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**Crashes, Contagion, Cygnus, and Complexities:
Global Economic Crises and Real Estate**

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INTRODUCTION

Globalization has changed the world in many ways. Real and financial markets have become irreversibly integrated. This has had a major impact upon the pricing and production of global and local assets, including real estate. Moreover, burgeoning real estate lending and securitization have been a major facilitator for the globalization of financial markets over the past two decades, and have spawned intense international economic and financial cross border activity.

During the recent Global Financial Crisis of 2007-2008, many observers claimed that globalization and economic-financial integration intensified and exacerbated contagion effects.¹ The historical record may suggest otherwise. The objective of this paper is to demonstrate that in past economic recessions contagion has been not only prevalent, but also a severe, powerful, and virulent force. Economic and financial crises in large countries have a long record of causing contagion that frequently evolves into larger and more devastating crises that wreak economic havoc upon other parts of the world. It is more surprising, in fact, that such historically discernable contagion effects seem to be subject to collective amnesia.

In what follows, we examine several historical examples of crises to first demonstrate that there is more similarity between these crises, or at least more than is usually recognized at the time. In most crises, someone will claim that what happened in the past cannot happen now...just before

¹ In this paper, “contagion” refers to economic and financial contagion, which we define as follows: the likelihood that significant economic and/or financial market changes in one country will spread to other markets and/or countries. Contagion can refer to the spread of either economic/financial booms or economic/financial crises throughout a geographic region or regions.

the boom turns to bust. Usually this is proclaimed by a trusted, iconic figure with gusto, conviction and confidence.^{2 3} When the inevitable financial and economic collapse occurs the experts aver that it was an unforeseeable black swan a la Taleb or at least a formerly unknown subspecies of *Cygnus* – no one could have known that the crisis was going to occur.⁴

Can we draw lessons from the historical record of crises and contagions? Can we devise new public policies, rules, controls, regulations, and laws that will promote sustained growth without destructive boom/bust volatility? Does real estate and its contagion effects play a special role in many of these crises? Our task is to address these three questions.

The plan of our paper is as follows: the next section will provide and discuss common themes that relate to economic crises, real estate markets, and contagion. The subsequent section will provide a brief overview of U.S. booms and busts between 1800 and 1940. Section III, the heart of our paper, will focus upon the Panic of 1873 and the ensuing Long Depression. Section IV, V, and VI will draw notable comparisons between the economic-financial meltdown of 2007-

² C.M. Reinhart and K.S. Rogoff, “This Time is Different: Eight Centuries of Financial Folly,” Princeton University Press, Princeton, New Jersey (2009).

The ironic title of the book is explained by the authors who trace similarities between public sector and private sector financial crises over 800 years. This book has become an academic and practitioner classic, and suggests that one might be able, at a minimum to anticipate, in not forecast these crises at an early stage, as they unfold.

³ N. Roubini and S. Mihm, “Crisis Economics; A Crash Course in the Future of Finance,” Penguin Books, London and New York, (2011).

Roubini et al have demonstrated an uncanny ability to read and anticipate the signs of crisis before many others. Roubini is credited with foretelling the impending problems in the mortgage market and Wall Street investment banks that led to the Great Financial Crisis early, accurately and sequentially.

⁴ N.N. Taleb, “The Black Swan: The Impact of the Highly Improbable,” Random House, New York, 2007. In this now classic book, Professor Taleb suggests that statistical analyses can be abused and misused in evaluating and predicting outcomes such as crises. He explains how improbable events become likely, and sophisticated statistical techniques miss the change.

2008, and several other severe 20th Century financial and economic crises. Our analysis will highlight and illustrate how real estate has been intertwined and plays a substantive role within global financial and economic crises.

The last section will summarize why these contagion and financial-economic crises are prevalent, and will examine how we may have inadvertently planted the seeds for prospective future crises, contagions, and real estate busts.

I. COMMON THEMES: Overview and Introduction

The basic message of this paper is simple and four-fold. The world has endured many economic-financial frenzies, panics and crises that, at first glance, appear to be remarkable and special, but upon closer examination, mirror past experience in several ways.

- First, a common element of most financial-economic crises is excessive debt accumulation.

The debt sometimes is built-up as sovereign debt; other times it is the private banking system, private or state-owned corporations, or households. The infusion of capital and ratcheting-up of debt may provide a stimulus for growth, but ultimately if it is a binge, it leads to a bubble in, say, real estate or stock prices. A bubble occurs when economic activity expands faster than the underlying economic fundamentals and is therefore unsustainable in the long-run.

- The second common element is a “crisis in confidence,” particularly when short-term debt is used to finance the boom. A trigger event (e.g. the failure of and bankruptcy filing by Lehman Brothers on September 15th, 2008) causes capital markets to seize up, making refinancing of short-term debt virtually impossible. Economic upturns depend generally upon debt rollover, and can abruptly end when short term capital is unavailable. While debt instruments, even very sophisticated financially engineered debt vehicles, do serve economic purposes and are useful, it is important that there is an appropriate balancing of risk and reward when utilizing debt. Public sector entities, private sector investors, and ordinary households confront this very balancing act!

- Third, in boom-bust cycles, real assets such as real estate usually display extraordinary volatility. Real estate ownership, often financed with significant leverage, is prone to difficulties in financial-economic collapses. As the economy contracts, real estate cash flows and values decline and the ability of owners-borrowers to repay the debt diminishes, leading to a potential bust in real estate, failing real estate securities, and plummeting real estate asset values as mortgages and loans begin to default.

- Fourth, if a boom-bust cycle is pronounced, it will lead to contagion effects across real and financial domestic markets and international borders. A crisis may commence in the financial sector and overflow into the real sector, and vice versa; it may commence in one country and over time, spread elsewhere.

II. U.S. Financial and Real Sector Volatility: 1800 to 1940

Economic boom-bust cycles are commonplace. Since 1790, arguably, there have been 47 recessions in the U.S. alone, many of which were deep and long lasting.⁵ The Great Depression of 1929-1933 was severe and lasted 3 years and 7 months, though the recovery was quite anemic, and, in fact, there was an add-on recession (caused by a bout of fiscal austerity) in 1937. The Great Depression, 1929-1933, was a worldwide episode. Similarly, the economic downturn of 1873-1879, the “Long Depression,” lasted 5 years and 5 months and will be a special focal point of the next section.

Table 1, a selective U.S. history of booms, busts and panics (based upon NBER data) shows various combinations of booms and busts and related crises and panics from 1809 through 1938. The right most column provides information about banking crises and panics until the mid-20th Century. With the introduction of the Federal Reserve System in 1914, partially the resultant of the 1907 banking panic (discussed later), the frequency of major banking crises were reduced, with only three subsequent major episodes in the US: the Great Depression of 1929-1933; the S&L crisis in the 1980’s; and the most recent Great Financial Crisis of 2007-2008. There is a debate on how and why recessions and crisis are resolved. Are booms and busts part of a natural process?

John Maynard Keynes is usually attributed with espousing the theoretical underpinnings for stimulative policy during economic downturns.^{6 7 8} He is the father of, what is now being

⁵ V. Zarnowitz, Business Cycles: Theory, History, Indicators, and Forecasting, University of Chicago Press, Chicago, Illinois (1996).

⁶ J.M. Keynes, The General Theory of Employment, Interest and Money, McMillan: London (reprinted 2007); original 1936.

employed and characterized as stimulative monetary and fiscal policy. The austerity schools claim that the market will generate solutions without government intervention all in its own time and its own way. Fredrick A. Hayek⁹ and Joseph Schumpeter¹⁰ theorize that, in fact, the process by which businesses and economies fail engenders learning and a rebirth from the ashes of the economic “creative destruction.”¹¹ We believe the record is clear that stimulative policy at the right time will mitigate recessions and can be utilized, if appropriately designed, to restart the economic engine and restore private sector confidence.

⁷ A. Leijonhufvud, Keynesian Economics and the Economics of Keynes, Oxford University Press: New York (1968)

⁸ H. Minsky, John Maynard Keynes, Columbia University Press: New York (1975)

⁹ F.A. Hayek, The Road to Serfdom: Text and Documents, The Definitive Edition, Edited by Bruce Caldwell, Rutledge Press: UK and University of Chicago Press (March 1944).

¹⁰ E.S. Anderson, Joseph A. Schumpeter, A Theory of Social and Economic Evolution, Palgrave McMillon: London (October 2011).

¹¹ B.J. DeLong, “Creative Destructions Reconstruction: Joseph Schumpeter Revisited,” *The Chronicle of Education Review* (December 7, 2007).

Table 1:
A US History of Booms, Busts and Panics

Crashes

Peak Stock Changes %	Trough Banking Panic	Real Stock Price Change (%)	Major Causes	Recessions, GDP Contraction %	Preceding Booms, Price	
USA						
1809	1814	-37.8	War	-1.6	1804	
1835	1842	-46.6	Bank war	-9.4	57.2 1837	
1853	1859	-53.4	Railroad boom	-8.6	1857	
1863	1865	-22.5	Civil war	-6.2	20.5	
1875	1877	-26.8	Railroad boom		50.5 1873	
1881	1885	-22.2	Railroad boom		51.3 1884	
1892	1894	-16.4	Silver agitation	-3.0	1893	
1902	1904	-19.4	Rich man's panic		29.9	
1906	1907	-22.3	World financial crisis	-6.9	1907	
1916	1918	-42.5	War			

III. The Panic of 1873 and the Ensuing Long Depression¹²

¹²

D. Glasner and T.F. Cooley, "Crisis of 1873: Business Cycles and Depressions: An Encyclopedia," Garland Publishing: New York Publishing (1997).

A.E. Musson, "The Great Depression in Britain 1873-1896: A Reappraisal," *Journal of Economic History*, Vol. 19, pp. 199-228 (1959).

W.M. Persons, P.M. Tuttle, and E. Frickey, "Business and Financial Conditions Following the Civil War in the United States," *Review of Economic and Statistics*, Vol. 2, pp. 5-21 (1920).

H. Rosenberg, "The Political and Social Consequences of the Great Depression of 1873-1896 in Central Europe," *The Economic History Review*, Vol. 13, pp. 58-73 (1943).

The panic of 1873 was a financial crisis that precipitated a severe international economic depression in Europe, the U.S., and elsewhere that lasted at least until 1879, and even longer in some countries. Referred to as the “Long Depression,” the Panic and the ensuing recession followed Germany’s decision to abandon the silver standard as part of its bimetallism policy in 1871 in the wake of Prussia’s victory in the Franco-Prussian War. At the war’s close, Otto Von Bismarck extracted a large indemnity in gold from France and a now unified Germany ceased minting silver thaler coins. This effectively constrained the growth of the money supply in continental Europe, which in turn affected real growth capacity in the region. The first symptom of the crisis was financial failures in the Austro-Hungarian capital, Vienna, which spread to most of Europe and North America by the end 1873.

A booming stock market in central Europe reached a fever pitch and there were fears of a bubble. A subsequent panic in Vienna beginning in April 1873 led to the collapse of Vienna’s Stock Exchange on May 8, 1873, and continued through May 10, when the Exchange suspended trading. When it reopened 3 days later, the panic seemed to have faded, and appeared confined to Austria-Hungary. The financial panic made the trans-Atlantic voyage to America only months later on what has been called “Black Thursday,” September 13, 1873. The failure of the Banking House of Jay Cooke and Company appears to have been the trigger event. The Northern Pacific Railway had been given 40 million acres of public land in the West, and had commissioned Jay Cooke to raise the enormous sum of 100 million dollars (i.e., over 10 billion USD in 2013

O.M.W. Sprague, History of Crises Under the National Banking System, Google Books (1910), pp. 1-107.

dollars¹³) in capital to invest in the construction of a new rail system through the newly acquired land. The bank failed when the bond issue's scale made it unsellable, and was shortly followed by several other related major bank failures. These events led to the eventual closing of the New York Stock Exchange for 10 days on September 20, 1873.¹⁴ In Britain, the crisis of 1873 ushered in two full decades of relative stagnation, which ultimately played a significant role in the weakening of Britain's economic leadership in the world.

The panic of 1873, and the subsequent depression had several other underlying causes, of which economic historians debate their relative importance. The post Franco-Prussian war (and the post U.S. Civil War) inflation, rampant speculative investments, over-investment in the new transportation technologies of railroads in the U.S. and shipping and ports in Europe, a large trade deficit ripple from economic dislocations in Europe caused by the Franco Prussian War, and significant property losses in the Chicago fire in 1871, and the Boston fire in 1872 created massive strains on the financial system.

Germany and Austria

A process of over-expansion was taking place in Germany and Austria, where the period from German unification in 1871 to the crash in 1873 came to be called the *Grunderjahare* (Founders Years). A liberalizing incorporation law in Germany gave impetus to the foundation for new enterprises such as the Deutsche Bank. Euphoria over military victory against France in 1871, and the influx of capital from the payment by France of war reparations fueled stock market

¹³ www.measuringworth.com, Samuel H Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount - 1774 to Present," *Measuring Worth* (April, 2014).

¹⁴ R. Chernow, *Titan: The Life of John D. Rockefeller, Sr.*, Random House: New York (1998).

speculation in railways, factories, docks, steamships, and spillover investments into the U.S. especially in railroads. It was the immediate aftermath of the German victory over France that began the process of silver demonetization. The process began in 1871, and culminated in the introduction of the Gold Mark as a currency of the new “United” Reich, replacing silver coins of all constituent lands. Germany was now on the gold standard. Demonetization of silver was to become the currency practice on both sides of the Atlantic Ocean.

Great Britain

The construction of the Suez Canal, which opened in 1869, was another factor that contributed to the Panic of 1873. Before the construction of the Canal, goods from the Far East were carried in sailing vessels around the Cape of Good Hope, and were stored in British warehouses for re-exporting to continental Europe. The Suez Canal, paradoxically financed largely by British capital, was less successful than anticipated; sailing vessels were not adaptable for use through the Suez Canal, because the prevailing winds of the Mediterranean Sea blow from west to east. In Britain, the failure of the Suez Canal resulted in bankruptcies, escalating unemployment, a halt in public works, and a major trade slump that lasted arguably until 1897.

United States

A boom in railroad construction followed the American Civil War. 33,000 miles of new track were laid across the country between 1865 and 1873. Much of the craze in railroad investments was driven by government land grants and subsidies to the railroads. At the time, the railroad industry was the nation’s largest employer outside of agriculture, and it involved large amounts of money and risk. A large infusion of cash from speculators (domestically and internationally) caused explosive, unsustainable growth in the industry as well as overbuilding of docks,

factories, and ancillary facilities. In essence, too much capital was involved in projects offering no immediate or early returns.

The decision of the German empire to cease minting silver coins put downward pressure on the price of silver, which had an immediate impact in the western U.S. where much of the world's silver supply was being mined. As a result, the U.S. Congress passed the Coins Act of 1873. Before the Act, the U.S. had backed its currency with both silver and gold, and it minted both types of coins. The Act moved the U.S. to a de facto gold standard, which meant it would no longer buy silver at a statutory price or convert silver from the public into silver coins, though it would still mint silver dollars for export in the form of trade dollars. The Act had an immediate effect, depressing silver prices. This hurt the west and helped stifle and depress railroad investments as well.

The failure of Jay Cooke Bank followed quickly by that of Henry Cluws set off a chain reaction of bank failures temporarily closing the NYSE. Factories began to lay off workers as the U.S. slipped into depression. The effect of the panic was quickly felt in New York, and more slowly in Chicago, the Midwest's economic capital, and moved westward, affecting Virginia City, Nevada, the center of silver production, and San Francisco, the western most economic capital of the US.

To add to the problems, when American railroad unions commenced the great railroad strike of 1877, it prevented trains from moving, especially in Pennsylvania and Ohio. With railroad

problems, Chicago's economic conditions began to deteriorate. A second business slump reached California in 1878. The tension between the workers and legions of the banking and manufacturing interests lingered on well after the depression, which lifted in the spring of 1879; the end of the crisis and recession coincided with, and was fostered by the great wave of immigration into the U.S., which lasted until the early 1920's.

Why Did the 1873-1879 Recession End?

Friedman and Schwartz blame much of the prolonged economic crises during 1873-1879 upon the imposition of a new gold standard.¹⁵ This forced a shift into a currency whose supply was constrained and unable to respond to demand, causing a series of economic-monetary contractions that dotted the entire period of the Long Depression.

In the U.S., in 1874, a year after the 1873 crash, the U.S. Congress passed legislation called the Inflation Bill of 1874, designed to confront the issue of falling prices by injecting greenbacks into the money supply. Under pressure from the business community, President Grant vetoed the measure. In 1878, Congress, under President Hayes, passed the Silver Purchase Act in a similar, but more successful, attempt to promote a period of easy money. Stimulative monetary policy, combined with technological change, a growing U.S. population, and a new railroad boom brought the U.S. out of the recession, and launched a new epoch of prosperity.

¹⁵ M. Friedman and A. Jacobson Schwartz, A Monetary History of the United States, 1867-1960, Princeton University Press, Princeton, New Jersey (1963).

A significant deflation, especially in Europe, commencing in the 1870's was paradoxically a reflection of advances in productivity. Real unit production costs in Europe for most final goods declined steadily though out the latter quarter of the 19th century. These productivity gains were the consequences of an incredible harvesting of technological advances, highlighted by electrification, railroads, ports, and the efficient reshaping of trade routes through the Suez Canal because of steam shipping. Even though prices were falling, profit margins were not declining, and similarly, though nominal wages at best stayed constant, real wages tended to be increasing.

In Britain during 1873-1896, industrial production increased 40%; while in Germany it increased 100%. Comparison of capital formation rates in the two countries provides a substantial explanation for the different industrial growth rates. During the Long Depression, the British ratio of net national capital formation to net national product fell from 11.5% to 6%, while Germany's ratio rose from 10.6% to 15.9%.^{16 17} In essence, during the course of the Long Depression, Britain adopted a course of relative fiscal austerity; and Germany stimulated effective demand and expanded industrial supply capacity by increasing and adjusting capital formation. Germany increased investments drastically with regard to social overhead capital, such as the creation of an efficient electric power generation system and transmission grids, roads, and railroads. These forms of investment stagnated or decreased in Britain, resulting in differences in capital formation and significantly divergent growth rates for industrial production in the two counties. This might be considered an example of the consequences of austerity vs. stimulative public policies. A most interesting phenomenon is that deflation does necessarily

¹⁶ See Musson, *ibid.*

¹⁷ See Rosenberg, *ibid.*

need to be inconsistent with growth as long as there is sufficient technological-productivity growth.

IV. A Comparison between the Cycle of 1873 and the Global Financial Crisis 2007-2008

The panic of 1873 and its ensuing deep recession have interesting and compelling parallels with the GFC of 2007-2008. First, the trigger events are tantalizingly similar. The 1873 panic had financial institutions and stock market crashes analogous to the GFC investment bank failures (e.g. Lehman Brothers, Merrill Lynch, Bear Sterns) followed by a seizing-up of capital markets, failures of other financial institutions, and a stock market crash. In both the Long Depression and the GFC, shadow banking and its ability to conduct banking functions with reduced regulatory scrutiny played an important role in the economic and financial demise. Furthermore, the issuance of debt securities played a remarkable role in both crisis episodes. In the Long Depression, the over-investment in railroads and ports, much of it financed by debt, mirrors the over-investment in housing, supported by the subprime lending and mortgage-backed securitization. “Trigger events” in each episode exposed the underlying financial weakness, which eventually spilled over into the domestic and international real sectors. There are other more subtle similarities and differences. First, there was a major contagion effect for both recessions. Starting in 1873, the economic crises traveled from Germany and Austria to England, and on to the United States and other parts of the world. In the Global Financial Crisis, what appeared to be an American housing finance problem evolved into housing finance problems in many countries around the world, and subsequently had substantial spillovers into the financial and real sectors beyond those of housing. The debate between austerity and

quantitative easing was rife during the Long Depression. The English, to their chagrin, followed a policy of relative austerity that caused their GDP to grow much slower for twenty years than that of Germany. Today, during the great financial crisis and its aftermath, this debate still is rampant. The U.S., as well as China and Japan, has deployed, again, a quantitative easing strategy while much of Europe has explored austerity as a solution for their problems. Europe's choice of austerity is probably the most tragic and inexplicable analogy between the two crises.

Another similarity between 1873 and the GFC relates to currency exchange rates and trade policy. After the decline in economic activity in 1873, the European countries attempted to “export their way out of their economic problems.” They did this by seeking economic colonization of new markets in developing parts of the world, especially Africa. In the aftermath of the Great Financial Crisis, many countries have adopted an export-to-grow strategy. This, has, in part, been done with currency devaluation to improve a country's competitive export pricing. The U.S. has engaged in a steady and staunch policy of devaluing the dollar since 2008; the Chinese have been long-term players in the strategy for maintaining an undervalued Yuan, and more recently, Japan is seeking to improve its export competitiveness through domestic inflation and devaluation of the Yen. The implementation of these protectionist and pseudo-protectionist strategic in the past have always intensified international friction, and are likely to continue to do so in the 21st century.

Finally, as has been the case in both the 1873 Long Depression and the GFC, there is always a concern during severe economic downturn about deflation. In the Great Financial Crisis,

significant asset deflation occurred with a relatively low overall rate of inflation. In the Long Depression of the 1870's, there was genuine deflation for an extended period (about 20 years in some counties). Paradoxically, the deflation in the 1870's was not inconsistent with a revival of vigorous economic growth. The investment in improved technology for transportation networks permitted production costs to fall faster than output prices (creating increased profit margins for companies). A similar profit margin effect has been a concomitant of the GFC because corporations have been able to reduce costs quickly through labor layoffs and, thereby, enhance corporate profits. All in all, recoveries do eventually occur, but not without major dislocations as was true in 1873, and is likely to be true in the aftermath of the great financial crisis.

V. US Banking Panic of 1907¹⁸

The backdrop for the US Banking Panic of 1907 was a deep recession and a 50% implosion in stock market prices. During the Panic there were numerous runs on banks and trust companies. The 1907 Panic eventually spread through the US when many state and local banks and businesses entered bankruptcy.

¹⁸ This section is derived and based upon the following works:

R.F. Bruner, S.E. Carr, The Panic of 1907: Lessons Learned from the Market's Perfect Storm, John Wiley and Sons: Hoboken, New Jersey (2007).

R. Chernow, Titan: The Life of John D. Rockefeller, Sr., Random House: New York (1998).

M. Friedman and A. Jacobson Schwartz, A Monetary History of the United States, 1867-1960, Princeton University Press, Princeton, New Jersey (1963).

C.P. Kindleberger and R. Aliber, "Manias, Panics, and Crashes: A History of Financial Crises," (Fifth Edition), John Wiley and Sons, Hoboken, New Jersey (2005).

O.M. W. Sprague, "The American Crisis of 1907," *The Economic Journal*, Vol. 18, no. 71, pp-353-372 (1908).

B.W. Tallman and J. Moen, "Lessons from the Panic of 1907," *Federal Reserve Bank of Atlanta Review*, Vol. 75, pp. 2-3 (1990).

The panic was triggered in October 1907 when the Knickerbocker Trust Company in New York City collapsed because of its financing of some imprudent stock transactions. A trust company's main business is serving as trustee for individuals, corporations, and estates, and is technically not a bank. It would use the proceeds of its trust funds to invest for the underlying clients. It is, in today's parlance, a shadow bank: that is, it is not regulated as banks usually are, but carries on most of the businesses of handling deposits and making loans and other investments in ways very similar to regulated commercial banks.

The collapse of the Knickerbocker Trust Company led to a run on other banks and other Trust companies. J.P. Morgan forged a number of stop gap measures, including obtaining financial commitments from the U.S. Treasury and other New York banks as well as the wealthiest elite of New York (including John D. Rockefeller) to support the floundering financial institutions. J.P. Morgan helped shore-up the banking system. His first action was to save the Lincoln Trust Company, stemming the would-be crisis. Though this panic spread, it was eventually quelled by the actions of J.P. Morgan and others by restoring confidence in the banking system. This Panic episode eventually gave rise to a Federal Commission that recommended the creation of the Federal Central Bank, a recommendation subsequently passed by Congress establishing the Federal Reserve System in 1914.

Today, investment banks and hedge funds are shadow banks and conduct many transactions that are not recorded on the conventional balance sheet, and are not necessarily transparent to regulators, but are basically banking functions. That is, shadow institutions are not subject to the

same prudent regulation of depository banks, so they do not have to maintain financial reserves reflecting their risk exposure.

Just as in 1907, the shadow banking system (such as institutions like the Knickerbocker Trust) led to a financial crisis. In June 2008, Timothy Geithner, then President and CEO of New York Federal Reserve, claimed that shadow banks played a significant role in the freezing of credit markets when they experienced a run on their deposits.¹⁹ The rapid increase in the dependency of bank and non-bank financial institutions on off-balance sheet entities to fund investments had made them critical to the credit markets underpinnings and the financial system as a whole. The collapse of the shadow banking system in 2008, as in 1907, led by the demise of Lehman Brothers and Merrill Lynch, required coordinated intervention by other private financial institutions and the U.S. government. Again, nothing seems to be new under the sun.

VI. Confluence of 1997 Asian Flu, 1998 Russian Financial Crisis and the Long-term Capital Management Debacle

Three financial crises in 1997-1998, the Asian Financial Crisis (dubbed the Asian Flu), the Russian Financial Crisis (the Ruble Crisis), Long-term Capital Management (LTCM) Financial Debacle were mutually reinforcing. In each case, the basic architecture for all three crises was predicated on a combination of over-leverage, inappropriate debt strategies, and lax regulation. All it took was a spark, i.e., an external shock, to cause economic conflagration.

¹⁹ T. Geithner, “Reducing Systematic Risk in a Dynamic Financial System,” speech, Economic Club of New York City, June 9th, 2008.

1997 Asian Financial Crisis²⁰

The Asian Financial Crisis gripped much of Asia beginning in July 1997, and raised concerns that there might be a worldwide economic meltdown generated through financial contagion. The spark for the crisis occurred in Thailand with the financial collapse of the Thai Baht when the Thai government had to float its currency (because it lacked sufficient foreign currency to support its fixed exchange rate). By cutting the “peg” to the U.S. dollar (after exhaustive efforts to support the Baht), the situation unraveled quickly. The underlying cause for the Thailand Financial Crisis was significant debt over-extension, in part driven by a local real estate boom. At the time, Thailand had acquired a burden of foreign debt that made the country effectively bankrupt even before the collapse of its currency. The Thailand crisis engendered a contagion for most of Southeast Asia and Japan: each of the countries found themselves in positions of slumping currencies, precipitous declines in the local stock market, as well as other local asset markets, and a pernicious increase in private debt.

²⁰ This section is derived and based upon the following works:

K.J. Ngian, “Coping with the Asian Financial Crisis: The Singapore Experience,” Unpublished Paper, Institute of South Asian Studies, Singapore (March 2000).

T.J. Pempel, The Politics of Asian Economic Crises, Cornell University Press, Ithaca, New York (1999).

M. Pettis, The Volatility Machine: Emerging Economies and the Threat of Financial Collapse, Oxford University Press, Oxford, England (2001).

S. Radelet, J.D. Sachs, R.N. Cooper, and B.P. Bosworth, “The East Asian Financial Crisis: Diagnosis, Remedies, and Prospects,” *Brookings Papers on Economic Activity* (1998).

Joseph Stiglitz, “Lessons from the East Asian Miracle,” *The World Bank Research Observer* (1996).

R. Tiwari, “Post-Crisis Exchange Rate Regimes in South East Asia,” Unpublished Paper, University of Hamburg (2003).

As seen in Chart 1 and Chart 2, the Asian countries had two interrelated debt issues:

1. Building-up to the 1997 crisis, short-term external debt was growing relative to overall debt; and,
2. Private external debt of the Asian countries was growing as a proportion of total external debt.

In essence, as the local currency slumped, the burden of repaying the foreign debt in local currency would increase, and since the debt was short-term, the need for repayment or restructuring would leave little margin for error. As events unfolded, this short-term private debt unwound as the currency devalued, making repayment virtually impossible. The ratio of the value of foreign debt to the value of GDP rose as the local country currency declined.

In turn, as credit dried up, this caused the wheels of the economy to unhinge. From June 1997 to July 1998, the Thai Bhat declined 40% as its GNP (measured in real terms) also declined by 40%. For Indonesia, the situation became even worse; between June 1997 and July 1998, its currency declined over 80% as did its real GNP. The South Korea Won during this period declined approximately 34% as did its real GNP.²¹

The International Monetary Fund interceded by creating a 40 billion dollar capital program to stabilize the currencies of South Korea, Thailand, and Indonesia. Without this external

²¹ R. Cheetham, "GDP and Price Changes," 1998, Asia Crisis, Unpublished Paper

assistance, these economies would have experienced prolonged downturns. Even with the IMF assistance, it took until 1999 for this region to stabilize.²²

Paul Krugman in 1994, published an article suggesting that the “Asian economic miracle” (the precursor to the Asian Financial Crisis), was fundamentally unsound. Professor Krugman argued that East Asia’s economic growth had been the consequence of increasing the level of investment in unproductive capital projects. He claimed that fundamental economic productivity had increased only marginally, at best, and that only the growth in productivity, and not just mere capital investment, would lead to long-term sustainable prosperity.²³ That is, without sufficient productivity growth, the ability for these counties to repay their loans would ultimately be in question. Whether his explanation is correct or not, unquestionably the over-extension of debt in the private sectors was the kindling wood ignited by the spark from the Thailand Bhat collapse.

The Ruble Crisis²⁴

²² See Radelet, et al, *ibid*.

²³ Paul Krugman 1994, “The Myth of Asia’s Miracle” *Foreign Affairs*, Vol. 73, pp 62-78.

²⁴ This section is derived and based upon the following works:

Y. Gaidar, “Lessons of the Russian Crisis for Transitioning Economies,” *Finance and Development*, Vol. 36, no. 2 (June 1999)

N. Gould-Davies and N. Woods, “Russia and the IMF,” *International Affairs*, Vol. 7, no. 1 (January 1999).

B. Pinto, E. Gurvich, and S. Ulatov, “Lessons from the Russian Crisis of 1998 and Recovery,” The World Bank (February 2004).

J. Stiglitz, “The Ruin of Russia,” *The Guardian* (London) (April 9, 2003)

The Russian Financial Crisis, also dubbed the “Ruble Crisis” and/or the “Russian Flu,” was gestating for several years prior to the actual events that unwound with the Russian government devaluing the Ruble and defaulting on its debt in late 1998. Declining productivity, an artificially high fixed exchange rate for the Ruble, and a chronic fiscal deficit were the fundamentals that led to the crisis. Two external shocks, the Asian Financial Crisis in 1997 and the subsequent decline in demand causing price declines for crude oil and non-ferrous metals severely affected Russian foreign exchange reserves. Russia’s two most valuable sources of capital flows emanated from exports of energy and metals. Given Russia’s fragile economy, the rapid decline in the price of these two sources of external capital produced a tectonic economic slowdown, with GDP per capita declining, unemployment soaring, and global investors liquidating their Russian assets.

After a number of policy actions and internal political changes, followed by a 22.6 billion dollar International Monetary Fund and World Bank joint “rescue package” in July of 1998, the economic situation kept unraveling and the weakness in the Ruble accelerated. As is frequently the case, once confidence has been lost, it is difficult to restore.

It is argued by some that the inability of the Russian government to implement a coherent set of economic reforms led to the severe erosion in investor confidence, and the chain of events that are analogous to a run on the Central Bank. Investors fled the market by selling Rubles and Russian assets, including Russian Governmental Bonds, which put added downward pressure on

the value of the Ruble. These forces were countered by the Russian Central Bank spending more and more foreign reserves to defend the Ruble. Eventually, it could no longer do so. In August 1998, the Russian government devalued the Ruble, defaulted on domestic debt, and declared a moratorium on the payment to foreign creditors.

In brief, the crisis in confidence, which could not be halted, combined with the large external debt and internal national mismanagement, led to the ultimate Ruble crisis. The results internally were far flung. The economy's GDP plunged, and because of the devaluation in the Ruble, there was significant domestic inflation (i.e. in 1998 Russian inflation was over 80%).

Surprisingly, the recovery was substantial and rapid. It was not new, clever innovative governmental economic management that fostered the recovery, but rather an expeditious recovery in energy prices. Perhaps it is better to be lucky than good in these circumstances.

Long-term Capital Management Crisis²⁵

²⁵ This section is derived and based upon the following works:

P. Coy and S. Wooley, "Failed Wizards of Wall Street," *Business Week*, September 21, 1998.

N. Dunbar, Inventing Money: The Story of Long-term Capital and The Legends Behind It, John Wiley and Sons: New York (2000).

R. Lowenstein, When Genius Failed: The Rise and Fall of Long-term Capital Management, Random House, New York (2000).

Long-Term Capital Management (LTCM) was a hedge fund management firm owned and operated by what were thought to be the elites of Wall Street managers and the financial cognoscenti, including two Nobel Prize winners. From 1994 until the ultimate imploding of LTCM in 1998, this hedge fund had been extraordinarily successful. However, in 1998, it lost 4.6 billion dollars in less than 4 months following the Russian Financial Crisis (which had a causal impact discussed below) requiring financial intervention by the Federal Reserve Bank of New York. Long-term Capital Management had a set of financial strategies that sought out mispricing within a market or between markets that could be exploited to generate small profits, and then with significant leverage, the small profits could be mushroomed to large rates of return. Much of their strategic investment was known as “convergence investing²⁶.”

The 1998 Russian Financial Crisis in August and September, when the Russian government defaulted on their government bonds, caused panic among investors. These investors sold Japanese and European Bonds to buy safe-haven U.S. Treasury Bonds. The LTCM profits that were supposed to occur as the value of these international sovereign bonds converged became huge losses as the value of the bonds diverged. At the end of August 1998, LTCM had lost 1.85 billion dollars of its capital²⁷. From this point forward, a chain reaction started to exacerbate most LTCM positions, eventually leading to the Federal Reserve Bank of New York organizing a bailout for 3.625 billion dollars by major creditors (i.e., banks that had been in many cases

²⁶ LTCM used complex mathematical models to take advantage of fixed income arbitrage opportunities called convergence trades, usually with U.S., Japanese and European Government Bonds. Government Bonds yield a fixed term debt obligation, signifying that they will pay a fixed amount at a specified term in the future. Differences in various bonds present values are minimal so any difference in price are minimal, so according to economic theory, any differences in prices will be eliminated by arbitrage. In this way, these small discrepancies rose in the market and would be locked-in waiting for the convergence to occur.

²⁷ See Lowenstein, *ibid*. It provides an analysis of how convergence strategy can go awry, especially his discussions on pages 95-99 about the Shell Oil Company convergence trades.

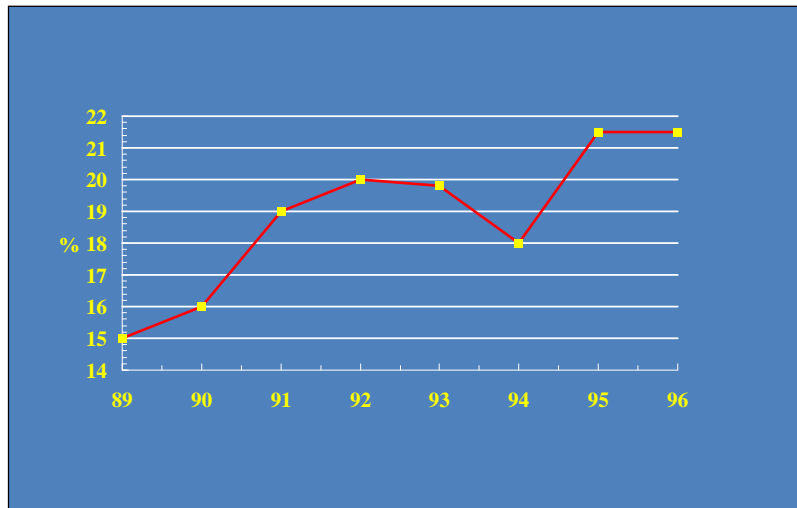
involved in funding LTCM). These actions were taken in order to avoid a wider collapse in the financial markets. It is probably true that a wider financial collapse would have occurred if Long-term Capital Management had been permitted to fail in 1998. Again, the lesson is over-leverage creates the incubator for an unanticipated shock to wreak havoc in the financial markets, with possible spillover into real economic markets.

1997-1998 Episodes: Repeating History

In brief, all of the three financial 1997-1998 crises had similarities with the 1873 and 1907 crises. First, the extensive use of debt colors the backdrop. An unanticipated event (“economic shock”) creates the spark to ignite the crisis. Finally, the unwinding of the crisis, once underway, if not addressed immediately and proactively, will lead to a contagion effect well beyond the borders of the original crisis (i.e. geographically, financially and the economically).

Chart 1

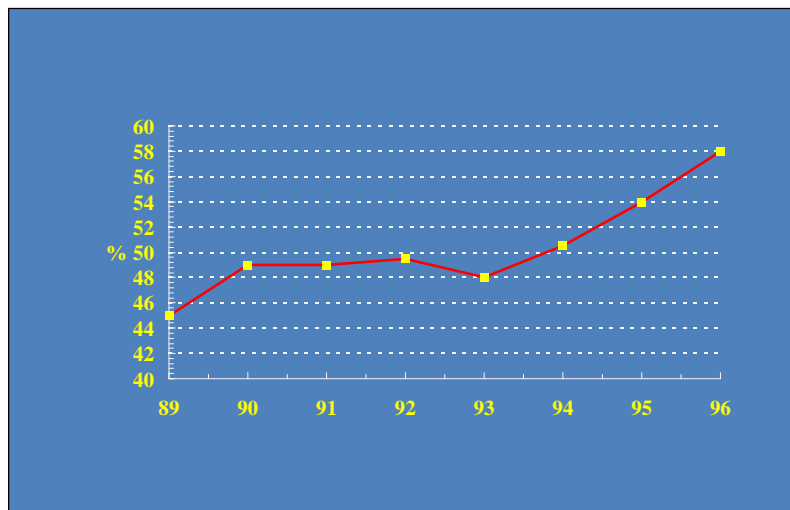
External Debt of Asian Countries: Ratio of Short-Term to Long-Term



Source: IMF; EIU Country

Chart 2

Private External Debt of Asian Countries As Proportion of Total External Debt



Source: IMF; EIU Country Reports

VII. The Current Situation: What Should We Have Learned from the Past?

In the title of our paper, we employ the species *Cygnus*, more commonly known as the Swan. Many people claim financial disasters are unanticipatable, conjuring up N.N. Taleb's now (in)famous "Black Swan." In fact, there are 7 sub-species of *Cygnus*, most of which are not entirely black. That is, there usually are major warning signs on the path to crisis! In our discussion of the historical crises of 1873, 1907, and 1997-1998, we note many pre-crisis signals that were not taken into account as these crises evolved. In examining the Great Financial Crisis of 2007-2008, the US Congress established The Financial Crisis Inquiry Commission (FCIC). The Commission summarized its findings in January 2011 as follows:

"While the vulnerabilities that created the potential for crisis were years in the making, it was the collapse of the housing bubble--fueled by low interest rates, easy and available credit, scant regulation, and toxic mortgages--that was the spark that ignited a stream of events which led to a full-blown crisis in the fall of 2008. Trillions of dollars in risky mortgages had become imbedded throughout the financial system, as mortgage-related securities were packaged, repackaged, and sold to investors around the world. When the bubble burst, hundreds of billions of dollars in losses in mortgages and mortgage-related securities shook markets as well as financial institutions that had significant exposure to those mortgages and had borrowed heavily against them. This happened not just in the U.S., but around the world. The losses were magnified by derivatives such as synthetic securities."

On its website the FCIC avers:

“The Commission concluded that this crisis was avoidable – the results of human actions, inactions, and misjudgments. Warnings were ignored. ‘The greatest tragedy would be to accept the refrain that no one could have seen this coming and thus nothing could have been done. If we accept this notion, it will happen again.’”

Put somewhat differently, like all previous cycles of booms and busts, the seeds for the subprime meltdown were sewn earlier. In 2001, the U.S. economy experienced a mild short-lived recession. Although the economy withstood terrorist attacks, the bust of the dot.com bubble, and the Enron, Global Crossing, and other accounting scandals, the fear of recession preoccupied the Federal Reserve. To keep the recession at bay, the Federal Reserve lowered the Federal Funds Rate 11 times (from 6.5% in May 2000 to 1.75% in December of 2001), creating a flood of liquidity into the economy. This was the essential ingredient – cheap money – needed to fuel the housing finance and refinance boom.

This environment of easy credit and the upward spiral in home prices by investments in higher yielding subprime mortgages resembled the gold rush. The Fed continued slashing interest rates, emboldened by perhaps continued low inflation despite lower interest rates. In June 2003, the Fed lowered interest rates to 1%, the lowest rate in 45 years. The entire financial market

expanded its use of leverage in order to augment profits. Home loan profits were rising, corporate profits were growing, investment banks were creating huge gains for themselves...but, there was a dark side yet to be realized. Eventually, the risks started to emerge. The trouble started when interest rates rose and homeownership reached a saturation point. From June 30, 2004, onward, the Fed started raising interest rates, that by June 2006, the Federal Funds Rate had risen to 5.25%, and remained unchanged until August 2007.

There were many early signs of prospective distress. During the last quarter of 2005 and early 2006, home prices started to sag, which led to a 40% decline in home construction between 2004 and 2006. Not only were new homes being affected, but many subprime borrowers now could not withstand the higher interest rates and started defaulting on their loans. Simply put, there were signs along the way that indicated that the Great Financial Crisis could happen. In summary, the signposts were similar to earlier boom-bust financial economic cycles:

- Overleverage and the use of expansive debt became clear.
- The shadow banking industry (the Investment Banks) found new vigor in securitization, especially for residential mortgages, and were not subject to the scrutiny and regulation in the same way as Commercial Banks.
- Asset bubbles appeared in many markets, from the stock and bond markets to housing, to wine and fine art.

When the boom turned to bust it unwound horrifically, spreading from the financial sector to the real sector, and impairing most parts of the global financial system and world economies.

What should be done?

As we view today's economic and financial environment, we observe an increasingly overt fragility. We observe that two of the three largest economic zones, the Euro zone (the largest economic zone) and China (the third largest economic zone) are shaky and appear to be prone to major economic declines. The North American economic zone (the United States and Canada), while doing better than China and the Euro zone, would not be classified as robust.

Clearly, the US economic recovery has benefitted from easy credit. The Federal Reserve, pursuing a policy of quantitative easing by buying \$85 billion of debt per month to buoy mortgage bonds and treasury markets, has been a crucial instrument for fostering recovery. If the Fed were to taper its bond purchase program and if interest rates were to rise, the net worth of the Federal Reserve balance sheet would plummet. Cheap leverage has been utilized by the entire investor spectrum from hedge funds to core investors to boost their returns. Much of this financing is done short term, and if interest rates were to rise, substantial amounts of wealth could be destroyed. Ordinary households face this issue in a different way. With housing prices rising again, households are returning to purchasing and owning houses, usually with significant amounts of debt, i.e. mortgages. Many of these mortgages are adjustable rate instruments. If interest rates were to rise from their historic lows, many households could find themselves financially stressed even if real estate values continue to rise. A rise in interest rates is also

likely to dampen new residential construction. In brief, one could conjure up a likely scenario in which the US economy slows substantially.

While it is beyond the task of this paper to create new prescriptions for the global economy, it is clear that governments of the world must take a forceful stand to reregulate the financial system. This requires the introduction of laws and regulations that cannot be circumvented, and regulators who have the courage and motivation to pursue active enforcement. In addition, regulators need to become more agile than they have been historically. Innovation in financial markets is omnipresent and will continue to be so. Regulators need to have a watchful eye for those who are attempting potentially dangerous financial innovations that circumvent and avoid regulatory control.

Is there a basic principle that needs to be employed in the creation of new laws and in their enforcement by regulators? The simple answer is yes! In financial transactions, the participants (investors, sponsors, investment banks, consultants, advisors, and servicers) need to have significant capital at risk and their ultimate rewards need to be related to long-term transaction performance. That is, structuring transactions to extract immediate fees, which do not relate to the long-run performance of the underlying transaction vehicles, and/or engaging in such transactions with no capital at risk lead to misalignments of interests between and among investors, servicers, and so forth. It is our hope that overarching world financial regulation will become reality, and can at least be used to mitigate and control boom and bust cycles by appropriate anticipatory and ex post responses. In the U.S., specifically, it would be prudent to

enact a 21st Century version of Glass-Steagall in order to separate shadow banks and investment banks and depository institutions. The system of credit rating agencies needs to be reconstructed to disentangle the socially perverse incentives between raters and ratees. The need to renovate and strengthen Dodd-Frank legislation for controlling financial activities faces major challenges in Congress; but it should be a first priority. Finally, we need to seriously consider long-run structural reforms for our financial system and the economy.