserves at a blistering pace of 959% in simple arithmetic return from 44 billion USD at year-end 2002 to 466 billion USD at year-end 2007 ("International Reserves of the Russian Federation.,"). In contrast to America's debt remaining mainly in USD, Russia's foreign-denominated debt started at 35% of GDP in 2002 and fell to about 25% of GDP in 2007 (Dalio 1526). Though Russia's foreign-denominated debt declined as a percentage of GDP, it remained significant, coming to the peak of the debt cycle.

The climb to the top of the bubble in both deflationary and inflationary deleveragings is similar—the added complexity of foreign exchange dynamics playing a much larger role for inflationary deleveragings. There will be a GDP gap where real GDP exceeds potential GDP¹ that grows to a ridiculous size—ridiculous in the sense that this excessive level is unsustainable through continued borrowing. For example, during the 1929 deleveraging in the United States, the GDP gap peaked at 13%, a ridiculous level (Dalio 569). However, the exact level of this peak varies from cycle to cycle. In the 2007 U.S. deleveraging, the GDP gap peaked at only 3%, but the bubble popped shortly thereafter (Dalio 778). Similarly, the GDP gap peaked at 9% during the 2008 Russian deleveraging, whereas during the 2014 Russian deleveraging, the GDP gap peaked at 3% (Dalio 1531, 1552).

Another common feature between all four of these deleveragings is the runup in public equity prices. Similar to the peak GDP gap, the exact level of the peak varies from crisis to crisis. However, there is a significant runup in the public equity markets, and investors think the bull market will continue. In the 1929 U.S. deleveraging, equity prices (in USD, indexed) peaked just under the 120 level in 1929 from about the 30 level in 1924, an increase of 139% in continuously compounded log returns (Dalio 572). In the 2007 U.S. deleveraging, equity prices (in USD, indexed) peaked at the 100 level in 2007 from the 60 level in 2002, an increase of 51% in continuously compounded log returns (Dalio 781). Similarly, in the 2008 Russian deleveraging, equity prices (in USD, indexed) peaked at the 120 level in 2007 from the 20 level in 2002, an increase of 179% in continuously compounded log returns (Dalio 1534). Lastly, in the 2014 Russian deleveraging, equity prices (in USD, indexed) peaked at the 120 level in 2013 from the 100 level in 2011 (a modest 18% increase in continuously compounded log returns), after a runup

¹ Potential GDP is a theoretical number calculated to show what GDP for an economy should be if all resources are fully utilized.

from a very short correction following the recovery from Russia's 2008 deleveraging (Dalio 1555). From this peak, there is always an event that triggers the "depression" phase of the crisis.

During the depression phase, there is a significant difference between deflationary and inflationary deleveragings, mostly stemming from the fact that countries undergoing inflationary deleveragings have a large foreign exchange component to their crisis. As mentioned before, governments can execute four different policy levers to manage deleveraging successfully: austerity, printing money (monetization), debt defaults/restructurings, and redistributing wealth. Countries in a deflationary deleveraging have a lot more flexibility to handle their crisis through those policy levers than countries in an inflationary deleveraging. Through austerity, governments cut spending to make up for the shortfall in tax revenues and may even raise taxes. Printing money allows the central bank to use that money to buy their government's debts and the private sector, ensuring that there is enough liquidity in the market and important institutions remain solvent. Regarding debt defaults and restructurings, oftentimes, losses from bad loans are absorbed by the institutions that made them, or the lenders may take an equity stake in the company in return for debt forgiveness, in addition to other strategies. Lastly, the government may raise taxes and create new programs to transfer wealth to the poor. In the 1929 U.S. deleveraging, "the government broke the peg to gold, M0" (the currency in circulation) "increased by 6% of GDP, interest rates were ultimately pushed down to 0%. It ultimately provided liquidity and directly purchased troubled assets" (Dalio 562). These actions helped prevent the depression from becoming even worse and helped bring about a beautiful deleveraging. The 2008 Russian deleveraging had similar characteristics, but because Russia had a much higher foreign-denominated debt load than the U.S. in 1929, a fall in foreign funding "(with capital inflows falling by 21% of GDP)" led to a "meaningful decline in the currency (real FX fell by 21%)" (Dalio 1521). This falling currency

crisis, in turn, led to the Russian central bank spending its reserves to defend the currency, “though it eventually abandoned its currency defense” and inflation spiked as a result (Dalio 1522). Russia eventually abandoning its currency defense allowed the currency to depreciate to a level where foreign investors found attractive investment opportunities within the country again, facilitating an economic recovery over the coming years with inflation moderating.

After the depression phase, countries normalize. In this phase, deflationary and inflationary deleveragings foster a recovery in similar ways, with the inflationary deleveraging having the added complexity of foreign exchange dynamics. The economy recovers with debt levels falling from the peak. Eventually, this less leveraged environment attracts productive investment that can grow income more than debt, and the cycle starts anew. In the 1929 U.S. deleveraging, real GDP reached its prior peak in 7 years and debt as a percentage of GDP fell by an annualized 21%, in the 2007 U.S. deleveraging, 4 years and 11%, in the 2008 Russian deleveraging, 3 years and 8%, and in the 2014 Russian deleveraging, real GDP has not yet recovered to its prior peak though debt as a percentage of GDP fell by 14% annualized through 2016 (Dalio 562, 771, 1522, 1542). Though Russia recovered after its crises, its currency remained depreciated compared to other major currencies, and partially, as a result, inflation remained higher than pre-crisis. However, the common element between deflationary and inflationary deleveragings in the normalization phase is that each economy took a different amount of time to recover and experienced different amounts of deleveraging.

Overall, deflationary and inflationary deleveragings reduce debt burdens for a country and enable the debt cycle to start anew. Unfortunately, recovery from these crises takes years, and depending on the government’s response in each crisis, countless people and companies can suffer from various economic maladies. Both types of deleveragings can result in corporate and personal

bankruptcies if the entities/people cannot afford to make repayments, and alternative strategies fail to address the issue. Inflation may skyrocket from central banks irresponsibly printing lots of money to stimulate the economy. The portfolio manager must monitor all of these phases of a deleveraging and make appropriate investment decisions to ensure attractive risk-adjusted returns.

Works Cited

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