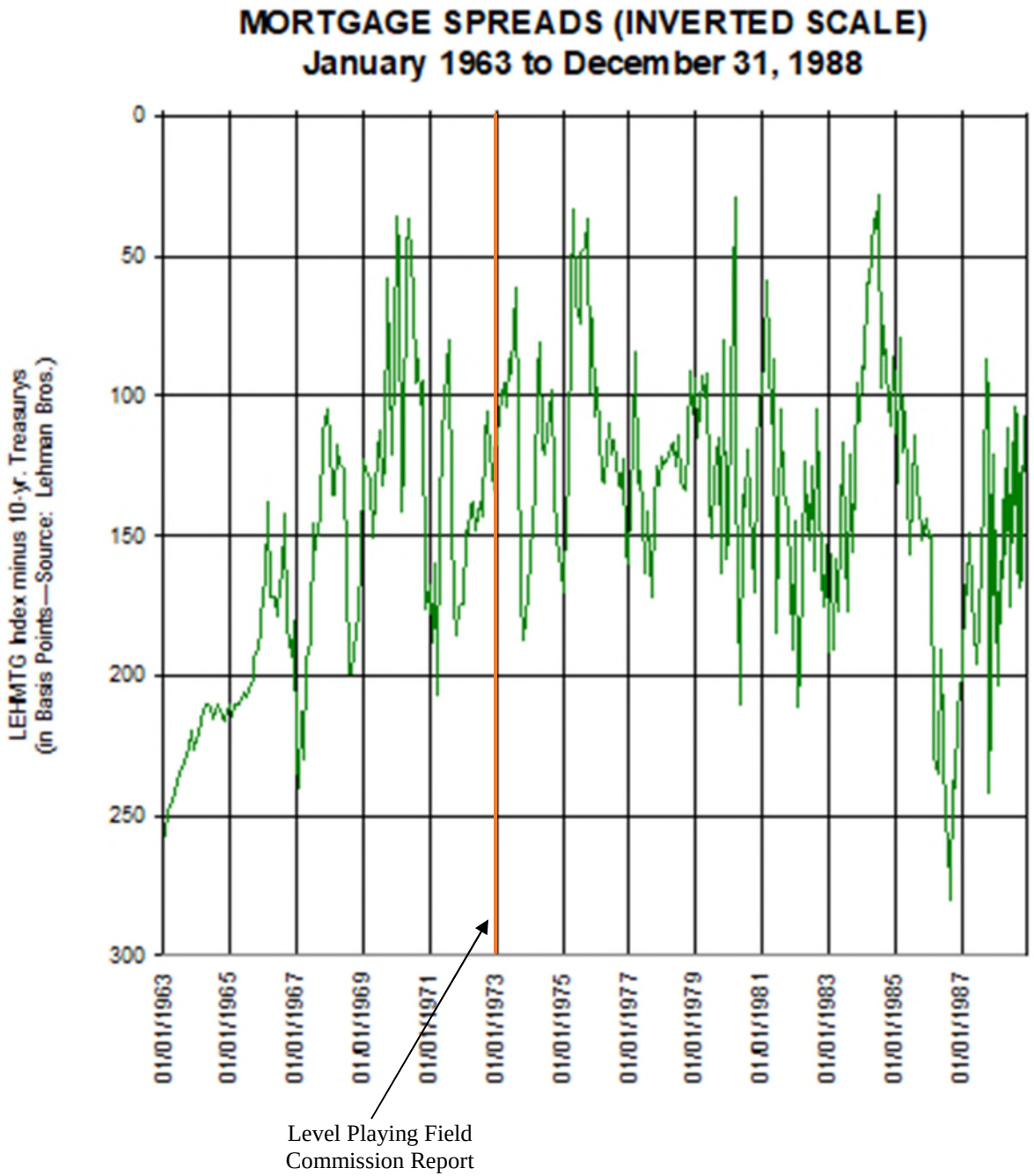
Appendix of Charts and Explanations


MORTGAGE SPREADS (INVERTED SCALE)
January 1963 to December 31, 1988
LEHMTG Index minus 10-yr. Treasurys
(in Basis Points—Source: Lehman Bros.)
0
50
100
150
200
250
300
01/01/1963
01/01/1965
01/01/1967
01/01/1969
01/01/1971
01/01/1973
01/01/1975
01/01/1977
01/01/1979
01/01/1981
01/01/1983
01/01/1985
01/01/1987
Level Playing Field
Commission Report

Residential Real Estate Cycles and Mortgage Market Development

Building new US secondary financial markets (after the 1972 level playing field commission's report was presented and accepted) began with 30-year fixed-rate residential mortgages, the means by which most Americans acquire and maintain the largest investment they will make, their homes.

It is mortgage finance that has led the US into and out of each financial crisis and recession since the Fed was founded (1913). Long-term fixed-rate mortgages are the instruments that best match consumers' long-term investment risk of home ownership with long-term funding. They minimize the risk of home ownership and thereby make homes more readily saleable.

It is mortgage markets, therefore, that set the pace for expansion and contraction of US home ownership. When mortgage markets are stable and secure, consumers spend more and the economy grows. When mortgage markets are restricted or unstable US markets and the US economy deteriorate. Therefore, homebuilding is widely recognized as a primary "leading" macroeconomic indicator.

This chart of mortgage spread was prepared to explain post-Depression redevelopment of US secondary mortgage bond markets for a 2005 book (*The Law and Economics of Financial Markets*). The spread tracked is the difference between: (i) the rate at which a US government sponsored mortgage enterprise (GSE) will agree to purchase, at par, a new 30-year fixed-rate home loan to be funded during the next 60 days (allowing consumers to negotiate and close their home purchases with assurance of a mortgage and its cost) and (ii) the current market interest rate for 10-year US Treasury bonds.

The spread reflects the yield investors demand, from time to time, to accept negative convexity risk (see p. 19) associated with investing in US-guaranteed certificates (MBS) that pay interest monthly and repay principal in alignment with principal repayments from a pool of 30-year fixed-rate mortgages rather than purchase a fixed-rate US debt that will pay, in full, in 10 years.

Mortgage bonds were a large part of the US bond market during the "Roaring Twenties." In 1928, three years after *Benedict* declared that a common law pledge "imputes fraud conclusively," the National Bureau of Economic Research (NBER) observes that this spread began to widen significantly, "nearly a year before the stock market collapsed in October 1929." Moreover, NBER notes that mortgage bond prices fell to less than 25% of par value by April 1933. Thus, a collapse of mortgage bond values played a significant role in the economic collapse of the 1930s. The mortgage bond market defied all efforts at rebuilding before 1973.

The level playing field commission was appointed following two collapses (1966 and 1968) of the regulated thrift-funded mortgage banking system designed in the 1930s. Those appear as significant downward "spikes" in mortgage spreads on this chart. The commission published its report December 22, 1972. The private sector MBS market would not begin to reopen until 1973, after US rating agencies finally agreed with a legal opinion that the foundation of the *Benedict* ruling (that a common law pledge "imputes fraud conclusively") had been adequately addressed by uniform legal reforms in all states (pp. 21 and 22).

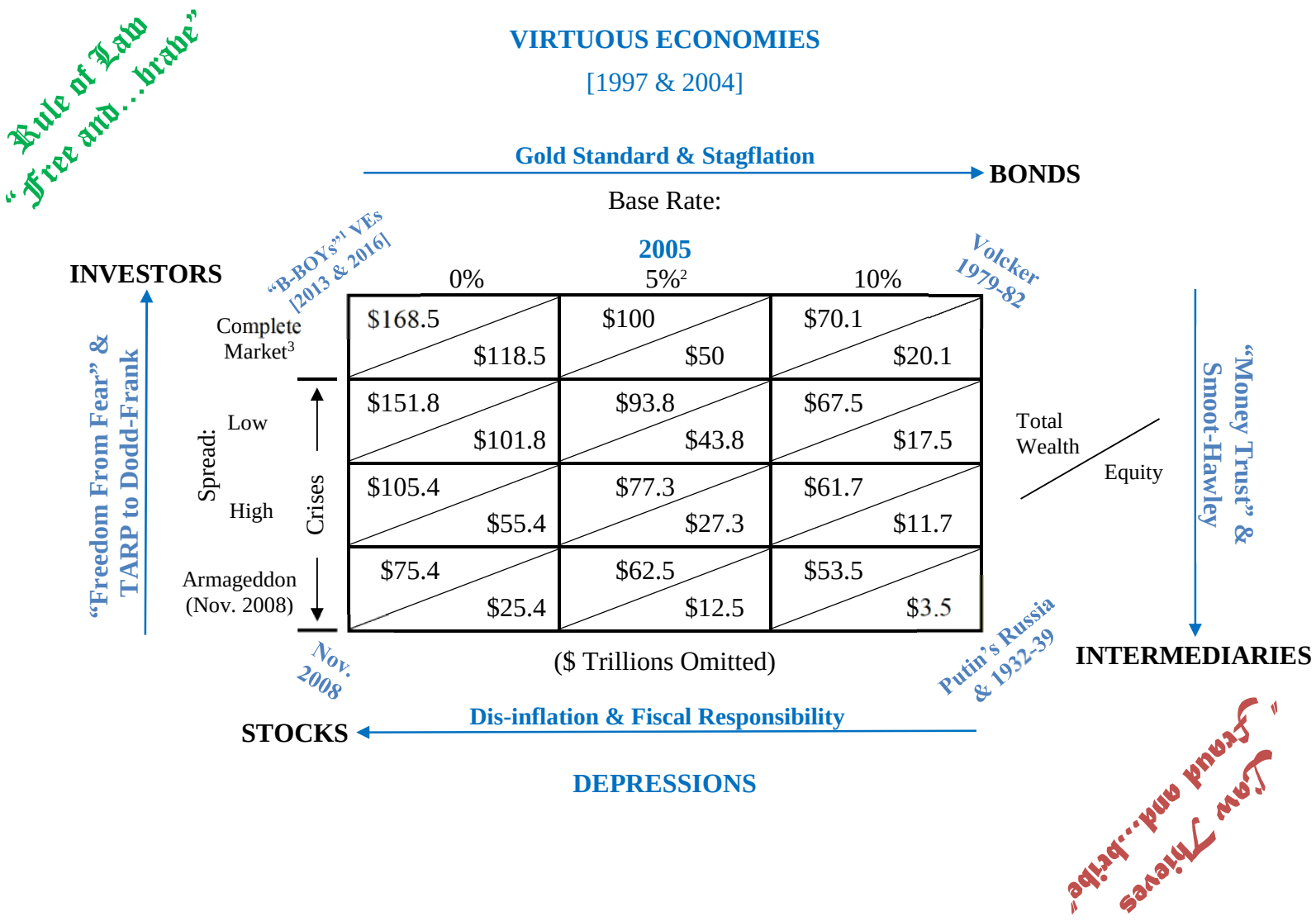
Invention of the “stand alone CMOs” (p. 22) in 1983 is associated with a dramatic decline in this spread (upward spike on the chart). That was followed by expanded housing demand. It was soon followed, however, by a much more dramatic downward spike (rise in spread, decline in housing) that began in 1984 and reversed in 1986.

These correlate with creation (1984) and partial resolution (1986) of an artificial “whole pool” monopoly associated with an outdated SEC rule. Similar to 1928, this “whole pool” debacle predates the October 1987 stock market crash by about a year. The monopoly ended after the SEC studied the value of “whole” and “partial” mortgage pools, found the instruments identical and changed the rule to allow partial pools. That “cured” mortgage finance but the cure left financial instruments to support corporate debt without similar secondary markets. That is what led to the 1987 stock market crash.

The 1987 crash began a multi-year reform process at the SEC. At the end of 1992 (following a crisis precipitated by Saddam Hussein invading Kuwait in 1990 – similar to Putin invading Ukraine in 2022), the SEC adopted a rule allowing well-structured ABS transactions for all financial assets, including corporate debt. That rule allowed GM and its affiliates to restructure in 1993 using CMO technology for instruments that, over the next 25 years, developed to support secondary (non-bank) markets for efficient intermediation of all US financial assets (pp. 21 to 24).

The process was interrupted again in 1998. Despite warnings, the SEC adopted rules that permitted a few banks to obtain both a monopoly and a monopsony over short-term funding markets. The 1998 hedge fund crisis began as markets implemented the new rules. That monopoly was not overcome until further rule changes were made in October 2016, after the SEC staff member that managed the 1998 rulemaking retired.

CONVERTING DISCOUNT RATE TO FAIR VALUE



[1] Before 2019, B. Bernanke, G. W. Bush (after Lehman failed), B. Obama and J. Yellen. After 2018, J. Powell has followed similar policies to preserve growth.

[2] 2005 rate base of 5% generated a total Capital Market with roughly $100T, divided roughly 50/50 Debt/Equity (as of prior book publication).

[3] A "Complete Market" (A. Smith/1969 "Level Playing Field" com'n) produced 150 bp spread for l.t. debt and 250 bp spread for equity CFs.

Applying Business Valuation Models to Macroeconomics and Capital Market Value

Using a simplified DuPont/Sloan business valuation model, this chart starts with the top/center box of the 12 shown on the chart. That box shows results determined by applying financial market conditions in 2005 to create a 20-year cash flow that supports $100 trillion of total US capital market (with 50% leverage – $50 trillion of first priority bonds), consistent with capital market aggregates for 2005.

The other eleven boxes are the calculated present values of the same cash 20-year flows using discount rates that reflect market yields derived using base rates (top axis) and credit spreads (left axis) on the chart. Within each of the 12 boxes, the upper left is "total capital" and the lower right is the value of equity after paying $50 trillion of leverage (debt).

The box immediately to the left of the top center box assumes very low base rates (represented by the market rate of 10-year US Treasury bonds) and very low "Complete Market" spreads. The result in that box is consistent with (i) observations at the end of 2021 and (ii) Adam Smith's finding that, at equilibrium, the value of a commodity (in this case money) will be equal in all its different uses for investors. The assumptions provide a present value to equity cash flows of $118.5 trillion (after repayment of $50 trillion of debt), a 137% increase over equity value in the 2005 box. That is close to the value of US stock markets at year-end 2021.

The three boxes that are below the upper left corner assume ever-increasing spreads, respectively. The lowest left box is consistent with very low rates and very high spreads in November 2008. Under those circumstances, the value of US equities is $25.4 trillion, a bit less than a 50% drop from the 2005 box. That level is consistent with stock market values at the end of 2008.

The upper right corner of the chart uses the same cash flows with a 10% base rate and very low spreads, consistent with market conditions when Paul Volcker's Fed caused base rates to exceed 10%. US equity values declined by roughly 60%, close to that box's equity value.

Finally, the lower right corner box assumes high base rates and very high spreads, consistent with the peak of the Great Depression and currently in Russia, under Putin. Under those conditions, the value of cash flows for equity is reduced by 93%. That box is also consistent with actual US equity valuations at the worst point of the 1930s.

Conditions that move base rates and spreads in each direction on the chart are indicated by notes surrounding the 12 boxes.

The chart is consistent with the impacts of policy changes observed since the Fed was formed in 1913.

TWO-SPREAD ANALYSIS

NINE CRISES AND TWO VIRTUOUS ECONOMIES, 1987 – 2012

Stocks (blue), Bonds (red) and Mortgages (green)

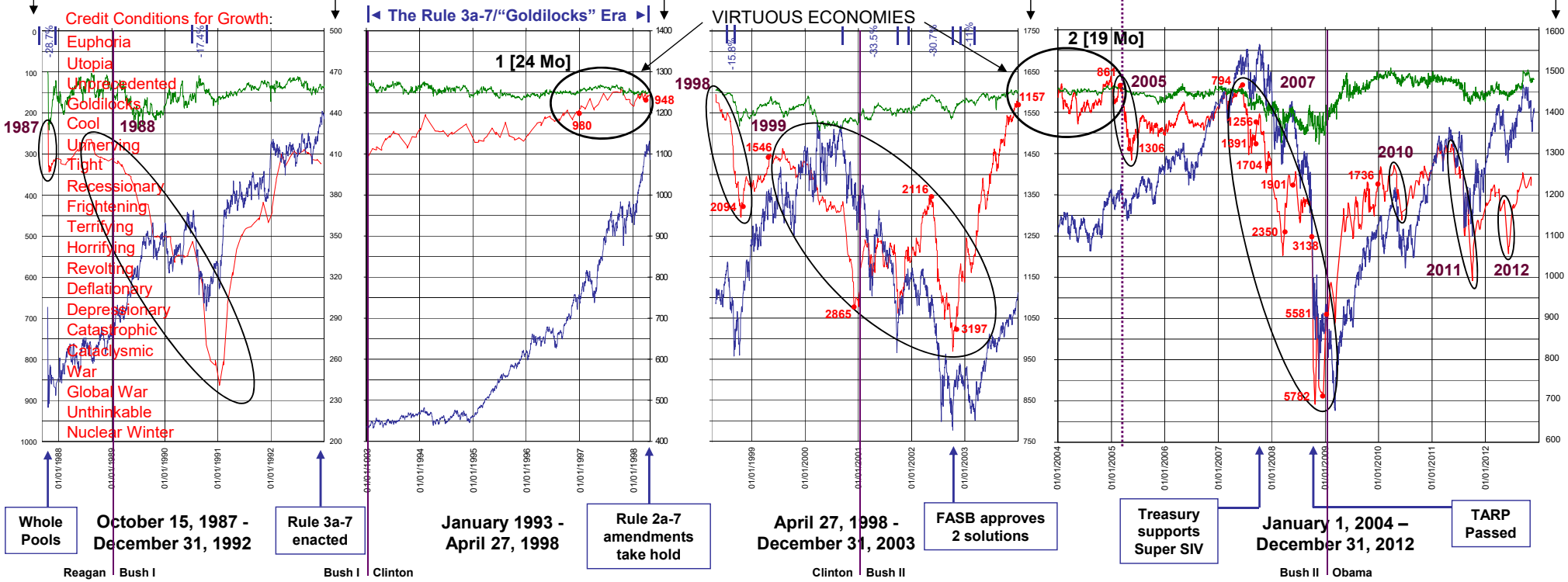
Left axis (for red and green lines) is inverted; UP IS GOOD; DOWN IS BAD

RED: High Yield Bonds minus AA-rated 10+ Year Bonds (in Basis Points--Source: The Wall Street Journal)

GREEN: FNMA 60-day rate minus 10-Yr. Treasurys (in Basis Points--Source: Wall Street Journal)

BLUE: S&P 500 Index

Reviewed In: "The Law and Economics of Financial Markets" (Aspatore Books 2005); "Financial Stability" (Wiley & Sons 2014)



Whole Pools

October 15, 1987 - December 31, 1992

Reagan | Bush I

Rule 3a-7 enacted

January 1993 - April 27, 1998

Bush I | Clinton

Rule 2a-7 amendments take hold

April 27, 1998 - December 31, 2003

Clinton | Bush II

FASB approves 2 solutions

Treasury supports Super SIV

January 1, 2004 – December 31, 2012

Bush II | Obama

TARP Passed

Mortgage Market Completion and Commercial Lending Market Development

This chart tracks: (i) the mortgage spread used for the first chart (green line) and (ii) the daily spread between an index of market yields on AA-rated US corporate bonds and an index of market yields on High Yield US corporate bonds (red line – a spread that reflects intermediation for corporations dominated by large, well-capitalized US banks). The blue line on the chart is the S&P 500 stock index. The chart is divided into four periods, from the 1987 stock market crash until December 31, 2012.

As the chart begins, a secondary market for US mortgages was complete (after the SEC allowed "Partial Pools"). As the chart ends (the start of 2013), disruptions of mortgage and corporate bond markets generated by the Great Financial Crisis of 2008 were moderated. The green line on the chart remained low and stable (until 2022) after the start of 2009, when the Fed exercised discretion to stabilize US mortgage markets by trading US Treasury debt and US-guaranteed GSE MBSs in a manner that helped moderate and stabilize US housing markets.

The Fed's ability to do that for commercial bond markets remained unclear, however, by (1) its limited power, except in defined emergencies, to buy and trade corporate debt and (2) the SEC's continuing failure to resolve the short-term credit monopoly/monopsony it mistakenly created in 1998. Thus, as the chart ends, equilibrium was restored to mortgage markets, but secondary corporate financial asset markets remained disrupted.

After the 1987 crash, the chart shows how markets were adversely affected in 1988 and 1989 by the S&L Crisis. Rampant fraud and speculation, primarily arising from loans made in Texas and other SW states between 1982 and 1985, caused great damage to all financial market participants. The damage compounded in 1990 after Saddam Hussein's invasion of Kuwait. This is similar to what Putin is causing in 2022 by Russia's obviously illegal invasion of Ukraine. Hussein's damage receded in 1991, as soon as Operation Desert Storm removed Iraqi forces from Kuwait.

Markets continued to improve after 1992 ended with "Rule 3a-7 enacted" by the SEC. A few years later, an equilibrium formed in secondary bond markets, leading to the first post-WW II "Virtuous Economy." It ended with the disruption caused by the SEC's 1998 mistake regulating short-term credit markets. That forced: Russia to default and Long Term Capital Management (LTCM) to be liquidated.

Spreads temporarily recovered for about a year after September 1998 when the SEC allowed temporary "grandfathering" rules to help resolve the LTCM problem. The SEC, however, refused to amend its disruptive 1998 money market rule. When the grandfathering impact wore off (about a year later), a new crisis developed – the "dot/com" bubble burst.

Spreads rose until off balance sheet accounting solutions were approved by the Financial Accounting Standards Board (FASB) in 2002. The rules stabilized markets for a short (19 month) second "Virtuous Economy" that began at the end of 2003.

This chart (to March 14, 2005) is the wrap-around "dust cover jacket" for *The Law and Economics of Financial Markets.* A co-author of the book described it as "a book about its cover." Soon

after the book was published, another crisis ended that second post-WW II Goldilocks period in 2005. New efforts by the government to control and expand US housing finance soon exploded into a "sub-prime" mortgage crisis (2006-7), the precursor to the Great Financial Crisis of 2007-9.

The cataclysmic rise of corporate bond spreads shown for 2007-8 was triggered by a US Treasury Department mistake in October 2007. Ignoring a basic rule of Bagehot's dictum (the 1873 explanation of the 1866 Overend, Gurney crisis in London p. 10), Treasury proposed that the government back a fund to absorb bad loans made by off balance sheet entities that Citigroup controlled. That repeated the calamitous 1982 mistake that had caused the S&L crisis.

This idea was so flawed that it never even reached formation. The notion that the US Treasury would stoop to that level, however, started a "run" on US markets that peaked at the end of 2008. The "Great Financial Crisis" only reversed when new Treasury leadership was announced and TARP gave the Fed authority to pay interest on excess reserves and expand its balance sheet to fund a resolution (led by Ben Bernanke, Don Kohn and Kevin Warsh).

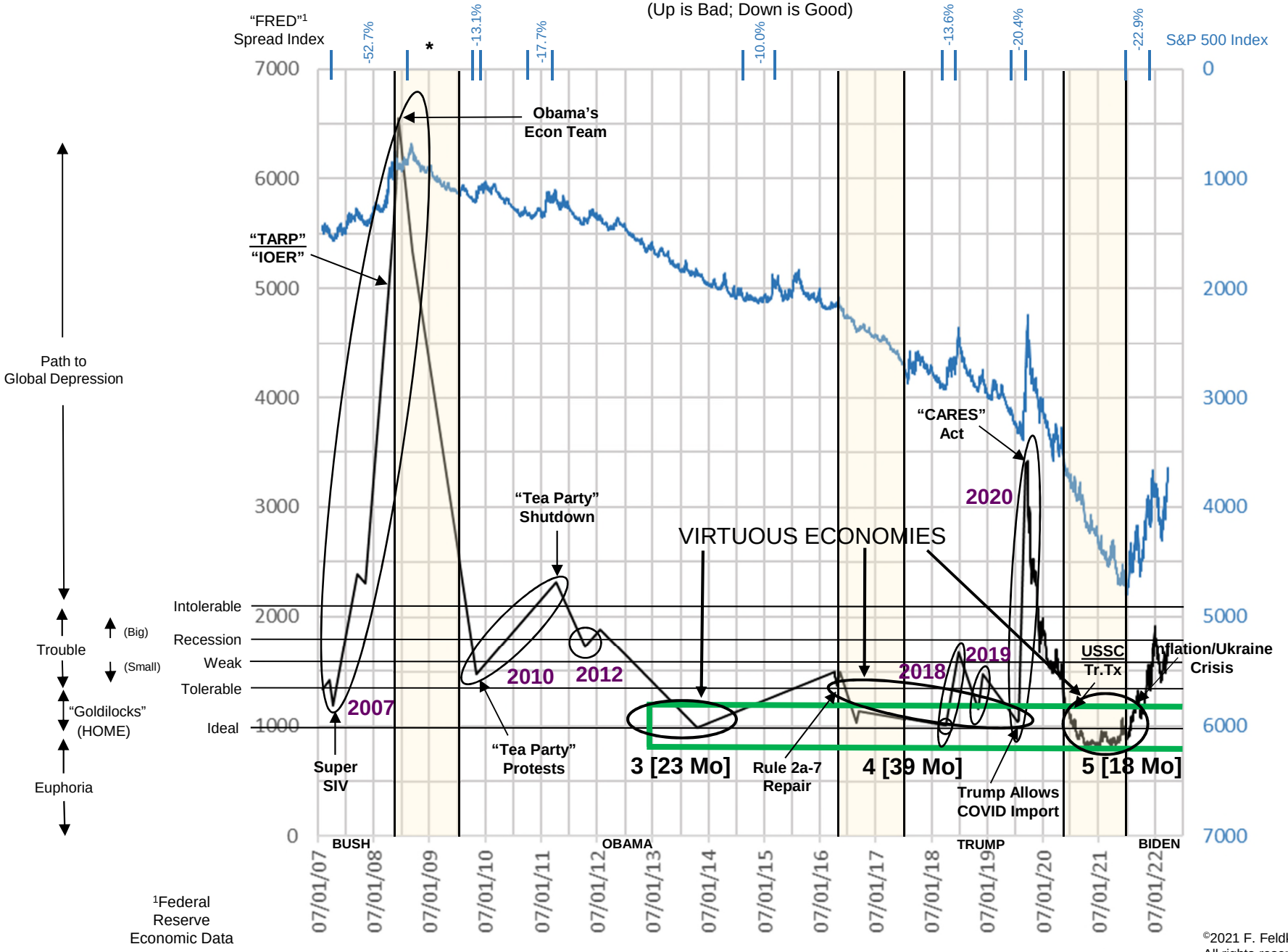
That October 2007 mistake begins the next chart.

The Great Moderation

SIX-SPREAD INDEX ANALYSIS

Six Crises and Three Virtuous Economies (2007- Present)

(Up is Bad; Down is Good)



[1]Federal Reserve Economic Data

*** "Transitions," shaded yellow, start with elections and end with the first legislative calendar year thereafter.**

The Great Financial Crisis, the Great Moderation, COVID-19 Pandemic and War
Completing Markets and 21st Century Monetary Policy

When Adam Smith wrote that any sum by which: (i) the cost to operate financial markets exceeds (ii) the minimum amount needed to preserve efficient intermediation of credit, is a drain on the growth of a nation's wealth, he included all forms of intermediation.

On the "level playing field" of deregulated US secondary corporate bond markets, all sorts of firms and individual investors now serve as lenders to US businesses, from suppliers that defer payment of receivables due from manufacturers to overnight interbank account adjustments between and among the world's largest regulated banks.

To create a mirror of the actual "cost" of intermediation, one should, therefore, create an index of "spreads" among market yields for a group of credits that reflect this diversity. Searching the Federal Reserve Economic Data (FRED) library of statistics, it has reports of daily market index yields representing many grades of corporate bonds regularly traded in the US. The spread used for this chart is an aggregate of the six spreads that exist between and among (i) 10-yr US Treasury bonds, and (ii) AA, (iii) BBB and (iv) High Yield corporate bonds.

The daily sum of those six spreads is reflected by the left axis of this chart (and the next chart). Using this aggregate of spreads as s surrogate for the cost of intermediating all US corporate bonds, each basis point of increase in that index (above what Smith labeled the minimum level needed to keep money circulating) decreases the annual growth capacity of the US productive sector by approximately $5 billion. **Using statistical regression analysis, changes in this aggregate spread index have a 97% coefficient of inverse correlation with changes in the S&P 500 stock index.**

Thus, at the peak of the "spike" of spreads associated with the Great Financial Crisis of 2007-9, high intermediation costs reduced US growth capacity by about $26 trillion per year. If, as it did in 1929-33, that kind of increase in intermediation cost continued for 4 years, it is understandable why US stock markets declined by 93% during the Great Depression. Because the 2007-9 trend reversed quickly when new leadership took over at the Treasury Department, the 2007-9 crisis caused "only" a 50% drop in market value.

By similar analysis, the excess intermediation cost of the COVID-19 spike in the first quarter of 2020 peaked at $11.5 trillion per year. By virtue of knowledge gained during the Great Financial Crisis, the Fed and most major investment advisors understood the damage this event triggered. That explains why it was easy, even for a president who caused the debacle, to convince Congress to enact the "CARES" Act in 2020.

The magnitude of that blunder, by that man, fully explains why he lost his re-election bid six months later.

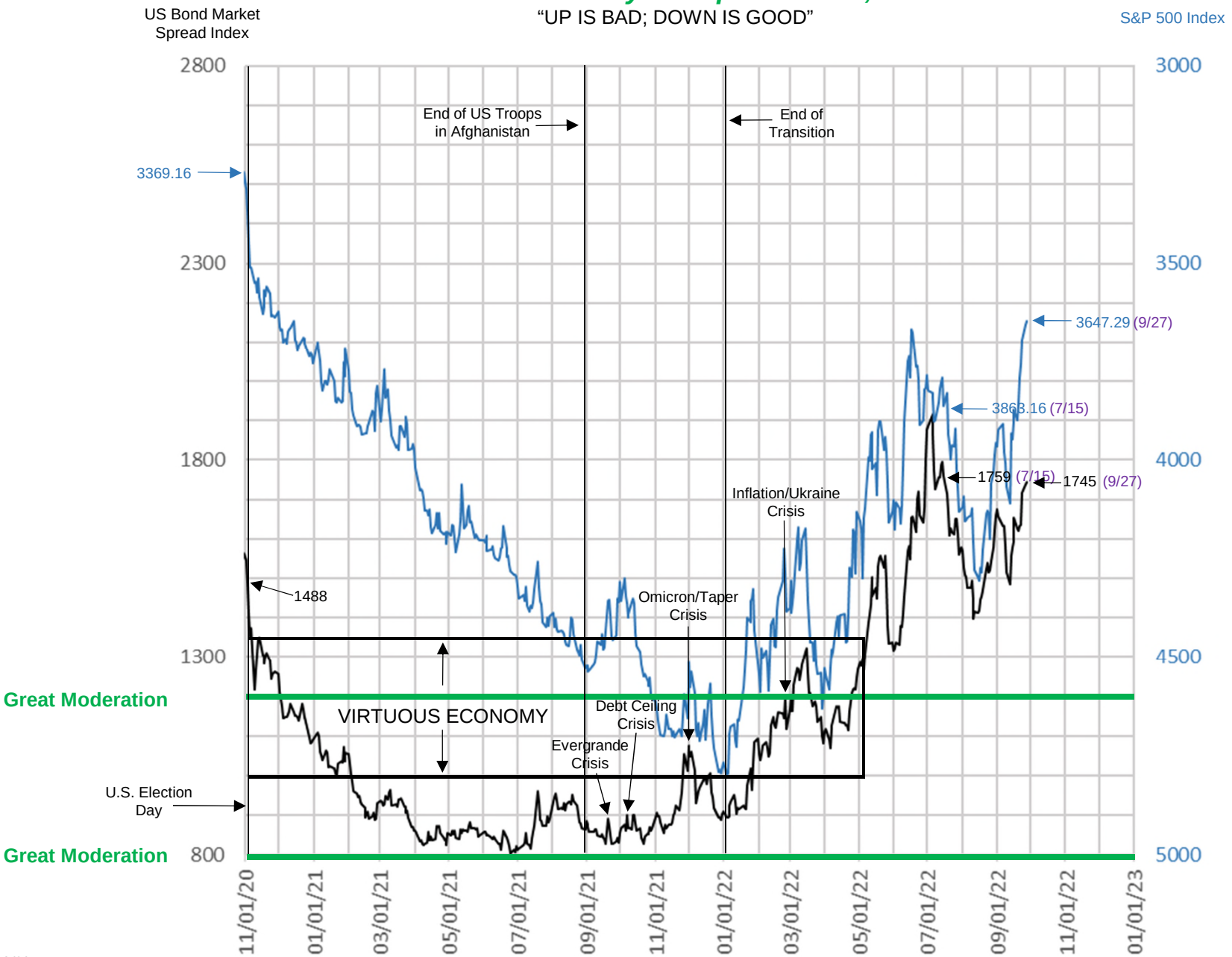
Some might assert that CARES Act spending worked "too well." The US now faces inflation because demand for goods and services exceeds the pandemic-plagued ability of producers to efficiently meet that demand. Therefore, the US needs to slow the economy to contain inflation.

So far, it appears that represents “small change” compared to the nearest comparable economic event, the sharp recession of 1920. The 1920 recession caused a 29% decline in US manufacturing.

Issues Mr. Biden now faces as a result of combining Mr. Trump’s mistakes with Mr. Putin’s unlawful invasion of Russia’s neighbor, Ukraine, are discussed using the next (final) chart.

Biden Presidency to September 27, 2022

"UP IS BAD; DOWN IS GOOD"



Surviving a Needless Pandemic and Facing Global War/Famine
Maintaining the Great Moderation: Overcoming Dictators and Would-be Dictators

Because the Trump Administration refused to follow longstanding US public health laws enacted to avoid importation and interstate transmission of deadly pathogens, during the first year of the COVID-19 pandemic, the US death rate from COVID was roughly 3,000 times the rate observed by our democratic ally, Taiwan. That occurred even though Taiwan does far more trade and tourism, *per capita,* with China (where COVID originated) than the US.

The explanation for this astonishing difference in death rate is action taken by Taiwan on December 31, 2019. At about 3 a.m., the deputy head of Taiwan's version of our CDC saw a widely distributed email from a doctor in Wuhan with an attached a CT scan of the lungs of a COVID patient. The email explained that the deadly condition shown on the scan was caused by a new form of viral pneumonia.

Applying principles established under US law that the Trump administration ignored, Taiwan required isolation of all visitors from Wuhan until they were confirmed as virus free. The Wuhan doctor's message circulated in the US at 3 p.m. on December 30, 2019. The Trump administration, however, was seeking a deal to have China purchase perhaps $200 billion of US soybeans as an "October surprise" to assure Trump would win the US election in November.

Taiwan reacted with a standard public health response to new pathogens that has saved nations since the 14th Century. The US did nothing to prevent COVID-19 importation.

As the virus subsequently mutated to less deadly but more contagious forms, Taiwan's deaths per million residents have risen from 1/3000th that of the US to 1/10th. That still means US importation and interstate transmission of the contagion is primarily responsible for the needless loss of more than 1,000,000 US lives and a nearly unheard of drop of more than 2 years in US life expectancy.

Each of those statistics is a factor that is almost certain to trigger "wage-price" inflation in any affected economy, as fewer workers logically insist on higher pay and lost workers create supply chain log jams. Combine that with the inflation pressure on necessary resources caused by war disruptions of food and fuels, etc., and one fully explains the difficult issues of today.

Were it not for Putin's illegal attack on Ukraine and its impact to add famine, conquest and genocide to COVID's pestilence, there are economic guidelines for managing inflation pressures. To save US and worldwide freedom, however, those added factors make it appear that a greater cost will be required.

The US has more effective "weapons" to apply in an economic emergency than any nation in world history. The final chart confirms that, while all people gripe over the impact of inflation on daily life, the nation's capital markets gave a "standing ovation" to Biden over Trump.

Putin (as was the case with Hitler and the US Confederacy before him) has followed an obviously flawed economic agenda. However, Russia is a sovereign state and, unless it attacks the US or allies to whom we owe allegiance (NATO nations), Russia will suffer the natural consequences of

its unlawful conduct, but will not likely be militarily attacked by the US or its allies. **Unlike Russia, US leaders understand that no war is "won." Victors may suffer less in the short run, but war does not change long-term problems.**

US markets have reacted negatively, but that's probably necessary to contain US inflation and inflation expectations. Recent data suggests markets are aligning behind necessary policy decisions.