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# Historical Perspectives on Bank Supervision, Asset Bubbles, and Market Microstructure

Eugene N. White\*

Evaluating the appropriate policy responses to financial crises and banking scandals represents one of the major challenges of macroeconomics and financial economics. My research on earlier financial crises and regulatory regimes provides useful comparative insights. In research with several co-authors, I have investigated issues concerning the role and effectiveness of bank supervision, the origins and responses to asset bubbles, how to minimize moral hazard when intervening in financial crises, and the design of market microstructure to manage counterparty risk. Another area of my research examines coerced international transfers in wartime.

## Bank Supervision

In an overview paper,<sup>1</sup> I outline an asymmetric information-based taxonomy of regulation and supervision, identifying five distinct regimes in the United States from the Civil War to 2008. My current research project focuses on the first two periods, the National Banking Era (1863–1913) and the early years of the Federal Reserve (1914–1932), after which I will follow the evolution of supervision from the New Deal Era (1933–1970) to the post-New Deal period (1970–1990) and the Contemporary Era (1991–2008).

After the Crisis of 2008, the search for financial stability has led to adoption of increasingly complex regulations and higher expectations for supervision

to limit risk-taking. Earlier regimes had simpler regulatory structures and lower expectations for supervision, yet seem to have been more successful in limiting risk-taking. In a paper that examines how the establishment of the Federal Reserve in 1913 altered the norms of bank supervision,<sup>2</sup> I find that bank failures in the late nineteenth century resulted in surprisingly small losses for depositors. In the National Banking Era, regulations defined banks narrowly but were relatively simple. Federal and state supervisors used surprise examinations and marked assets to market, suspending banks promptly if they appeared to be insolvent. Crucially, double liability for national bank shares — where shareholders were liable to be assessed up to the par value of their stock in the event of failure — induced many weak banks to close before they failed. These voluntary liquidations outnumbered insolvencies four to one. For this fifty-year period, total losses to depositors of national banks were \$44 million, and for all banks were less than \$100 million — less than one percent of GDP — even though there were periodic financial crises.

The establishment of the Federal Reserve as the primary regulator of state member banks created tension with the Office of the Comptroller of the Currency, the primary regulator of national banks. The resulting “competition in laxity” led to a weaker supervisory regime. In addition, with access to the discount window, fewer troubled banks liquidated. Although this was intended as only a temporary source of liquidity, it led to a significant number of banks becoming habitual borrowers. While losses to depositors increased in the 1920s, the overall impact of the Fed on bank losses is difficult to assess

because of the surge in failures occasioned by the sharp post-World War I recession. The New Deal regime took shape after Great Depression policy-induced deflation and asset price volatility were misdiagnosed as failures of competition and market valuation. Double liability was abandoned, and deposit insurance with discretion-based supervision was introduced, increasing incentives to take risk.

## Asset Bubbles

Another major component of my research is the study of asset booms and busts. I was drawn to the subject after the 1987 crash that shocked many who had assumed that a 1929 crash could never happen again after the New Deal reforms. I returned to the subject again after the dot.com crash and wrote a paper that compared the three major twentieth century stock market booms and busts.<sup>3</sup> Claims typically were made that these booms were driven by the accelerated growth of a “new economy.” Yet, the sharp rise in equity prices cannot be readily explained by fundamentals, as represented by expected dividend growth or changes in the equity premium. The difficulty in identifying fundamentals implies that central banks could not easily deploy pre-emptive policies, although they would still play a critical role in preventing crashes from disrupting the payments system or sparking an intermediation crisis.

The emergence of anomalies is one possible means of identifying a boom that has exceeded its fundamentals. Using data from the New York Stock Exchange and regional exchanges, I find that in the months prior to the 1929 crash, the price of a seat on the

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NYSE — which reflected brokers' valuation of their access to trading floor — was abnormally low.<sup>4</sup> Rising stock prices and volume should have driven up seat prices during the boom of 1929; instead there were negative cumulative abnormal returns to the ownership of a seat of approximately 20 percent in the months just before the crash. At the same time, trading nearly ceased in the thin markets for seats on the regional exchanges. Brokers appear to have anticipated the October 1929 crash, although investors did not recognize this information.

While the recent housing market crash appears to be unprecedented, earlier real estate collapses provide instructive comparisons. Long obscured by the Great Depression, the nationwide residential housing boom that appeared in the early 1920s and burst in 1926 was similar in many respects to the recent boom and bust. In a paper on this largely forgotten episode,<sup>5</sup> I consider the fundamentals that helped to ignite the boom, including a post-World War I construction catch-up, low interest rates, and a "Greenspan put." Applying a Taylor rule model, I find that higher interest rates would have dampened but not eliminated the boom. Rising home prices in the 1920s were accompanied by securitization, a reduction in lending standards, and weaker supervision of financial institutions. While the bust in 1926 produced a rise in foreclosures, it did not induce a banking collapse. Bank leverage did not rise dramatically and loan-to-value ratios remained low. The risk-inducing features of the boom in the 2000s that were absent in the 1920s were: deposit insurance, Too-Big-To-Fail, and policies to increase mortgages to higher risk homeowners. Although the housing market collapse post-1926 contributed to a mild recession, it did not damage the financial sector and the economy recovered quickly. In the interest of expanding research on this and related subjects, I co-organized with Price Fishback and Ken Snowden the 2012 NBER/Universities Research Conference on Housing and Mortgage Markets in Historical Perspective.

## Market Microstructure— in Booms and Busts

Following my work on asset market bubbles, I have examined the response of securities markets' microstructure to booms and busts. Lance Davis, Larry Neal, and I<sup>6</sup> study how the NYSE responded to the erosion of its position as the dominant American exchange during the stock market boom of the late 1920s. Constrained by the number of seats — fixed at 1,100 in 1879 — surging order flows raised costs to consumers, measured by spiking bid-ask spreads. The geography of trading on the floor of the exchange mattered; and if trades were not concentrated at a few posts, as measured by a Herfindahl index, spikes were amplified. Higher costs caused the NYSE to lose market share to the Curb and regional exchanges. Following a prolonged debate, the membership of the NYSE approved of a 25 percent increase in the number of seats in 1929 by issuing a quarter-seat dividend to all members. An event study revealed that the aggregate value of the NYSE rose when the vote was announced. These expectations were justified, as bid-ask spreads became less sensitive to peak volume days.

In contrast to the NYSE, the Paris Bourse was primarily a forward rather than a spot market. Consequently, from the moment of its foundation in 1802, the Bourse struggled to manage the problem of counterparty risk. Angelo Riva and I<sup>7</sup> consider the period from 1815 to 1913, identifying 100 defaults by brokers and five distinct regulatory regimes governing counterparty risk. After several failures in 1818, the Bourse created a mutual guarantee fund to prevent broker failures from snowballing into a general liquidity crisis. As a consequence, the exchange had to develop monitoring and discipline mechanisms to control moral hazard. Using our model of broker defaults, we find that increasingly restrictive regulatory regimes lowered broker failures; but trading then began to migrate off the exchange to less regulated markets.

The biggest crisis for the Bourse

occurred in 1882 when 14 of the exchange's 60 brokers defaulted. While the guarantee fund could handle random broker failures, it was overwhelmed by a systemic event — a stock market crash of 1882. In a separate study, I examine how the Bank of France, acting as the "insurer of last resort" intervened to provide a lifeboat rescue.<sup>8</sup> As the guarantee fund was exhausted, credit from the Bank of France enabled the Bourse to complete vital end-of-month settlements. High assessments levied by the Bourse on the remaining brokers eventually repaid the loan and induced them to tighten the exchange's oversight.

The Bank of France's intervention in 1882 and in other nineteenth century financial crises differs from Walter Bagehot's rules for a lender of last resort that were the standard for the Bank of England. While some economists would uphold Bagehot's prescription of lending freely on good collateral in crises, others see them as outdated in a world of complex financial markets with derivatives. Examining late nineteenth century interventions by the Bank of France during stock market crashes in 1851, 1882, and 1896,<sup>9</sup> I find that the Bank wanted to ensure the settlement of trades. Concerned by the moral hazard that such assistance created, it allowed the more troubled Lyon stock exchange to fail in 1882. After the Paris Bourse imposed tighter regulations, the *Coulisse* (the largely unregulated curb market) gained double the volume of the Bourse with lower cost trades and a listing of gold stocks. When these highly speculative stocks led the Crash of 1896, the Bank of France only aided brokers on the Bourse who had appropriate collateral. Losses for brokers on the *Coulisse* were substantial but the crisis was contained.

## War Finance

My research on the economics of war finance has focused on burdens imposed on conquered countries and on postwar reparations to the victors. In one paper Filippo Occhino, Kim Oosterlinck, and I<sup>10</sup> study the occupation charges paid by

France to Nazi Germany, which represented one of the largest international transfers and contributed significantly to the overall German war effort. Using a neoclassical growth model that incorporated the essential features of the occupied economy and postwar stabilization, we determine that the payments required the equivalent of a 16 percent reduction in consumption for twenty years. The draft of French labor and wage and price controls added substantially to this burden. Management of the accumulated domestic debt would have required a large postwar budget surplus; but surprise post-Liberation inflation reduced the debt below its steady state level. I am continuing this research on France and extending it to Belgium with Oosterlinck. I am also co-editing, with Jonas Scherner, a conference volume on the effects of the Nazi demands for resources on conquered nations and allies.

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<sup>6</sup> L. E. Davis, L. Neal, and E. N. White, "The Highest Price Ever: The Great NYSE Seat Sale of 1928–1929 and Capacity Constraints," NBER Working Paper No. 11556,

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<sup>9</sup> E. N. White, "Implementing Bagehot's rule in a world of derivatives: The Banque de France as a lender of last resort in the nineteenth century," in *Monetary and Banking History: Essays in honour of Forrest Capie*, G. Wood, T. Mills, and N. Crafts, eds. (Routledge, 2011), pp. 72–87.

<sup>10</sup> F. Occhino, K. Oosterlinck, and E. N. White, "How Occupied France Financed Its Own Exploitation in World War II," NBER Working Paper No. 12137, April 2006, published in *American Economic Review*, 97, No. 2 (May 2007), pp. 295–99, with a full version published as "How Much Can A Victor Force the Vanquished to Pay? France under the Nazi Boot," *Journal of Economic History* 68, No. 1 (March 2008), pp. 1–45.