

The Cliometric Society

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Report on the 1989 ESRC Quantitative Economic History Conference

by John Treble
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HULL, ENGLAND - The 1989 ESRC Quantitative Economic Conference, held at the University of Hull on 15-16 September 1989, was not restricted to UK participants. The economic historians attending came from North America, France, Denmark and Eire as well.

The proceedings began with a provocative piece by Joel Mokyr (Northwestern), in which, following Alfred Marshall and others, he advocated the use of biological rather than physical analogies in economic discourse. In particular, he argued against a gradualist view of the process of invention and innovation, claiming that the record is more consistent with a punctuationist view in which there are occasional technological breakthroughs, not necessarily demand-led. These he labelled 'macroinventions' to distinguish them from 'microinventions' which take the form of improvements of the original grand idea.

In the discussion, Roderick Floud pointed out that Mokyr argued by analogy rather than by simile or metaphor. Analogy involves arguing from a parallel case and to be successful requires both a proof of the parallelism and a demonstration that the parallel is useful. Floud objected to Mokyr's attempted analogy on both counts. The evolution of life forms and the evolution of technology, he argued, took place on widely differing time spans, thus casting doubt on the parallel. More tellingly, the parallel was not useful because it was not clear what the dominant theory of evolutionary biology is. He also saw no good reason to reject the traditional view that the increase in the rate of technological change during the 18th century was a response to demand shifts. Tony Corley and John

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Treble supported Floud's view, pointing out that there seemed to be no clear analogue in the process of invention to random biological mutations. When there is no demand for technological change, no technological change seems to take place (e.g. the flush toilet); when there is a demand such change can take place rapidly (e.g. the atom bomb). Katherine Watson added that it was not clear that it was possible to distinguish demand-led invention from supply-led invention.

David Richardson's (Hull) paper presented new evidence on the effects of the slave trade on demographic trends in Africa, relying on his new price series for slaves computed from values of British goods traded for slaves and from well-accepted figures on the volume of the slave traffic. His series shows the terms of trade declining, and he argued that one possible interpretation of this finding was that the procurement cost of slaves was rising, as a consequence, perhaps, of migration within Africa, away from coastal areas, or of absolute population

decline. An alternative explanation may be that the slave trade generated new technologies of resistance, in the form perhaps of tribute systems. His new series was not therefore conclusive evidence in favour of any one of these hypotheses, but rather supported them as a group. Further evidence would be necessary before more precise distinctions could be made. He argued that a useful analogy was with overfishing.

John Latham hailed the new price series as 'the biggest contribution to African economic history in the last 25 years', but proceeded to raise several objections to Richardson's interpretation of his evidence. First, can we bolster our belief in the new series by comparison with the pattern of prices of competing forms of labour in the Americas? He argued that if an international price of labour was driving the system, then the evidence was consistent with a backward bending supply curve of slaves generated by an internal African demand for slaves. He pointed out that many of the traded goods were capital goods, perhaps indicating a need to make investments in order to equip a larger African slave labour force. Richardson responded that his model already featured a demand curve that shifted outwards over time, and that it was not clear that such a thing as a world price for slaves existed. For instance, slave prices in French colonies were usually higher than in British colonies.

Bob Millward observed that an upward sloping supply curve does not necessarily arise from depopulation; an inelastic factor of production was sufficient to produce this effect. James Foreman-Peck pointed out that while it may not be possible to identify absolute shifts in demand and supply, the

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Honoring Jonathan R.T. Hughes

Louis Cain
(Loyola University of Chicago)

by

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(University of Arizona)

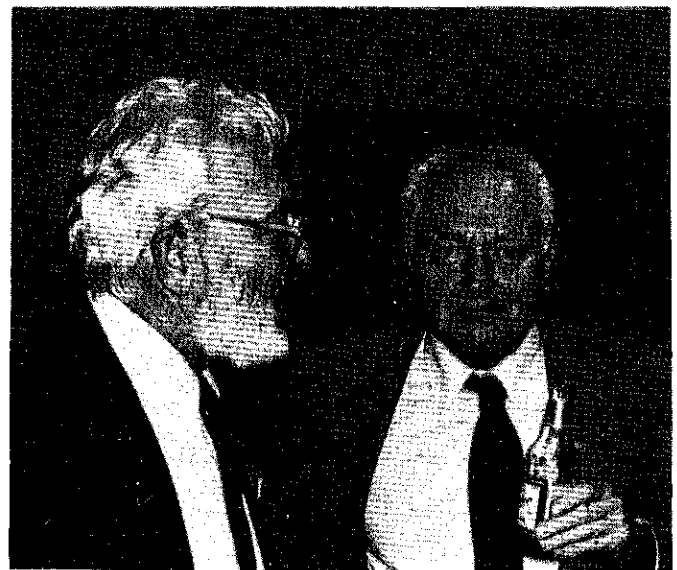
WASHINGTON - On a sunny Saturday morning, he told the members of the Economic History Association that he had written the textbook "for the money." After dinner, Jonathan Hughes was honored at a session featuring former students, colleagues, and a roomful of friends. The high point of the evening was the presentation of a manuscript containing the collection of essays in his honor to be published by JAI Press. The program was arranged by Joel Mokyr, the volume's editor and Jon's long-time colleague at Northwestern. The reception which followed was arranged by Ed Berkowitz, whose task was greatly facilitated by a generous gift from Scott, Foresman (publisher of Jon's textbook).

The collection is entitled *The Vital One*, and Paul Uselding, chairman of the session, made much the same point when he noted, "If Jon were a thoroughbred, he would be Secretariat." Paul reflected on the influence Jon has had on many of our lives in the help, support, and kindness he has shown as a teacher and a colleague.

Charles Calomiris, junior partner of Northwestern's economic history team, then spoke on Jon and his work. Many of Paul's general themes were given concrete form in Charlie's remarks. Shortly after he arrived at N.U., Charlie was talking to Jon about work he was doing on Britain and the classical gold standard. Jon made a reference to his first book (from his Oxford dissertation) on the British trade cycle of the 1850s of which Charlie had heard, but not read (the two characteristics of a classic in economic history according to Jon). Charlie, sens-

ing a key reference, immediately read the book. He termed it a "great book; it integrates data, tools, and facts to provide an interpretive history of how institutions and history produce economic change." Last year, when Charlie began to research international financial linkages in the 1850s, Jon gave him the notes he had taken for his dissertation, a gesture that "makes anyone humble."

Charlie concluded his remarks by discussing three impressions of Jon, impressions congenial with our own. Economically and politically, Jon is a skeptic, even an anarchist, but not a cynic; he remains a humanitarian. Jon loves a good debate, the kind that tests his knowledge and the mettle of his opponents. Finally, Jon has a larger than life quality, "an Idaho boy turned Oxford Don." Max Hartwell once described him as "a gorgeous man." In summary, Charlie provided what could have been an alternative title for the *festschrift*, "brains and guts."



Clio Conference co-founders Jon Hughes and Lance Davis

The next five speakers were all authors of contributions to the volume. In their remarks, each provided some of the substance of their contribution, but, even more, each communicated what effect Jon had on his work. These remarks, all heavily spiced with humor, as is characteristic of the honoree, repeated the themes introduced by Paul and Charlie. Lou Cain was the first to speak.

Lou's contribution, entitled "Carving the Northwest Territory into States," focuses on two border disputes that developed during the process of state-making, one between Ohio and Michigan and the other between Illinois and Wisconsin. It is a quirky bit of old economic history that had its origins many years ago in the Northwestern economic history seminar. In an age when travelling scholars were more of a rarity than they are today, we spent the winter months reading, discussing, hypothesizing, exploring. It was on such an exploration that I discovered the territory of Michigan had traded its claim to Toledo for statehood and what became its Upper Peninsula. Here was the kind of interesting fact that Jon had urged us to follow in his work on the methodology of the new economic history. In his work on the development of nonmarket controls, Jon also explored topics related to the Northwest Territory. Consequently, it seemed appropriate to pursue this topic to honor a man who is now in his 23rd year teaching at a university named for its geographical setting, a curious name to someone from Idaho.

Kim McQuaid commented on the paper he wrote in conjunction with Ed Berkowitz on "Social Security and the American Welfare State." Both began their research on nonmarket controls as history graduate students at Northwestern. Kim recalled trekking

across Deering Meadow to meet Jon. It was a time when historians were becoming increasingly suspicious of new economic historians, and Jon certainly was a leading "cliometrician." When Jon told Kim that, "History is no more applied economics than applied astrology," both he and Ed immediately became members of the seminar, and two of its most productive scholars. Working individually on related topics, they combined their talents in *Creating the Welfare State*. Jon remarked, "Nobody gives a s—t about first books," which (no doubt) is why the publisher has brought out a second edition. In their contribution they examine how each interested group affected the whole of the Social Security bill, a bill Kim described as a "sedimentary, a goulash." Such description well reflects the themes Jon raised in *The Governmental Habit*.

John Nye's paper, "Lucky Fools and Cautious Businessmen," reflects themes from *The Vital Few*. John came to Northwestern from Cal Tech, where he had taken an undergraduate economic history course from Lance Davis. Jon Hughes told him not to take his course, it was just like Lance's. Nye enrolled anyway and found it completely different. One of the differences was the discussion of entrepreneurship which has once again become a hot topic. John noted that "if *The Vital Few* had been published as the renewed interest in entrepreneurship heightened, Jon Hughes would have become its reigning guru." John noted that history has told us a lot about individuals but nothing about the phenomenon. Furthermore, economic theory doesn't tell us what entrepreneurship is. The Schumpeterian concept of the entrepreneur as a super-rational being with a preference for risk is mistaken. Entrepreneurs are visionaries who systematically overestimate; most fail. When they

succeed, it appears *ex post* the gamble was correct, but this does not require the entrepreneur to be a risk-lover. Market forces customarily eliminate the current bunch of “fools,” but there always have been more to take their place (“There’s a sucker born every minute”). Thomas Edison and Henry Ford are examples of “lucky fools,” as *The Vital Few* attests.

Richard Szostak’s essay, “Institutional Inheritances and Early American Industrialization,” discusses the continuity between British and American institutions, an idea in the forefront of much of Jon’s work. In particular, the paper examines the role of the institutional structure on the development of the transportation network. While transport improvements often have been tied to economic development, given the real cost of most transportation infrastructures, the two don’t always go together. Rick commented it was the necessity to confront the real world that attracted him to economic history. After a few terms in graduate school, he began to get the feeling economists avoided the real world and were somewhat boring, “but then I met Jon and his sidekick, Joel.”

The last paper was that of Jack Goldstone, “The Causes of Long Waves in Modern Economic History.” Jack joined Northwestern’s Sociology department with a Ph.D. from a well-known Eastern university where the graduate students felt neglected. At N.U., Jack became part of the Economic History seminar which he described as “intellectually stimulating and nourishing.” The problem Jack tackled in his essay was explaining the quadrupling of prices from the 14th through the 18th century. He argued the common explanations are monocausal, and “the numbers don’t add up.” To resolve the



J.R.T., with contributors Uselding, Cain, and Mokyr

problem Jack examined the ratio of velocity to transactions. With increased specialization and urbanization, with increased economic activity, there were more exchange paths. Velocity tended to increase more rapidly than population, say double. Thus, if the money supply (bullion) doubled, and if the ratio of velocity to transactions doubled, one can explain a four-fold increase in prices.

Then it was Jon’s turn to respond. The Cain paper was described as an example of *Realpolitik*, while the Berkowitz-McQuaid essay was yet another reminder that, while our welfare state is not delivered well, we find it congenial. Nye raised interesting questions, but Jon Hughes is skeptical that there will be breakthroughs in the study of entrepreneurship. The Szostak paper provided a focus for Jon to tell one of his favorite stories of the interrelation between British and American institutions - the Idaho legislature once passed the Common Law of England by voice vote. Jon complimented the Goldstone paper with the adjectives he uses to describe good economic history - “big, wild, mind-stretching.”

Many of the other contributors to the volume were present: Lance Davis, Bob Gallman, Joel Mokyr,

Betsy Hoffman, Gary Libecap, and Sam Williamson. Bill Kennedy, Rolf Henriksson, and Eric Jones were understandably absent.

Children, it is said, honor their parents by producing grandchildren. One seldom encounters the notion of intellectual grandchildren. Students and colleagues honor a respected teacher and friend with contributions of their own work when a private thank you will not suffice. That, and the foregoing, are offered in partial response to Jon's closing words (and to give him the last word here), "What does a person do to deserve this?"

Further Report on the Second World Congress Group A Papers

by Elizabeth Field-Hendrey
(Queen's College, CUNY)

Discussion of each paper was necessarily brief, because of the number of papers and the time, but was no less lively.

The first paper, by Francisco Alcala and Carles Sudria-Triay, dealt with the experiences of the Spanish economy during World War I. The audience asked for evidence to support the authors' conclusions that the inflation experienced at that time was in fact externally caused. If it was, they asked, why did the Spanish government not conduct unofficial open market operations to neutralize it, since no official mechanism existed? The audience also suggested an expansion of discussion of the role of exchange rate fluctuations.

Gerardo della Paolera's paper examined the Argentine economy under the international gold standard. Questions were raised about the role of foreign

capital, particularly the influx of railroad capital and its cessation, in explaining the collapse of the Argentine economy, which the author attributes to mis-managed government policies. The audience also questioned whether the key to the situation might not have been a fractional reserve banking system that was out of hand, and that currency substitution merely exacerbated the situation.

The next paper, by Giovanni Federico and Antonio Tena, investigated the accuracy of international foreign trade statistics. The audience asked whether any evidence had been found that components of the trade indices had systematic errors due to certain commodities, although the overall indices were found not to be biased. Those present also suggested that the authors intensify their attack on Morgenstern, emphasizing that his criticisms of historical statistics in fact attack cliometrics.

The paper by Richard Kohl examined the 1982 debt crisis in Brazil. He was asked how the quality of the simulations could be judged, given that the simulations differ from the actual situation. The audience also asked who made the mistakes that led to the crisis, and questioned whether it might not be a market failure, and that the lack of recognition of the impending crisis might have been brought about by the disaggregated nature of the borrowing and lending, and the fact that banks did not bear the costs of the debt crisis.

NBER Workshop Report

by Tom Weiss
(University of Kansas)

CAMBRIDGE, MA - A Workshop on the Development of the American Economy was held from July 17 to 21 as part of the NBER's Summer Institute program. About 30 people attended one or more of the sessions, with most ending up as "standing room only." Many of the participants had recently returned from Santander and showed no after-effects (except for this reporter's dozing off and consequently failing to record most of the discussion). The workshop featured only 11 papers, as Barry Eichengreen's mail could not keep up with his whirlwind world tour.

The program opened with Claudia Goldin (Pennsylvania) and Bob Margo (Vanderbilt) discussing their preliminary work on "Wages, Prices, and Labor Markets Before the Civil War." They tested two opposing views of the antebellum economy; that aggregate economic activity was severely diminished and unemployment was substantial and prolonged during several downturns, and the alternative that fluctuations were more apparent than real, with nominal wages adjusting rather than the quantity of labor. They analyzed data on real wages for laborers, artisans, and clerks during the period 1821 to 1856, and found that shocks to real wages persisted for five years or more, but the impact eventually vanished. The persistence was less for agricultural labor, less in the more recently growing regions, less for skilled than for unskilled, and probably less before 1860 than after. They concluded that the evidence supported the first view of the antebellum economy, although the degree of unemployment in cities and industrial towns remains unknown.

This was followed by Tim Hatton and Jeff Williamson's (both currently at Harvard) presentation of "What Explains Wage Gaps between Farm and City? Exploring the Todaro Model with American Evidence, 1890-1941." This seemed very much like the paper they had discussed in Santander - without the influence of rioja and late night dining - and so is not summarized here.

Timothy Bresnahan (Stanford) and Dan Raff (Harvard) discussed "The American Automobile Industry 1929-1935." In their view, extra-censal history (as opposed to extraterrestrial) suggests that the diffusion of mass-production methods in the motor vehicle industry was incomplete as of 1929. They show that there was a considerable amount of entry, exit, and mothballing in the industry over the next six years, and that the composition of firms was changing. They try to disentangle the effects of demand shock from that of technological diffusion, and estimate probit equations to predict which plants will remain open. Their estimates suggest that technology varied systematically across market segments and is an important explanation of labor hoarding. They view this as a very preliminary paper, using terms like first glimpse, first attempt, and first pass.

Questions focused on three themes. How did the choice set and incentives facing management at single-plant firms differ from multi-plant firms, or single- versus multi-product firms? Would the estimating equations be specified differently had they been derived from a value function model? Exactly how was labor hoarded and what did the hoarded laborers do?

Charles Calomiris (Northwestern) gave an even more preliminary version of a paper on "Firm Heterogeneity and the Cash Flow Sensitivity of

Investment: The United States in the 1930's." In fact, there was no paper, just a ream of tables, and discussion as to what might have been going on.

John Wallis (Maryland) resurrected his piece on "Public Relief and Private Employment During the Great Depression." He argued that relief programs had a significant, but not overwhelming effect on private employment. He estimated that the labor supply effects of the relief programs were large, showing a one-to-one reduction in employment when a relief case was added. These effects were balanced by a relatively elastic supply of labor and less elastic demand. As a benchmark counterfactual, reducing relief expenditures by two-thirds would have increased private sector employment by 3.3 percent, and reduced wages by 2 percent. This exercise indicates that Darby's downward adjustment of the unemployment statistics may be much too large. John also argued that E. Cary Brown's contention that expansionary fiscal policy was never tried deserves more critical review. Even if it were tried, John's work suggests that it would not have worked anyway.

The peripatetic and dynamic duo of Roger Ransom (Riverside) and Richard Sutch (Berkeley) tried to convert more people to a life-cycle view of the world. They did this by circulating their paper "Two Strategies for a More Secure Old Age: Life-Cycle Saving by Late 19th-Century American Workers" and then inundating the participants with a ream of new diagrams. In their view, industrial workers in the late 19th-century U.S. had to provide for their own old age security, and could have done so by relying on their children for support or by following a life-cycle strategy of accumulating assets while working and using them to finance consumption in old age. In the paper they examined data from an

1891 survey of 1,082 working class households in Maine to study saving and fertility patterns. In the diagrams they did a similar analysis for Kansas workers. In order to distinguish between the two types of postulated behavior they employed probability-weighted least squares estimation. They concluded that both strategies were evident, and that Maine and Kansas differed in the extent to which the life-cycle strategy was adopted. (Their preliminary results seem to confirm the aphorism drawn from the 1936 election - featuring Kansas's favorite son, Alf Landon - that "As Maine goes, so goes Vermont.") Much of the discussion focused on whether the significance tests should be taken seriously, or whether our interpretation of the evidence should make use of other knowledge we can bring to bear.

Donald Parsons (Ohio State) spoke on "Male Retirement Behavior in the U.S., 1930 to 1950." A major change in the labor market behavior of the aged took place between 1930 and 1980, with the participation rate of males aged 65 and over declining from 54 to 19.3 percent. Parsons argued that the decline was induced primarily by the introduction of the Old Age Assistance program, especially affecting the retirement behavior of low income workers.

Alan Green (Queen's) and Mary MacKinnon (Queen's and McGill) discussed "Regional Employment in the Depression: A Northern View." They argued that during the 1930's the economies of Canada and the United States (in that order) exhibited many similarities. Real output declined sharply early in the decade and began to rise only after 1933. Investment levels plummeted and unemployment levels soared and remained unacceptably high throughout the decade. In many respects, however, the experiences differed sharply. Canada had no bank failures, was relatively more exposed to inter-

national events, and did not adopt a wide ranging relief program such as the New Deal. The critical differences between the two countries were the degree of openness to world events (as indicated by the international trade share of domestic income) and the extent of direct government intervention in the recovery. The paper explores the impact these differences exerted on labor force adjustments, by comparing trends in employment indices for similar regions in the two countries. They argue that employment in Canada recovered no more quickly than it did in the U.S., casting considerable doubt on the idea that slow recovery was a result of phenomena specific to the U.S.

Participants questioned the comparability of the specified regions in the two countries, and wondered whether the inclusion of more Great Plains states or the exclusion of certain northeastern states wouldn't give more comparably defined regions. It was also suggested that the analysis should focus on the year to year change in the employment indices, not the levels relative to 1929, and the comparability of urban employment in the two countries should be reexamined. The authors were urged to consider the effects of other broad forces, such as the greater openness of the Canadian economy and differing banking structures and monetary policies.

Naomi Lamoreaux (Brown) gave a progress report on her project on postbellum banking. In "Competition Among Banks and Bank Mergers in Late 19th Century New England" she characterizes the system as one of large numbers of small single-unit banks. While such a system seemed better suited to the antebellum economy than the much different economic environment of the latter part of the century, three decades of turbulent competition produced

little institutional change and large banks with modern balance sheet structures generally did not outperform their more traditional rivals. Change finally occurred at the turn of the century when a series of mergers drastically altered the size distribution of banks. The mergers were less a result of market conditions than of a peculiar institutional situation, but the end product was a banking system that better fitted the modern world.

Many questions were raised, the key one being that her analysis needed to take risk into account in judging the relative performances of the banks. Moreover, it may be that the existing traditional banks which did well had carved out a market niche where they had little competition, but would have been unable to compete successfully if they had entered the industry anew. Some participants liked the fact that she was trying to get at the fundamental question of which particular firms leave a competitive industry when profits fall.

As things wound down, Jeremy Atack (Illinois) and Mike Haines (Wayne State) tried to hold the attention of the participants. Jeremy presented new estimates of daily and annual hours of work by region and industry in 1880 in a piece appropriately titled "How Long Did People Work in 1880?" (coauthored with Fred Bateman). The estimates, based on a sample of data from the Census of Manufactures, show that there were substantial variations in hours across industries and regions, particularly over the course of the year. He argued that these differences may account for a significant proportion of the income differential between the Northeast and the South, but most participants were sceptical of this. The figures also implied significant differences in the supply of work effort in periods of unemployment or underem-

ployment. Their investigation of how labor productivity varied with the length of the workday suggested that firms were operating closer to the extensive margin for labor than to the intensive margin.

Mike Haines talked about "Buying the American Dream: Housing Demand in the U.S. in the Late 19th Century." He examined home ownership and housing demand for a sample of 6,800 urban, industrial workers in the U.S. in 1889/90. Housing demand was specified as a two part process; first making the "tenure choice" of whether to own or rent, and then how much to purchase. The sample permitted estimates of a tenure choice and renter demand equation, but not of owner demand. The results indicate lower home ownership rates around 1890 than later, and significant effects on ownership of income, age of household head, religion, industry, occupation, ethnicity, and family size and composition. Overall, it appeared that modern housing demand theory performed well with historical data.

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evidence was consistent with demand effects being dominant. Mokyr argued that the analogy used by Richardson with models of fisheries was probably inappropriate since human populations would rapidly develop resistance technologies whereas fish couldn't. He pointed out that Richardson would have to defend his thesis against Miller's demonstration that birth and death rates could have been such as to sustain the slave trade without depopulation. Furthermore, per capita income need not have fallen with depopulation, firstly because there would have been more natural resources per capita, and secondly because of the existence of slave-owning Africans.

Richardson thought that the birth rates postulated by Miller were too high to be convincing. The chief target of traders were people of prime age who had the highest marginal products and also the highest fertility. The discussion closed as Tony Wrigley observed that the likely demographic effects of the slave trade were extremely complex. Polygamy would mitigate the effects of higher male than female slave capture rates, more migration would have enhanced the spread of disease, and any depopulation might have had causes other than slaving.

Cormac O'Grada's (University College, Dublin) paper was inspired, he claimed, by 'the most remaindered book in Britain': Frank Fetter's *The Irish Pound* which discusses, among other things, the 1804 House of Commons Report on the Irish Paper Pound, an investigation of the depreciation of the Irish relative to the British pound between 1797 and 1801. It argued that demand for money was stable in both countries and that purchasing power parity held; thus the Bank of Ireland was held responsible for an overissue of notes during the period. O'Grada's paper uses cointegration and VAR techniques to investigate these claims, and fails to support the House of Commons view. Although money supply series in both countries are integrated of order one, there is no evidence of cointegration and thus no support for the purchasing power parity assumption. The VAR analysis also rejected this assumption. O'Grada went on to consider the arguments in the 1804 Report relating to the Balance of Trade, using data drawn from the work of Peter Solar and Ralph Davis. These show that the balance was in deficit before the appreciation, casting doubt on the Report's view that the balance of payments deficit was responsible for the appreciation. The Report also laid the blame at the door of private banking

concerns; O'Grada, however, sees the behaviour of these banks as a symptom, rather than a cause. They could not have caused a sustained inflation because their issues were all backed by Bank of Ireland notes.

In the discussion, Alec Ford suggested that a more explicit economic analysis might be helpful and referred to his own work on the Argentine peso. A careful analysis of possible real shocks would probably be fruitful, since he doubted if the asset approach to the balance of payments invoked by O'Grada was applicable to the institutional framework of Ireland 200 years ago. He suggested the consideration and testing of two possible scenarios: one in which the Bank of Ireland initiated the overissue; the other in which it was the consequence of a real shock to the balance of payments being accommodated by the Bank, but noted the lack of adequate data. Nick Crafts, Foreman-Peck, Kent Matthews, and Mokyr then questioned the necessity for the heavyweight statistical techniques employed. It was felt that more attention should have been paid to the reasons for selecting these techniques and to the interpretation of the results. O'Grada's defence was that cointegration was now the standard technique for testing purchasing power parity and such a test was one of the main points of his paper.

The final paper on Friday afternoon was by Meghnad Desai (LSE). Desai was unable to present his own paper so Bob Millward, who had prepared some careful discussant's notes, delivered both an exposition and a critique of Desai's work. The paper argues that the 14th-century English famine was not a simple Malthusian crisis, but was rather mediated by relative price effects in an economy with multiple sectors. Desai's paper is thus an application of Sen's theory of entitlements to medieval England, revolv-

ing around the thesis that the wool sector was monetarised, international and a large part of the English economy, accounting for perhaps as much as half of agricultural income. The famine, Desai argues, can be viewed as a consequence of epidemics of animal diseases, especially sheep murrain, combined with a sequence of poor harvests. The murrain delivered a quantity shock in the wool sector, while the poor harvests in 1315-1317 delivered a relative price shock. The effects of the famine were therefore a consequence of high grain prices and low incomes in the wool sector. Millward accepted that Desai had successfully cast doubt on the Malthusian hypothesis, but found the exposition of Desai's multisectoral model rather short on detail.

Wrigley observed that Desai's figures did not seem to add up convincingly. The acreage required to support the amount of wool, grain, oxen, horses and other crops was, under current best estimates of yields, in excess of the total land area of England and Wales. Desai's claims concerning the size of the wool sector were probably wrong. He also pointed out the need for more research on the period immediately after the Black Death, and in particular whether marriage patterns altered to generate a low pressure population balance. Mokyr also criticised Desai's work on the grounds that it was attacking a caricature of the Malthusian view. The literature included Malthusian models in which animal and cereal sectors were symbiotic. Treating them as two independent sectors was probably not adequate.

Dinner on Friday evening was held at Burton Constable Hall, a Tudor pile near Hull (cf. H. Melville: *Moby Dick* Ch. CII). Saturday morning's sessions began with two papers speculating on the usefulness of novel data sets to study regional variations in

economic activity. The first of these, by Paul Johnson (LSE), referred to 19th century Britain. The data are drawn from Parliamentary Papers and refer to a system of small debt recovery through the County Courts, for the period 1847-1914. A quarter of the cases were for debts of less than 10/- and three quarters for debts of more than 40/-; most debtors were adult male workers, most creditors small shopkeepers. The paper displayed the relationship between the time series of numbers of cases and the unemployment rate. The cyclical pattern in the two series was similar except during the 1880's where the unemployment series is probably defective. While it seemed promising to pursue regional disaggregation, comparison across regions ran into the problem of disaggregate data for population. Johnson had used extrapolations from 1901 census data, but in later work was intending to incorporate better data on County Court areas available for 1866 on.

David Greasley welcomed the new data and pointed out the serious and well-known weaknesses in the unemployment series; although the cyclical variation in the two series was similar, the trends looked rather different, with unemployment being roughly stationary and the County Courts complaints data appearing to have a deterministic trend. The use of a linear trend gave rather suspicious results, with the period to 1880 appearing to be one with complaints generally below trend, and the period after 1880 having complaints generally above trend. This suggested that the trend may be nonlinear, reflecting a learning process as creditors learn about the availability and effectiveness of the County Court system after 1847. The regional disaggregations showed similar detrending problems. Johnson replied that the linear trend reflected the assumption that regional population growth was the same on average as the growth rate of

complaints. The problem would probably be ameliorated when the improved population data were introduced into the study.

Corley wondered if lags in court procedures would cause problems in relating the complaints to their underlying economic causes; also, there may be a long lag between debts being incurred and legal action by creditors. Foreman-Peck wondered if the Bankruptcy Act of 1883 caused a break in the complaints series. Johnson doubted this, arguing that bankruptcy dealt with larger sums of money and was itself an expensive procedure unlikely to be marshalled for recovery of small debts. Mokyr thought that these data might provide a good proxy for the cycle, but the implementation of the paper's research programme was likely to be difficult. He pointed out that data of this sort were potentially better indicators of economic distress, richer at the individual level than the binary unemployment variable. To pursue this line of research one needed at least a model of the dynamics of liquidity constraints and a consideration of alternative forms of credit, such as pawnbrokers. Were these debtors 'desperadoes who had pawned everything'? Johnson said that few creditors took up the right to seize debtors' property, preferring imprisonment without recovery of the debt.

Wrigley said that he found the per caput differences in number of complaints across areas unconvincingly large; regional differences in the occupational mix might account for this. Steve Broadberry asked if these individuals were mostly without assets and income. Johnson said that the number of people like this was small. Often the consequence of threatened court action was the accelerated mobilization of the debtor's resources. Finally, Alec Ford suggested that the detrending problem may arise from the occur-

rence of a long swing, and Solomos Solomou wondered if there may not be some cyclicalities in the behaviour of the courts themselves.

Jean-Claude Chevailler's (Universite de Franche-Comte, Besançon) paper concerned time series of company creations and failures in the regions of 19th century France. He related these series to indices of investment and prices, finding a positive relationship between the rate of investment and both series. He also had problems with fitting trends and used high order polynomials in order to detrend his series. Price is positively correlated with creations and negatively with failures. His paper used an index of company demography based on the ratio between the number of creations and the number of failures. This ratio matches well the movement of Crouzet's index of industrial production for France, and can be computed for 21 regions, which cluster into four groups, displaying different behaviour over the period 1840-1910. The main claim was that the creation/failure ratio could be used as an indicator of regional economic development.

Foreman-Peck led the discussion by pointing out that the behaviour of the series presented would undoubtedly depend on the changing legal environment over the period, but found the potential for comparison between British and French economic development interesting. There were generally fewer British creations, perhaps because of the wider variety of corporate forms available in France. He pointed out that one consequence of this was the readier availability of information in the French economy. He then turned to the question of why the failures series might be positively related to investment, suggesting that an increase in creations would increase the proportion of firms destined to be short-lived, leading to

higher failure rates. It would thus be necessary to have a theory of firm failure and creation. Foreman-Peck also mentioned a moral hazard argument that firms already on the brink of failure were perhaps simply being registered in order to take advantage of the bankruptcy law. Paul Johnson questioned the economic significance of some of the groupings generated in the cluster analysis. For instance, Ile de France and Brittany were clearly very different local economies. Chevailler pointed out that this is probably a statistical quirk generated by the small number of data points in Brittany. Mokyr suggested that improvements in the fitting of the trends could be achieved by the use of dummies for known disruptive events like the war of 1870-71, perhaps obviating the cumbersome polynomial forms used.

Douglas Irwin from the Federal Reserve Board in Washington gave a paper on Britain's terms of trade during the 19th century. He discussed three topics: 1) The possibility of immiserizing growth at the start of the century, which his evidence rejects. Here he provides new estimates of the price elasticities of British imports and exports and of the marginal propensity to import, thus filling a gap in the previous literature; 2) The use of indicators of economic growth as measures of economic welfare. Here Irwin argues that this is incorrect unless account is taken of changes in the terms of trade, and he presents appropriately corrected series; 3) The terms of trade between 1880 and 1914, during which period there was a large increase in British investments abroad. Here he finds little evidence to support the view that this weakened the net barter terms of trade.

Commenting on Irwin's paper, Broadberry stressed the importance of distinguishing clearly between short-run and long-run effects. The balance of trade

identity does not hold in the short run, so that the econometric techniques employed need to be appropriate. For instance, cointegration techniques have been developed precisely to handle problems of this sort. Broadberry also questioned the periodization from peak to trough of cycles on similar grounds, that this suggested a short-term analysis, where a long-run periodisation taking in whole cycles may have been more appropriate. Alec Ford then drew attention to his own work on the transfer problem in the 1958 *Economic History Review* and Mokyr asked how the welfare corrections in the second part of the paper would be affected if further disaggregation to separate out a non-tradeable sector was used. Irwin replied that this would make no difference since the corrections applied only to the export and import terms of the account and not domestic consumption, investment or government spending. Larry Neal wondered if the use of import freight rates for steam coal might be more appropriate than for exports, referring to the work of Knick Harley. Nick Crafts congratulated Irwin on illuminating several issues in the literature. Irwin was clearly right about the immiseration issue. It was also clear that Crafts' 1976 paper was wrong, and that Williamson's supposition that Britain could be treated as a small country is no longer tenable in the light of Irwin's estimates of the trade elasticities. Finally, Bill Kennedy asked Irwin to consider the counterfactual case of lower foreign lending by Britain in the last part of his period. Irwin prudently countered that such calculations were difficult to perform, partly because of the reduction in the volatility of terms of trade during the century as Britain's export portfolio became increasingly diversified.

The remaining two papers given at the conference also treated aspects of Britain's foreign trade. Mi-

chael Kitson and Solomos Solomou (Cambridge) dealing with the interwar period and Larry Neal with the Napoleonic War period. Kitson and Solomou's paper was an attempt to reassess the impact of the tariff on manufactures imposed during 1931-32 on the rate of growth during the 1930's. The established view of the matter was that the tariff had a negative or negligible effect; their own view was that this conclusion had been based on an incomplete treatment of the evidence. In their paper they studied three aspects of the issue: changing competitiveness, trade flows and the geographical distribution of trade. First, they computed measures of import and export competitiveness consistent with the view that the tariff had a substantial effect on both. Second, their trade flow equations show that imports were depressed by the tariff, with an elasticity of the order of -4. Thirdly, they argue that the tariff would have affected different trading groups differently, and they divide Britain's trading partners into five groups: British countries, the Gold bloc, Core competitors, non-British trade agreement countries, and the rest of the world. The impact of the tariff was estimated separately for each group. They concluded that manufactures were a major source of the 1930's recovery, and that the growth in manufactures was positively aided by the tariff. The tariff was not, however, the only cause, and their interpretation of the 30's should not be interpreted as implying support for the efficacy of tariffs in general.

In his comments, Kent Matthews claimed that the main idea of the paper was that the demand curve for imports slopes downwards. This was not a proposition with which he found it difficult to agree, but there was a hidden agenda in their claim that the tariff had contributed positively to the 30's recovery. He found the econometric approach interesting in that it

showed a large effect of the tariff vis-a-vis that of competitiveness. The long run patterns of both these variables was, however, similar (both looked like dummies changing value in 1931-32), and the (short run) competitiveness effect could probably only be separated adequately from the (long run) tariff effect with a larger data set. He was not convinced that the tariff had anything more than a temporary effect, because of the evidence of real wage rigidity in Britain at the time. Both Broadberry and Foreman-Peck suggested disaggregating by industry. Broadberry stressed further that Kitson and Solomou's procedure assumed, implausibly, that pricing behaviour was similar for all industries. Irwin then asked if some of the price movements may not have been due to increasingly oligopolistic pricing rather than to pure inflation. Solomou thought this unlikely and Kitson pointed out that pricing behaviour differed widely across industries. Finally, Alec Ford asked if the disaggregation of the trading partners employed by Kitson and Solomou was entirely appropriate. One may also want to take account of the existence of the Sterling bloc.

The final paper of the conference was the organisers' successful bid to minimise the end-of-conference attrition rate. Larry Neal gave a paper based on two chapters of his forthcoming book in which he examines capital flows during the Napoleonic Wars and their effect on British economic growth. Immediately prior to the war the decline of the franc led to speculation on the recovery of the franc and a capital outflow from Britain. When war was declared, Britain financed its mercenary army using Bills of Exchange. When the mercenaries failed to halt the advancing French, these bills had to be honoured by an outflow of specie. The invading French carried with them *assignats*, and hence German traders

would have attempted to protect their assets by removing them elsewhere. The natural home for this flight of capital would be London. Neal argues that the 1797 suspension of the pound's convertibility was in anticipation of the cancellation of the *assignats* in France. The floating exchange rate then served to lock capital into London. After the war the flow of capital was reversed. For the real sector of the economy, Neal considered the effectiveness of the continental blockade, which dried up the demand for bills of exchange on the continent. In addition, the crisis in the cotton industry in 1810 and the necessity of equipping the fleet and the Peninsular army led to a switch from cotton to the production of defence goods. Neal therefore argues that the structural transformation of the British economy during these years was due to a shift in demand and necessarily resulted in slow growth of the derived parts of the economy. Furthermore he refuted Williamson's crowding-out hypothesis, arguing that the British capital market was never closed; in fact, crowding-in was going on.

Bill Kennedy saw the paper as part of a new fashion in studies of the Industrial Revolution, where the question is why did the Industrial Revolution happen so slowly? Kennedy thought that this rather detracted from the important question of why it happened at all; nonetheless, in his opinion the work of Mokyr, Williamson, and Neal had correctly identified the Napoleonic Wars as a crucial influence on the course of the Industrial Revolution. Neal's paper was different from the work of Mokyr and Williamson in that it stressed the opportunities that the war gave to increase the pace of the revolution rather than treating it as a retarding influence. Neal identified two important factors: the benefit of the flight of capital to London during the early stages of the war

and the enhanced ability of Britain to borrow from the continent, but Neal had failed to quantify the extent of British borrowings, and Kennedy went on to suggest that a study of exchange rate movements in 1811-15 would be crucial in determining these magnitudes. He also wondered how Rhineland wealth holders were able to transfer real assets. Neal gave the apparently obvious answer that they shipped them, and claimed that the record of shipping movements supported this. He also pointed out that the study of exchange rates suggested by Kennedy would be complicated by the existence of large bullion flows as well as the use of bills of exchange. Mokyr pointed out that in a 1976 paper, he and Gene Savin had attempted to estimate the real cost of the war, not only in terms of output changes, but also in terms of the diversion of trade from Britain. The war had indeed slowed down the pace of development in Britain, but had slowed down the rest of Europe even more. Foreman-Peck asked what the net foreign asset position was at the end of the Wars. Neal replied that in 1813 it was obviously negative, but what happened during the 100 days and afterwards was difficult to say. Neal closed the session and the conference by apologising for the absence of cointegration tests in his paper.

The attrition by the end of Neal's session was one out of 30. The organisers take this to be one hallmark of an enjoyable event. The 1990 conference will be held at Warwick, assuming that the ESRC is willing to finance it.

Transitions

A regular column chronicling the comings and goings of the band of cliometricians has been suggested. We offer this column as an interim stop-gap before publication of the revised and up-dated Membership List coming out in February. Our thanks to those who informed us about their moves.

Graeme Snooks has left Flinders University to become Timothy Goghlan Professor of Economic History at Australian National University

Michael Bordo - from University of South Carolina to Rutgers University

Gregory Clark - from Stanford University to University of Michigan

Elizabeth Field-Hendrey - from Hamilton College to Queen's College, CUNY

Mary MacKinnon - from Queen's University to McGill University

Robert Margo - from Colgate University to Vanderbilt University

Kevin O'Rourke - from Harvard University to Columbia University

Leandro Prados - from European University Institute to Universidad de Cantabria, Santander, Spain

Ane Quade - from Ripon College to California State at Sacramento

Michael Hayes - visiting at Miami University

Richard Kohl - visiting at Colgate University

Ian McLean - visiting at Harvard University

Douglas Puffert - visiting at Swarthmore College

Price Fishback - returns to University of Georgia from University of Texas, Austin

Membership Memo

In early December we will be sending you the annual membership letter, your opportunity to renew your subscription to *EEH*, vote for trustees, and up-date your membership file. We will again include a print-out of your data as it now stands so you can see exactly how it will appear in the Membership List that will come out in February. Please be prompt in responding to the letter and editing the print-out; we would hate to leave someone out or print obsolete information.

Nelson Departs Clio Office

Lois Nelson, who has been the mainstay of the Society's office and a major contributor to organization of the Cliometrics Conferences and the recent World Congress for the past four years, has departed Miami and Clio for a full-time position. We extend our best wishes to Lois in her new employment, wondering all the while how we will replace her with someone of equal talent and dedication. SHW/JSL

Classifieds

The deadline for submitting items for the February Newsletter is January 15.

The **International Association for the Study of Common Property** is devoted to understanding and improving the management of environmental resources that are held or used collectively by communities, whether in developing or developed countries. The Association represents interdisciplinary approaches (e.g., anthropology, sociology, history, political science, public policy, geography, agricul-

tural and resource economics, forestry and fisheries management, environmental studies and human ecology), area specializations all over the world, and all resource sectors. Members are scholars, government officials, development consultants, and resource managers with a shared interest in understanding common property resources in order to avert tragedies of the commons.

Dues are US\$20 for members whose annual incomes exceed US\$15,000 per year and US\$5 for those with annual incomes under US\$15,000. Members receive the *Common Property Resource Digest* without charge and news of Association activities and meetings. Members of the Association are also eligible to apply for travel funds to subsidize the cost of attending the annual meeting; these funds are intended to encourage international participation and will be awarded on the basis of need. Prospective members should write to: Edward Lotterman, Secretary/Treasurer, *Common Property Resource Digest*, Dept. of Agricultural and Applied Economics, Univ. of Minnesota, 1994 Buford Ave., St. Paul, MN 55108 USA.

The International Association for the Study of Common Property will hold its first annual meeting on September 27-30, 1990, at Duke University in Durham, North Carolina, USA. The theme of the conference will be "Designing Sustainability on the Commons," and we welcome proposals for individual papers and entire panels. At this first meeting we would particularly like to encourage panels that combine disciplines, resource types, and/or geographic areas, and that will allow for considerable discussion between panelists and audience. Proposals for papers and panels are due by March 1, 1990, and official participants in the program will have to

become members of the International Association for the Study of Common Property by the time of the meeting. To inquire about submitting a proposal for a paper or a panel, please write for forms to Margaret McKean, Program Chair, Dept. of Political Science, Duke University, Durham, NC 27706 USA.

A Conference on the Historical Demography of Aging will be held May 29 - June 1, 1990 at the Breckenridge Public Affairs Center of Bowdoin College in York, Maine. Program and participants have already been chosen, with the exception of four places for post-doctoral scholars of recent vintage

(i.e., having received the Ph.D. within the past three years), whose travel and local expenses will be paid by the National Institutes of Health. The four scholars will be chosen by the conference organizer, based on an application composed of a *curriculum vitae*, a letter expressing the nature of their interest in the conference, and a list of three referees, with addresses and phone numbers. Further information from, and applications to: David Kertzer, Dept. of Sociology & Anthropology, Bowdoin College, Brunswick, ME 04011. Applications are due by February 1, 1990. BITNET address for inquiries: Kertzer@Bowdoin.

Call for Papers

1990 Cliometrics Conference

The Twenty-Ninth Annual Cliometrics Conference will be held at Allerton House Conference Center, the University of Illinois, from **May 18 - 20, 1990**. Hosted by Larry Neal, Jeremy Atack, Lee Alston, and other cliometricians resident at Illinois, this will be Clio's second visit to these fine conference facilities located a short distance from Champaign-Urbana.

We have applied for National Science Foundation funding and if successful we plan to take care of most of the expenses for most of the 50 participants, as we have in recent years. Preparation of the Conference book of papers and travel arrangements will be handled by the Society office in Oxford, Ohio while all matters pertaining to hospitality will be handled at Illinois.

Here are dates to keep in mind:

Paper proposals due	February 1, 1990
Papers accepted by	March 1
Completed papers due	April 1
Conference Books mailed	April 28

Paper proposals should be:

three - five pages in length and "work-in-progress." Please send **three** copies to:

Cliometrics Conference Secretary
328 David Kinley Hall
University of Illinois
1407 W. Gregory Dr.
Urbana, IL 61801

Cliometrics Sessions at the ASSA Meetings in Atlanta

The Cliometric Society will sponsor three sessions and a cocktail party at the 1989 annual meetings of the Allied Social Science Association. The Saturday session is a joint offering with the American Economic Association.

Susan Carter and Dan Raff were program chairs and have worked diligently to select and group together papers that are sure to hold your interest. We will adhere to our usual Clio style: authors and discussants have 15 minutes to say their piece and then open discussion begins on each paper.

Summaries of all the papers are attached, so you can prepare to join in the discussion.

Price Fishback is arranging the Clio Cocktail Party for Friday night, December 29, to begin about 8 o'clock. It will be sponsored by the University of Georgia; Society members should ask at the hotel desk for Price Fishback's suite. We appreciate their hospitality.

CORPORATE FINANCIAL RESTRUCTURING IN HISTORICAL PERSPECTIVE

Thursday, December 28 at 10:15 a.m.

Marriott Hotel - Cabinet Room

Presiding: Daniel R. Siegel, Northwestern University and University of Washington

J. Bradford DeLong, Harvard University - *Did J.P. Morgan's Men Add Value? An Historical Perspective on Financial Market Innovation*

William Lazonick, Barnard College and Institute for Advanced Studies - *Ownership and Control in the American Industrial Corporation*

Michael Jensen, Harvard Business School - *The Privatization of Bankruptcy*

Discussants:

Robert A. Taggart, Jr., Boston College School of Management

Robert B. Zevin, U.S. Trust Company

COCKTAIL PARTY for Clio members and friends

Friday evening, December 29, 8 p.m.

University of Georgia suite, Hilton Hotel

BANK FAILURES, DEPOSIT INSURANCE, AND LENDERS OF LAST RESORT: HISTORICAL INSIGHTS AND THEORETICAL PERSPECTIVES

Saturday, December 30, 8 a.m.

Marriot Hotel - Consulate Room

Presiding: Elmos Wicker, Indiana University

Paul B. Trescott, Southern Illinois University-Carbondale - *The Failure of the Bank of the United States, 1930*

Edward Kane, Ohio State University - *How Incentive-Incompatible Deposit Insurance Funds Failed*

Charles Calomiris, Northwestern University - *The Purpose and Optimal Structure of Deposit Insurance: Lessons from the Historical Record*

Michael Bordo, Rutgers University - *Lenders of Last Resort: Some Historical Insights*

Discussants:

Lawrence White, Federal Home Loan Bank Board and New York University

Lawrence H. Summers, Harvard University and National Board of Economic Research

MACROECONOMICS IN HISTORY

Thursday, December 28 at 2:30 p.m.

Marriot Hotel - Cabinet Room

Presiding: Robert Barsky, University of Michigan

Claudia Goldin, University of Pennsylvania & Robert Margo, Vanderbilt University - *Wages, Prices, and Labor Markets Before the Civil War*

Simon Johnson, Harvard University - *Real Credit and High Inflation: Germany 1922-1923*

Elise Brezis, Brandeis University & Jean-Louis Arcand, Massachusetts Institute of Technology - *Disequilibrium Dynamics and the Downward Spiral: The Great Depression Revisited*

Discussants:

Ian McLean, University of Adelaide and Harvard University

Christopher Hanes, Harvard University

CORPORATE FINANCIAL RESTRUCTURING IN HISTORICAL PERSPECTIVE

Thursday, December 28 at 10:15 a.m.
Marriott Hotel - Cabinet Room

HOW DID J.P. MORGAN ADD VALUE? A HISTORICAL PERSPECTIVE ON FINANCIAL CAPITALISM

J. Bradford De Long
Harvard University and NBER

In the years before World War I a corporate security flotation worth more than \$10 million or invariably passed through the hands of one of a very small number of investment banking houses—J.P. Morgan and Co.; Kuhn, Loeb, and Co.; the First National Bank; the National City Bank; Kidder, Peabody, and Co.; and Lee, Higginson, and Co. The partners and directors of these institutions were directors, voting trustees, or principal stockholders of financial and non-financial corporations with a total market capitalization—debt plus equity—including subsidiaries of perhaps \$30 billion. To place this quantity in perspective, note that this sum bore the same relation to the size of the U.S. economy that \$7.5 trillion would bear today: it amounted to about one and a half times a year's national product and to perhaps forty percent of the country's produced capital stock. Investment bankers profited from their role as middlemen on Wall Street: the commissions on the flotation of United States Steel were as large a share of the economy then as \$15 billion would be today.

American finance just before World War I was thus several orders of magnitude more concentrated than it has been at any time since World War II. And financiers possessed strong voices—at least potential voices—in corporate management. The implications of this concentration of finance—this “money trust”—and its influence was a major political flashpoint of the first half of this century. Progressives and their allies feared this money trust in finance as an evil much worse and more dangerous than any monopoly in an individual industry. For finance to be concentrated, and for industry to be beholden to finance, was in their eyes a deeply disturbing departure from their populist ideal of small firms and competitive markets.

In retrospect, it is surprising that “financial capitalism” in America lasted so long, given the heat of the potential political hostility to it. The money trust was subject to two major congressional investigations. Progressives like Louis Brandeis were sure that the Morgan and Co.-headed money trust exercised enormous control over industry, and that such control was a bad thing. Brandeis, ever sensitive to conflicts of interest, saw the money trust as a “concentration of distinct

functions, beneficent when separately administered [but]... dangerous... when combined.” The money trust's possession of monopoly power in the business of issuing securities imposed an unreasonable tax on all companies raising money in the capital market. And the links between corporate boards, investment bankers, and portfolio managers—First National Bank head George F. Baker was on the board of A.T. & T. and the prime mover behind A.T. & T.'s appointment of Theodore Vail as its president; Morgan partner George W. Perkins was also a director of New York Life, which invested heavily in securities underwritten by the Morgan partnership—created a serious conflict of interest. Corporations sought to get as much for their securities as possible, and saving institutions sought to obtain high returns. Investment bankers were in a position to sacrifice the interests of one set of principals to the other—or to increase the spread they received as middlemen.

Many contemporary historians of the U.S. financial industry appear to believe that there never was a “money trust” in Brandeis' pejorative sense. But Morgan's supporters and ideologues at the time—for example, the writer and journalist John Moody, founder of Moody's Investment Service, who preceded his examination of the great merger movement by approvingly quoting a “Standard Oil view of the trusts”—argued that there was a functioning money trust, and that its existence was a good thing. Moody thought that the debate was marked by “...a lack of sincerity on all sides.... The average critic of the modern industrial system sweepingly calls everything... wealth producing... a monopoly, whereas the employees of monopoly power often deny the existence of such an element,” even though in Moody's view it was obvious that monopoly power existed and was “an entirely logical and necessary part of modern... methods.”

According to Moody, control of firm managers by financiers was necessary given the need of enterprises for capital and the need of investors for trustworthy intermediaries to handle the selection of firms to invest in. Only investment bankers could effectively monitor firm managers, and the presence of investment bankers on boards signalled to ultimate investors that the firm management was competent and industrious. Defenders of Wall Street before the Depression thus argued not that economic power was decentralized and in the hands of industrialists, but rather that it was a good thing that power was centralized and in the hands of financiers. It is thus difficult to agree that there was no “money trust”—that a few investment bankers did not exercise substantial control over industry—in the years before World War I. The existence of a “money trust,” however, does not mean that Untermeyer and Pecora were right to advocate its dismantling. Presumably the money trust arose for a reason: and perhaps it had positive effects that outweighed the negative ones.

John Moody's positive view of the money trust was not his own invention. His view was a commonplace in the early literature on investment banking, for example in Willis and Bogen's early investment banking textbook. The same

assessment was made more pithily by New York, New Haven, and Hartford president Charles Mellen in a conversation with journalist C.W. Barron: "I wear the Morgan collar, but I am proud of it."

Economic theory does not speak with one voice about "financial capitalism." On the one hand it has been used to provide strong reasons to conclude that the absence of "financial capitalism"—the absence of investment bankers from boards of directors and of financiers' control over managers—would not lead to large efficiency losses. If a firm's stock price serves as a signal of its performance, managers can be provided with incentives to act in the interest of shareholders by tying their compensation to the stock market's valuation of the firm. On the other hand it has been used to argue that if informed investors are scarce—if it is difficult to assess the prospects of individual industrial firms—those skilled at making such assessments could add value better by forming conglomerates that serve as "miniature capital markets" than by acting like J.P. Morgan and Co.

In addition, some observers have argued that the absence today of links between finance and industry characteristic of the "money trust" is a serious weakness in the U.S. capital market—but today Lester Thurow calls his preferred system "merchant banking" rather than "financial capitalism" or "money trust." And a fourth group has argued that the divergence of managers' and shareholders' objectives is so great that good market performance requires a very active market for corporate control, but that such a market works best when changes in management are set in motion by free-lance raiders who have developed expertise in assessing firms' performance in general, rather than by financial oligarchs like J.P. Morgan.

This paper tries to untangle the question of what the money trust actually was—what J.P. Morgan and Co. did to add value, where their initial comparative advantage came from, why the investment banking industry became so concentrated at the turn of the century, and so forth. It also tries to put empirical meat on the theoretical bones of the relationship between finance and industry.

The conclusions reached are most hospitable to Lester Thurow's position. J.P. Morgan and his partners saw themselves, and the other participants in the pre-World War I securities industry saw them, as filling a "monitoring" and "signalling" intermediary role between firms and investors in a world where information about firms' values and the quality of their management was scarce. In such a world, it was valuable for a firm to have the stamp of approval from J.P. Morgan and Company—or from another investment banking oligarch. First, the presence of one of Morgan's men meant that when a firm got into trouble—either because of "excessive competition" or because of management mistakes—action would quickly be taken to restore profitability. Second, the presence of one of Morgan's men reassured investors that

a firm which appeared to an outsider to be well-managed and have bright prospects actually was well-managed and did have bright prospects.

This is at least how the investment bankers saw themselves. As J.P. Morgan and Co. responded to the Pujo Committee, they thought the reason they had such control over the direction of investors' funds was that: "thousands of investors...seeking sound securities... have neither the knowledge nor the opportunity for investigating a great...enterprise...[and] look to a banking house to perform those functions and to give its stamp of approval." Their approval of an issue had become "...a large factor which inspires confidence in the investor and leads him to purchase...." And the practice of banker representation on boards of directors:

has arisen not from a desire on the part of the banker to manage the daily affairs of the corporation or to purchase its securities more cheaply than he otherwise would; but rather because of his moral responsibility as sponsor for the corporation's securities, to keep an eye upon its policies and to protect the interests of investors in the securities of that corporation....Inquiry will readily develop the fact that the members of the leading banking houses...are besought continually to act as directors...and that in general they enter only those boards which the opinion of the investing public requires them to enter, as evidence of good faith that they are willing to have their names publicly associated with the management" (Davison, 1913).

Morgan and Co., moreover, argued that their influence over investors' choice of securities was not dangerous because it was disciplined by the market. If ever the firm of J.P. Morgan and Co. lost its reputation for "character"—began to place investors in securities that were profitable to Morgan and Co. but that were seen as offering a low return—or another firm acquired a reputation as a superior judge of enterprise and risk, Morgan's apparent control over the allocation of capital in the U.S. would disappear:

The public, that is the depositors, are the ones who entrust bankers with such influence and power as they today have in every civilized land, and the public is unlikely to entrust that power to weak or evil hands. Your counsel asked more than one witness whether the present power held by bankers... would not be a menace if it lay in evil hands.... The

only genuine power which an individual... can gain is that arising from the confidence reposed in him... by the community.... [M]en are entrusted with such heavy responsibilities because of the confidence which their records have established, and only so long as their records are unblemished to they retain such trusts. These... axioms... apply... more emphatically... to banking than to any other form of commerce. To banking the confidence of the community is the breath from which it draws its life. The past is full of examples where the slightest suspicion as to the conservatism, or the method's of a bank's management, has destroyed confidence and drawn away its deposits overnight.

The investment banking community thus saw its oligarchical structure and frequent presence on corporate boards as having three benefits: First, investment banker representation on boards implicitly warranted that such firms were managed by capable and energetic executives. Promising and well-managed businesses would thus be able to issue securities on more favorable terms with investment banker representation. Second, investment banker representation provided an easy way to learn about the performance of managers and to dismiss them if they failed to measure up: the investment banking oligarchs provided the only effective mechanism for monitoring industrial executives and replacing those who performed badly, and such monitoring and supervision was more easily performed on the board than off it. Third, the very concentration of the investment banking business improved the functioning of the market. The wealth and dominant position of J.P. Morgan and Company depended on its reputation for character. A firm with a large market share could never be tempted to sacrifice its reputation for the sake of the profits of any one deal; a firm with a small market share might.

A preliminary examination of stock market values lends support to the claim that Morgan control added considerable value to a firm. According to lists compiled by the Pujo investigation, in 1912 Morgan or his partners sat on the boards of twenty manufacturing, mining, distribution, transport, or utility companies which had actively quoted common stocks—three utilities, nine railroads, and eight other companies. Data on these twenty companies, and on forty two other randomly selected control companies of similar size, were collected for 1911 and 1912.

Table 1 reports regressions of the average relative price of the firms' common stock on various measures of fundamental values, industry dummies, and whether or not the firm's board of directors included a Morgan partner. The coefficient on the

Morgan partner dummy variable is large—indicating that the addition of a Morgan partner raises common stock values by some forty-five percent—albeit imprecisely estimated. The spread of results obtained from Morgan organizations was large—ranging from the International Mercantile Marine Co. to the Lehigh Valley Railroad—and coefficient estimates are sensitive to outliers. If the International Mercantile Marine Co. had been a success, then the Morgan touch would have raised common stock prices on average by 61% rather than 45%. Conversely, if the New York, New Haven, and Hartford's stock price had collapsed in 1911 rather than two years later, the estimated effect of the Morgan touch would have been to raise common stock prices on average by 35% instead of 45%.

The coefficient of .375 on the Morgan partner dummy variable is, moreover, about the right size if Morgan's financial empire was underpinned by his and his partners' ability to monitor corporation management and to signal that corporate managers were industrious and competent. In a Morgan organization of a company the investment bankers' share was usually between five and ten percent of the capital value floated. If bonds sell at or close to par, then a forty-five percent premium on the half of the average flotation that was common stock implies that Morgan, his partners, and his associates charged between a quarter and a half of the value of their services on the stock market.

It is interesting to note that the Morgan partner dummy coefficient declines sharply—although it is still imprecisely estimated—as additional variables representing a firm's earning power are added to the regression. The ratio of book to par value is included in the regression to proxy for the long-run average past profitability of a company. Additional variables—whether a firm is paying dividends currently or what a firm's current return on equity capital is—appear to capture much of what shows up in the initial Morgan partner coefficient. This suggests that Morgan partners appear to add value because they are on the boards of companies that are relatively well-run in the present.

These regression results suggest that perhaps J.P. Morgan and Co. knew what they were talking about when they said that their active involvement in the management of the corporations they financed has positive effects. Firms with Morgan partners on their boards are less likely to be selling at deep discounts from their book values, either because Morgan partners only joined the boards of firms they thought were well managed or because Morgan partners took steps to ensure that the firms they were involved in were or rapidly became well managed. From shareholders' viewpoint, therefore, it seems that the conflicts of interest engendered by having J.P. Morgan and Co. present on both sides of the negotiations between firm and investment bank may well have been outweighed by the advantages of having J.P. Morgan and Co. watching over firm managers.

The disadvantages of financial concentration stressed by the progressives remain. Conflicts of interest were frequent, and were potentially severe. Moreover, often "Morganization" meant the creation of value for shareholders by the extraction of monopoly rents from consumers: if Westinghouse and G.E. share controlling directors, their competition is unlikely to be too intense. And First National Bank Chairman George F. Baker sat on the boards of six railroads that together carried 80 percent and owned 90 percent of Pennsylvania anthracite. But these negatives appear to have been at least partly balanced by positives that also appear to have been large. And the breaking of financial control over firm managers raised a new worry: why think that it is better to have managers responsible to no one than to financiers?

The suggestion that "financial capitalism" was good for the economy as well as for shareholders receives some support from large-scale, Gerschenkronian comparative examinations of economic growth. Other countries—like Germany and Japan—also saw the growth of their industrial securities markets take on a "finance capitalist" pattern. The story of the rise and character of the German Great Banks and of the part played by them in Germany's turn of the century industrialization is familiar. They were at once promoting syndicates, originating syndicates, acceptance houses, and sources of short- and long-term commercial credit.

These banks appear to have seen themselves as performing much the same functions as Morgan. In the words of Feis (1964), "the holders of shares in a German Great Bank were participants in an investment trust (among many other things)...The risks arising from immobilization of resources [through their commitment to the development of industry] the banks met...through their large capital...their retention of control [over industry, and]...subsidiary companies especially founded for this purpose." In the words of Riesser (1911): "Both the continuity of their existence and regard for their 'issue credit', i.e., the permanent ability of maintaining among the German public a market for new securities issued under their auspices, insured a permanent interest on the part of these banks in the [health of the] newly created [corporations] as well as in the securities which they were instrumental in placing on the market."

From his German standpoint Riesser criticized the British banking system because the "complete divorce between stock exchange and deposits...causes another great evil, namely, that the banks have never shown any interest in the newly founded companies or in the securities issued by these companies, while it is a distinct advantage of the German system, that the German banks, even if only in the interests of their own issue credit, have been keeping a continuous watch over the development of the companies, which they founded." This line of criticism has been taken up and amplified by many within Britain who see the financial centers in the City of London as having failed industry precisely by failing to carry out the type of financial supervision conducted by Morgan or

the German Great Banks. These observations suggest—though it would be beyond foolhardy to draw conclusions from them alone—that on balance the effects of financial capitalism may have been positive. The gains from the improved channelling of capital to industry may have outweighed the losses resulting from greater exercise of monopoly power in finance and industry.

TABLE 1
HOW MUCH VALUE IS ADDED BY PUTTING A MORGAN PARTNER ON THE BOARD?
 (Dependent variable is log of average 1911-12 stock price relative to book value; 62 observations)

R ²	SEE	INDEPENDENT VARIABLES			
		Morgan Partner?*	Ln(Book/Par)	Utility Co.?	Other Variables
.14	.78	.375** (.214)	1.680 (.529)	.441 (.263)	
.11	.79	.348 (.216)	1.510 (.527)		
.01	.83	.270 (.227)		.281 (.278)	Railroad Co.?
.12	.78 .368	1.684 (.217)	.468 (.533)	0.062 (.282)	(.223) Morgan or Baker Partner?***
.12	.79	1.583	.446 (.531)	0.252**** (.268)	(.202) Baker Partner Only?
.12	.79 .377	1.679 (.226)	.442 (.535)	0.007 (.267)	(.286) Paying Dividends?
.61	.52 .050	0.296 (.149)	.139 (.392)	1.302 (.181)	(.155) Earnings/Book Value
.33	.69 .157	1.070 (.196)	.401 (.490)	5.773 (.233)	(1.385)

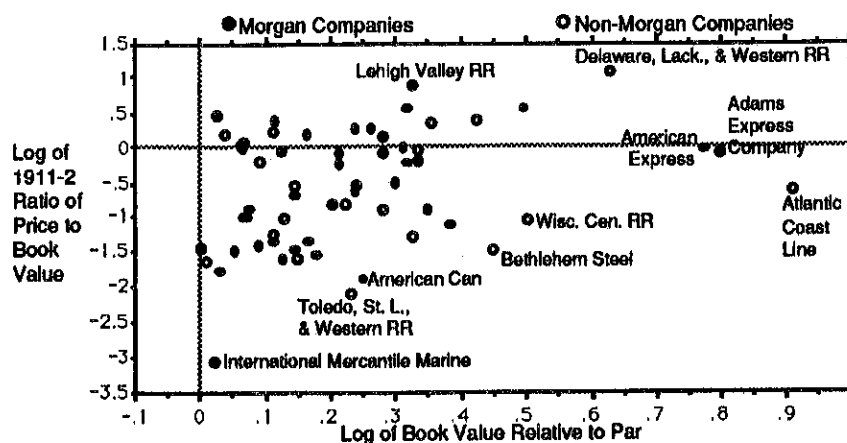
*Corporate board contains a partner of J.P. Morgan and Co.

**P(1.752; one tailed) = 0.040

***Corporate board contains a partner of J.P. Morgan and Co., or a director of the First National Bank of New York, headed by George F. Baker.

****P(1.248; one tailed) = 0.106

FIGURE 2
MORGAN AND NON-MORGAN COMPANIES:
PRICES AND BOOK VALUES



CONTROLLING THE MARKET FOR CORPORATE CONTROL: THE HISTORICAL SIGNIFICANCE OF MANAGERIAL CAPITALISM

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Corporate Control in Historical Perspective

What form of corporate governance can best enable U.S. industrial enterprises to contribute to national economic prosperity? This paper draws upon the history of successful capitalist development in the United States and abroad over the past century to critique those who would rely upon "the market for corporate control" — the exercise of control over the disposition of corporate assets and revenues by means of ownership acquired through the medium of the stock market — to govern the investment strategies and the organizational structures of major U.S. industrial corporations.

During the first half of this century, the market for corporate control had little influence over the decisions and actions of the top managers of U.S. industrial corporations. Yet it was during this same period that U.S. industry came to dominate the international economy. I argue that during the heyday of U.S. industrial capitalism it was the integration of the interests of top managers with those of subordinate participants in the firm's managerial structures that effectively constrained top management to ensure the technological dynamism and sustained competitive advantage of the enterprise. Far from holding out a solution to U.S. decline, the rise of the market for corporate control over the past three decades has been, and remains, an important contributor to the flagging fortunes of the U.S. economy precisely because it separates the individual interests of top managers from the collective interests of the organizations which they nevertheless continue to control. Indeed, the unfettered exercise of shareholder power through the market for corporate control ultimately destroys the organizational capabilities of the managerial enterprise.

I shall first review the nature and functions of the mode of corporate governance — one based upon control by managers — that characterized U.S. industry in its rise to world leadership. Then I shall outline why managerial control was critical to the development of the organizational capabilities that generated competitive advantage in the era of U.S. industrial dominance. I shall then show how over the past three decades the market for corporate control has contributed to U.S. industrial decline by undermining the integrated organizational structures essential for meeting the competitive challenges by formidable business organizations abroad.

Throughout most of the nineteenth century, when business firms remained vertically specialized and dominant firms had not as yet emerged, owners of industrial enterprises exercised

control. These owners were not subject to a market for corporate control; shares in these firms were not publicly traded. Indeed as late as the early 1890s a market for industrial securities barely existed in the United States.

In an era of intense competition fueled by rapid technological change, the most successful firms were those that ploughed back retained earnings into the development of the unique value-creating capabilities of their particular firms. In building these "new ventures" into "going concerns", owner-management and industrial development went hand in hand. But as these new ventures became going concerns capable of competing for larger market shares, they ceased to be merely owner-managed firms. These firms became successful by recruiting, training, and retaining specialized personnel who were then organized into the hierarchical and technical divisions of labor known as managerial structures. Staff personnel developed new products and processes that were the essence of a technologically dynamic firm's investment strategy. Line personnel ensured the high-speed and continuous utilization of the productive resources in which the firm had invested. The firms that dominated in industrial competition were those that built the most integrated managerial organizations, thereby transforming the individual rationalities of participants in the specialized division of managerial labor into firm-specific collective rationalities. They dominated, moreover, despite the high fixed costs inherent in their investments in organization building; through the superior development and utilization of productive resources, the managerial organizations permitted the transformation of the high fixed costs of innovation into high quality products at low unit costs.

By the late nineteenth century many of the dominant managerial firms that were emerging in the more capital-intensive industries became central to the merger movement of the 1890s and early 1900s which sought to eliminate competition and consolidate market shares among the remaining few. Over the long run the most successful mergers proved to be in those industries in which continued product and process innovation and high-speed utilization of production and distribution facilities were most important for sustaining competitive advantage. Not by accident, these were industries in which competitive advantage went to those firms that had put in place the superior managerial capabilities for the development and utilization of productive resources.

But the Great Merger Movement did more than merely concentrate market shares. With J. P. Morgan taking the lead, Wall Street financed the mergers by selling to the wealthholding public the ownership stakes of the entrepreneurs who had built up their companies from new ventures into going concerns during the rapid expansion of the American economy in the decades after the Civil War. The result was to transfer ownership of corporate assets from the original owner-managers to a widely distributed population. The enhanced dominance of the new combinations plus the backing of Wall

Street encouraged private wealthholders to invest in industrial stocks. By the early 1900s the merger movement had created a highly liquid market in industrial securities, making stock ownership all the more attractive; beyond the price of the stock, shareholding did not require that the new owners make any further commitments of time, effort, or finance to "their" firms.

In contrast to the owner-managers who had built the new public corporations into going concerns, the new owners were portfolio investors. They did not finance investments in organization and technology. Rather they financed the retirement of the old owners from the industrial scene. In so doing, U.S. shareholders unwittingly resolved a problem that the contemporary British economist, Alfred Marshall, had posed for the growth of the firm. Marshall argued that, insofar as family ties formed the basis for succession to top management, the internal dynamism of a going concern was likely to flag when the original entrepreneur gave up command to the next generation in whose hands ownership and control remained united.

Indeed, the problem of owner-management of going concerns did afflict Marshall's Britain. In a very different socioeconomic environment, British family firms did not build integrated managerial structures and dominant firms were much slower to emerge than in the United States (and Germany), even in the more capital-intensive industries. Yet, at the turn of the century, well-developed markets in industrial securities had been in place for decades in Britain. Many of the stock exchanges were highly local affairs so that even when a British firm went public there was not the widespread distribution of ownership that occurred in the United States. With firms less dominant and the demand for a firm's stock less extensive, it was more difficult to separate the original owner-managers from the control of their firms. The shares that British firms did float tended to be non-voting preferred issues for the purpose of financing direct investment — not, as was the case in the U.S., for the purpose of separating ownership from control. As a result family capitalism persisted in Britain well into the second half of the twentieth century, placing severe managerial and financial constraints on the growth of British industrial enterprise.

In contrast, the separation of ownership from control that occurred in U.S. industrial enterprises at the turn of the century enhanced the managerial and financial capabilities of dominant firms. These firms already had in place powerful managerial organizations that could take over strategic command from the retiring entrepreneurs. By reducing the possibility of nepotism in top-management succession, the removal of proprietary control opened up new opportunities for upward mobility of career managers, cementing their commitments to the long-run fortunes of their particular firms. Moreover, these career managers, many holding science-based college degrees, developed over the course of their careers irreplaceable knowledge of their firms' technologies and

organizational structures. During the first decades of this century it was such managers, their upward mobility unimpeded by family control, who typically rose to top-management positions in major industrial firms.

These managers had the power to plan enterprise strategy and allocate enterprise resources, notwithstanding the passing of ownership into the hands of others. Ownership of industrial stocks became increasingly fragmented during the 1910s and 1920s, leaving managers firmly in control of corporate financial policy. The most powerful financial institutions, which had the potential to concentrate ownership, did not challenge managerial control but rather enhanced it by making available inexpensive long-term debt finance. Beyond the turn of the century merger movement, the main business of a Wall Street investment banker was to market the bond issues of those going, and growing, industrial concerns with which it had developed close relations.

Underpinning the decision to incur these long-term liabilities was the ability of industrial managers to retain earnings, so that debt-equity ratios kept debt service requirements in line with available cash flow — a flow of cash based upon the predictable revenue-generating capabilities of the firm that would be sufficient to fund the debt without impinging upon the firm's capital and jeopardizing the enterprise as a going concern. Prime customers for corporate bonds were commercial banks, mutual savings banks, and insurance companies.

The dynamic interaction of organization and technology under managerial control created positive-sum economic growth during the 1920s. The major manufacturing corporations reduced product prices to consumers, thereby increasing market shares and reducing unit costs. Despite paying workers somewhat higher wages and their managers still somewhat higher salaries, these industrial corporations remained enormously profitable. Shareholders did not lose out because of managerial control. The corporations paid out over 60 percent of their net income in dividends, and yet, in the aggregate, retained enough earnings to finance nearly all their fixed capital outlays. Then as now, well-managed firms virtually never issued shares to finance investments. During the speculative fever of the late 1920s, as stock prices rose to levels that far exceeded the underlying values of corporate assets, many firms did sell additional shares. But they used the proceeds to retire outstanding debt, not to finance new investments.

The high profits of the 1920s left dominant manufacturing corporations so awash with cash that, rather than make even more direct investments, they began in the late 1920s to finance broker's loans to stock-market gamblers, fueling the speculative mania. The phenomenal value-creating capabilities of the major manufacturing corporations in the 1920s set the stage for the Great Crash. Portfolio investors had no conception of the limits to industrial expansion and profitability under existing institutional arrangements. The 1920s saw

the emergence, but not as yet the widespread diffusion, of multidivisional managerial structures that in the 1940s and 1950s would enable U.S. manufacturing corporations to extend the organizational limits on reinvestment of profits for enterprise growth.

Unburdened by debt and with widely dispersed owners unable to use the crisis of the 1930s to raid the corporate treasury, the dominant managerial enterprises were able to endure the Great Depression. True, during the 1930s, these firms lost control over the blue-collar labor force that, thrown out of work, joined independent industrial unions to secure their economic futures. But during the decade these same firms kept their managerial structures intact and continued, as a matter of course, to make developmental investments in technology and organization in preparation for the return of prosperity. By virtue of this organizational continuity, it would be the very same corporations that had brought U.S. industry to international dominance before the Great Depression that, despite the economic catastrophe of the 1930s, would extend U.S. industrial dominance during the 1940s and 1950s. *Industrial Decline and the Market for Corporate Control*

Since the 1960s, the United States has been experiencing relative industrial decline. The conventional wisdom among economists is that the erosion of U.S. international competitiveness is simply the result of a maladjustment of market forces, and hence can be corrected by changes in relative wages, exchange rates and the elimination of unfair trade practices. Ours is, after all, a "market economy". Let the market work to equilibrate supply and demand, and "get prices right".

So mainstream economists tell us. But the history of modern capitalism tells a different story — one that challenges the belief that letting the market work will either generate industrial success or reverse competitive decline. Since the late nineteenth century, the most successful capitalist economies increasingly have moved away from market coordination towards planned coordination of their productive activities. The movement to planned coordination has not occurred solely, or even primarily, at the level of the state, but rather at the level of the business organization. Far from economic prosperity requiring the "perfection" of the market mechanism, the wealth of different nations has become increasingly dependent upon the planned coordination that takes place within business organizations.

For the first six decades of the twentieth century, U.S. managerial enterprises led the world in the planned coordination of industrial investments. Many of these corporations remain world leaders, but many others — in industries such as consumer electronics, machinery, transportation equipment, semiconductors, steel making (all areas in which the United States previously excelled) — have lost competitive advantage to more powerful competitors abroad. There are many interconnected causes of U.S. industrial decline, and the

influence of industrial finance, and specifically the influence of the market for corporate control, must ultimately be analyzed as a part of a much larger dynamic between organization and technology in the process of industrial development. I shall confine my discussion here to those causes of decline that derive directly from the breakdown of the separation of ownership and control over the past three decades — a separation that underlay U.S. industrial leadership during the first five or six decades of this century.

The proponents of the market for corporate control draw a picture of top managers in U.S. industrial corporations as a lethargic and self-seeking lot who have wasted shareholders' money either by lining their own pockets or undertaking ill-conceived investment projects, or both. The cause of the problem, these economists argue, is the historic separation of ownership from control, and hence the freedom of corporate managers from shareholder discipline. Their depiction of managerial failure has some merit when applied to some — but by no means all — of America's major industrial corporations. But their explanation of the prime cause of the managerial fall from grace has little to commend it. In my view, a prime cause of managerial lethargy and self-seeking is the very breakdown of the separation of asset ownership from managerial control that the advocates of the market for corporate control so glorify. In historical perspective, the rise of the market for corporate control has not resolved but rather has contributed to industrial decline.

How were top managers disciplined in the heyday of managerial capitalism, when, as everybody agrees, shareholders had virtually no control? They were disciplined by the nature of the managerial structure itself. Top managers of technologically dynamic firms achieved their positions as a result of career-long climbs around and up the managerial hierarchy, transforming themselves in the process from technical specialists into corporate generalists. To maintain their upward momentum, they had to make important contributions to the development and utilization of the firm's productive resources. As professional career managers deeply knowledgeable about their firm's technologies and organizations, top managers retained an interest in continuous innovation that built upon the firm's unique value-creating capabilities — innovation not only for its own sake, but also for the sake of their own career success. They also understood that to continue to build upon the firm's unique value-creating capabilities meant the allocation of resources not only to further product and process development but also to keeping intact the managerial structure that would have to plan and coordinate these investment strategies.

In short, top managers were disciplined by their career-long membership in the collective organization that we call the managerial enterprise. That discipline led them to undertake investment strategies and build organizational structures that ensured that their enterprises would maintain technological leadership. Existing managerial structures gave top managers

the organizational capability to engage in continuous innovation, while their control over the allocation of their firms' surpluses gave them the financial capability to undertake the requisite investment strategies. The claim is not that top managers never sought to use their positions of power to take something extra for themselves, but only that as integral members of the managerial structure, with a well defined hierarchy of salaries and perquisites that functioned as an intricate incentive system for the entire organization, top managers had to justify their own individual gain by their contributions to the organization as a whole. Nor is the claim that top managers of innovative U.S. corporations always made what were, in retrospect, the "right" investment decisions. The uncertainty that is, by definition, inherent in innovation defies such omniscience. Rather the claim is only that these "organization men" were those best qualified to conceive and direct the investment strategies that would build upon the firm's technological and organizational strengths.

So what led top managers astray? The basic answer involves the combined impacts of the rise of the market for corporate control in the U.S. and the rise of more highly collectivized competitors abroad on the incentives, and even the abilities, of top corporate managers in the U.S. to undertake long-term investment strategies. Not all top managers have lost sight of the long-term interests of their organizations. But enough have to make the demise of managerial commitment to technological leadership and sustained competitive advantage a serious, and apparently growing, problem for the U.S. economy.

During the 1960s, the market for corporate control arose out of the conglomerate movement and the growth of institutional investors as holders of common stocks. Prior to the 1960s merger movements in the United States had entailed horizontal combination, vertical integration, or diversification within related lines of business for the purpose of building and extending the organizational capabilities of the firms involved. In contrast, the conglomerate movement of the 1960s involved the acquisition of other firms in unrelated lines of business. Despite all the talk of "synergy" through conglomeration, the general purpose of these acquisitions was to acquire going concerns cheaply and let their earnings fill the conglomerate coffers. Because the exchange of corporate stocks was the prime mode of making acquisitions, acquiring firms tended to favor corporate strategies that improved short-term earnings performance and boosted their stock prices. By the same token, the managers of target firms who wanted to avoid being taken over also sought to improve short-term earnings. Increasingly managerial decisions and actions were determined by responses to the takeover market, and not by the long-term investment requirements of their enterprises as technologically dynamic, going concerns.

The conglomerate movement fueled the 1960s boom in the stock market and increased uncertainty concerning individual stock-price movements. Institutional investors took the

opportunity to offer households higher yields through diversified portfolio management, resulting in the growth of mutual funds (which held about 85 percent of their portfolios in common stocks), and the movement of the assets of pension funds into common stocks (from 30 percent of their portfolios in 1955 to 63 percent in 1968). Competition for household wealth led the new money managers to stress short-term earnings on the diversified portfolio with little if any concern for the impacts on the long-run investment strategies undertaken by the industrial enterprises whose stocks they held. The 1960s proved to be just the beginning of the rise of the institutional investor. The combined impacts of conglomeration and institutional investing created sufficient volatility in the markets for industrial securities that by the early 1970s the business focus of major Wall Street financial houses rapidly shifted from the finance of industry to trading in securities. During the 1970s the end of fixed commissions on Wall Street catered to the growing power of the institutional investor who traded often and in large blocks, while the rise of the junk-bond market catered to their quest for ever higher short-term yields.

By the early 1980s institutional investors dominated stock-market trading. Meanwhile the junk-bond market was transformed from simply a means of diversifying portfolios of high-risk bonds to a lethal weapon for waging war against industrial managers in the market for corporate control. Now almost any corporation, however powerful, was potentially vulnerable to hostile takeover, and hence under pressure to keep its stock prices high and satisfy the short-term time horizons of institutional investors and potential raiders. During the 1980s retained earnings and depreciation reserves — the financial foundations for long-term investment strategies — threatened to disappear to satisfy portfolio investors' demands that corporations "disgorge" their so-called "free" cash flows. Through the device of the junk-bond financed LBO, creditors have gained control over the revenues of the firm that shareholders have never had, in effect dictating that the firm not undertake innovative investment strategies.

With the rise of the market for corporate control, many industrial executives have come to view their own long-term interests as owners of shares rather than as managers of organizations. In the process they have been able to release themselves from the discipline towards organization building that an integrated managerial structure had imposed on their decisions and actions, leaving them able and willing to cooperate with the short-term interests that characterize the market for corporate control. Involving as it did the accumulation of firms in unrelated lines of business, conglomeration helped create top managers who had no integral relation in terms of career progression or organizational obligation to the subordinate managers who actually ran the constituent firms. A more general influence in the 1960s and beyond towards making top managers more individualistic was the growth in the proportion of their earnings that came from stock ownership. Top executives of publicly traded corporations have

always acquired some stock ownership in their companies, but during the post-World War II boom, the mean values of their stock holdings rose substantially. The volatility in stock prices since the 1960s created incentives for top managers as owners to pay closer attention to the value of their stocks at any point in time — a tendency that was reinforced by the widespread use of stock options as the means by which top managers acquired their shares. Even top managers of firms not threatened by takeover developed an individualistic interest in short-term earnings performance rather than long-term organizational growth.

During the 1980s, when major industrial corporations increasingly became takeover targets, golden parachutes, which generously compensated top management while leaving subordinate managers high and dry, became the most blatant manifestation of the separation of top management from the managerial structures that represent the core of a firm's organizational capabilities. Tapping the firm's resources, shareholder power exerted through the market for corporate control was able to pay incumbent managers a price to give up control that they could not refuse. The new managers generally have even less commitment to the enterprise as a going concern than the old. But the damage to organizational capabilities wrought by the rise of the market for corporate control has gone much further than the separation of top managers from the managerial organization. Once top management began to focus on the short term, it began, quite logically, to rate highly and reward accordingly the accomplishments of subordinate financial managers over production managers. As a result during the 1970s financial managers became dominant at the top of major industrial corporations, their very capabilities and aptitudes reinforcing the tendency towards short-term financial goals. But the problems in the training of capable technologists run deeper. The high rewards that entry-level university graduates can earn in the financial sector in the era of the market for corporate control, combined with the uncertainty that takeovers and LBOs have created for the long-term viability of any particular industrial corporation, undermine the incentives for university graduates to pursue careers in industry. Yet such careers within planned and coordinated organizational structures are essential for developing and utilizing the knowledge that ultimately manifests itself as technological innovation.

Over the past three decades, while the organizational capabilities of U.S. industry have eroded, those of its main competitors have remained intact or strengthened. The incentives for American managers to think and act short term cannot be understood without recognizing the formidable industrial organizations abroad, particularly in Japan, that they have faced. Yet there are those who would hold out hope for U.S. industry by arguing that Japan, lacking a market for corporate control, suffers from an absence of discipline over top managers of its industrial corporations. Such arguments betray an ignorance of the collective nature of Japanese capitalism — a collectivism that ties together the long-term fortunes and

hence interests of not only members of the firm's managerial structure but also permanently employed blue-collar workers. It is also a collectivism that runs across financially distinct enterprises, not only within "enterprise groups", but also across them. To understand the shift in industrial leadership that has occurred over the past quarter century, or that occurred when the U.S. surpassed Britain in the first decades of this century, requires a theory of the interaction of organization and technology in the process of industrial development. Such a theory requires a willingness to contemplate that elements of collectivism have replaced individualism — that organizations have replaced markets — in creating and sustaining the wealth of nations.

ACTIVE INVESTORS, LBOs, AND THE PRIVATIZATION OF BANKRUPTCY

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I. Introduction

The corporate sector of the U. S. economy has been experiencing major change, which continues as we head into the last year of the 1980s. Over the past two decades the corporate control market has generated considerable controversy, first with the merger and acquisition movement of the 1960s, then with the hostile tender offers of the 1970s, and most recently with the leveraged buyouts and restructurings of the 1980s. The controversy has been renewed with the just-completed \$25 billion KKR leveraged buyout of RJR-Nabisco, a transaction almost double the size of the Chevron purchase of Gulf Oil in 1985 for \$13.2 billion (then the largest previous corporate control transaction).

These control transactions are the most visible aspect of a much larger phenomenon that is not yet well understood. They are the manifestation of powerful underlying economic forces that, on the whole, are productive for the economy. Thorough understanding is made difficult because change, as always, is threatening, and in this case the threats disturb many powerful interests.

I analyze the causes and consequences of takeover activity in the U. S. elsewhere. My purpose is to explain the fundamental cause of this activity which to date has received no attention. I propose (1) to show how corporate control activity is part of a broader set of phenomena that has handicapped U.S. corporations, (2) to provide perspective on how LBOs, restructurings and increased leverage in the corporate sector fit into the overall picture, and (3) to discuss some reasons why high debt ratios and insolvency are less costly now than in the past. Because of their topical relevance, I pay particular attention to LBOs and their role in the rejuvenation of competitiveness in

the American corporation.

II. Active Investors and Their Importance

The role of institutional investors and financial institutions in the corporate sector has changed greatly over the last 60 years as institutions have been driven out of their positions as active investors. By *active investor* I don't mean one who indulges in portfolio churning. I mean an investor who actually monitors management, sits on boards, is sometimes involved in dismissing management, is often intimately involved in the strategic direction of the company, and on occasion even manages. That description fits Carl Icahn, Irwin Jacobs, and Kohlberg, Kravis, Roberts (KKR).

Before the mid-1930s, investment banks and commercial banks played a much more important role on boards of directors, monitoring management and occasionally engineering management changes. At the peak of their activities, J. P. Morgan and several of his partners served on the boards of directors and played a major role in the strategic direction of many firms.

Bankers' roles have changed as a result of a number of factors. One important source of the change is laws established in the 1930s that increased the costs of being actively involved in the strategic direction of a company while simultaneously holding large amounts of its debt and equity. For example, under the definitions of the 1934 SEC Act an institution or individual is an insider if it owns more than 10% of a company's shares, serves on its board, or holds a position as officer. And the 16-b Short Swing Profit Rules in the SEC Act require an institution satisfying any insider conditions to pay the company 100% of the profits earned on investments held less than six months. Commercial bank equity holdings are significantly restricted and Glass-Steagall restricts bank involvement in investment banking. The Chandler Act restricts involvement by banks in the reorganization of companies in which they have substantial debt holdings and the 1940 Investment Company Act put restrictions on the maximum holdings of investment funds. These factors do much to explain why money managers do not serve on boards today, and seldom think of getting involved in the strategy of their portfolio companies.

The restrictive laws of the 1930s were passed after an outpouring of populist attacks on the investment banking and financial community, exemplified by the Pecora hearings of the 1930s and the Pujo hearings in 1913. Current attacks on Wall Street are reminiscent of these attacks.

The result of these political and other forces over the past 50 years has been to leave managers increasingly unmonitored. In the U. S. at present, when the institutional holders of over 40% of the equity become dissatisfied with management, they have few options other than to sell their shares. Moreover, managers' complaints about the churning of financial institutions' portfolios ring hollow: One can guess they much prefer the churning system to one in which those institutions actually

have direct power to correct a management problem. Few CEOs look kindly on the prospect of having institutions with substantial stock ownership sit on their board. That would bring about the monitoring of managerial activities by people who more closely bear the wealth consequences of managerial mistakes and who are not beholden to the CEO for their jobs. As financial institution monitors left the scene in the post-1940 period, managers commonly came to believe companies belonged to them and that stockholders were merely one of many stakeholders the firm had to serve. This process took time, and the cultures of these organizations slowly changed as senior managers brought up in the old regime were replaced with younger managers.

The banning of financial institutions from fulfilling their critical monitoring role has resulted in major inefficiencies. The increase in agency costs (loosely speaking, the efficiency loss resulting from the separation between ownership and control in widely held public corporations) appears to have peaked in the mid- to late 1960s when a substantial part of corporate America generated large cash flows but had few profitable investment projects. With this excess cash these firms launched diversification programs that led to the assembly of conglomerates, a course since proven to be unproductive.

The fact that takeover and restructuring premiums regularly average about 50% indicates managers have been able to destroy up to 30% of the value of the organizations they lead before facing serious threat of disturbance. This destruction of value generates large profit opportunities, and the response to these incentives has been the creation of innovative financial institutions to recapture the lost value. Takeovers and LBOs are among the products of these institutions. My estimates indicate that over the ten years from 1975 to 1986, corporate control activities alone (i.e., mergers, tender offers, divestitures, spin-offs, buybacks, and LBOs) created more than \$400 billion in value for investors.

Along with the takeover specialists came other new financial institutions such as the family funds (owned by the Bass Brothers, the Pritzkers, and the Bronfmans) and Warren Buffet's Berkshire Hathaway — institutions that discovered ways to bear the cost associated with insider status. Coniston Partners is another version of this new organizational response to the monitoring problem, and so is the Lazard Frères Corporate Partners Fund. These new institutions, unlike J. P. Morgan, resolve the monitoring problem by purchasing entire companies and playing an active role in them; in fact, they often *are* the board of directors.

The modern trend toward merchant banking in which Wall Street firms take equity positions in their own deals is another manifestation of this phenomenon. KKR is much more than an expeditor of LBO transactions. It plays an important role in management after the transaction. In general, LBO specialists control the boards of directors in the companies they help take private. They choose the managers of the firm and influence

corporate strategy in important ways. Buyout specialists are very different from the usual outside or public directors who supposedly represent shareholders. Buyout specialists own or represent in their buyout funds an average of 60% of the firm's equity [see Kaplan (1988)] and therefore have great incentive to take the job seriously, in contrast to public directors with little or no equity interest.

New financial institutions continue to develop in response to problems caused by the lack of effective monitoring of corporate managers. Such innovation is likely to continue unless handicapped by new legislation, tax penalties, or unfavorable public opinion. The escalating attack on Wall Street and investment bankers in recent years may be the modern equivalent to the populist attacks in the decades prior to 1940 that led to the crippling of American corporations in the 1960s and 1970s.

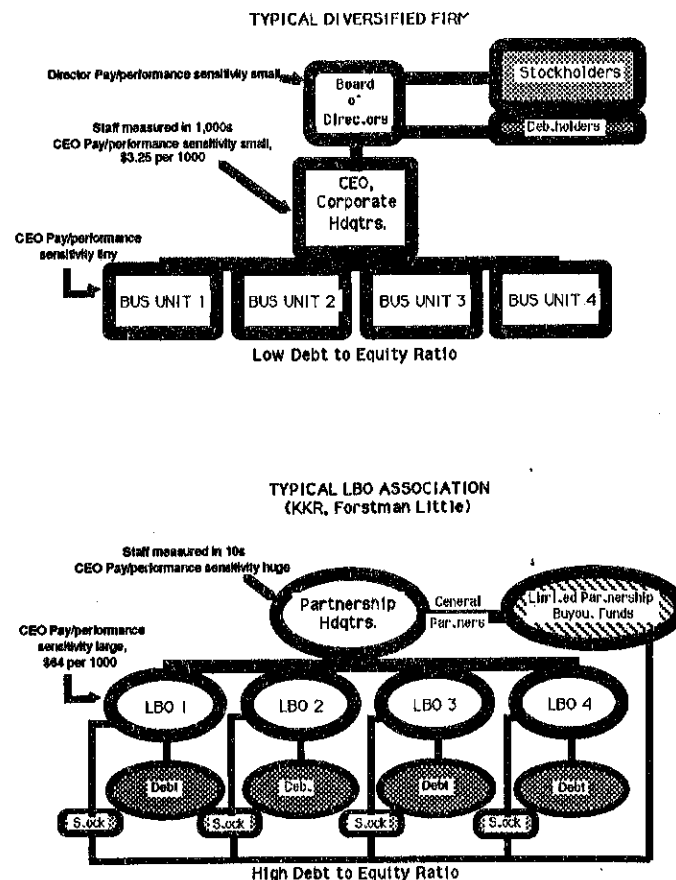
III. The LBO Association: A New Organizational Form

It is instructive to think about LBO associations such as KKR or Forstman-Little as new organizational forms — in effect a new model of general management. These organizations are similar in many respects to diversified conglomerates or to Japanese groups of firms known as “keretsu”. The corporate sectors in Japan and Germany are significantly different from the American corporate model of diffuse ownership monitored by public directors. In both of these economies, banks and associations of firms are more important than in the U.S. Indeed, one way to see the current conflict between the Business Roundtable and Wall Street is that Wall Street is now a direct competitor to the corporate headquarters office of the typical conglomerate. Moreover, the evidence on the relative success of the *active investor* versus the *public director* organizational form indicates that many CEOs of large diversified corporations have no future in their jobs; one way or the other many of those jobs are being eliminated in favor of operating level jobs by competition in the organizational dimension.

LBO associations such as KKR are one alternative to conglomerate organizations and judging from their past performance, they generate large increases in efficiency. Fig. 1 illustrates the parallels and differences between these organizational forms. LBO associations, portrayed in the bottom of the figure, are run by partnerships instead of the headquarters office of the typical large diversified corporation. These partnerships perform the monitoring and peak coordination function with a staff numbering in the tens of people, replacing the typical corporate headquarters staff of thousands. Their leaders have large equity interests in the outcomes and direct fiduciary relationships as general partners to the limited-partner investors in their buyout funds.

The LBO partnerships play a role similar in many ways to that of the main banks in the Japanese groups of companies. The banks and LBO partnerships hold substantial amounts of equity and debt in their client firms and are deeply involved in the monitoring and strategic direction of these firms. Moreover, the business-unit heads in the typical LBO association, unlike those in Westinghouse or GE, also have substantial equity ownership that gives them a pay-to-performance sensitivity that is on average 20 times that of the average corporate CEO. The average CEO in the Kaplan sample of LBOs receives \$64 per \$1,000 change in shareholder wealth from his 6.4% equity interest alone. The typical corporate CEO, by contrast, is paid in a way that is insensitive to performance as measured by changes in CEO wealth. The average CEO in the Forbes 1000 firms in the Jensen and Murphy (1989) study receives total pay (including salary, bonus, deferred compensation, stock options and equity) that changes about \$3.25 per \$1,000 change in stockholder value.

Fig. 1



Schematic representation of the correspondence between the typical diversified firm and the typical LBO association which are competing organizational forms. The LBO association is headed by a small partnership organization that substitutes compensation incentives (mostly through equity ownership) and top-level oversight by a board with large equity ownership for the large bureaucratic monitoring of the typical corporate headquarters. For simplicity the boards of directors of each LBO firm has been omitted, the LBO Partnership Headquarters generally holds 60% of the stock in its own name or that of the Limited Partnership fund and controls each of these boards.

The proper comparison of the pay/performance sensitivity of the conglomerate CEO's compensation package is not with the CEOs of the LBOs, but with the managing partner or partners of the partnership headquarters. Little is known publicly about the compensation plans of the Partnerships, but the pay-to-performance sensitivity (including ownership interests, of course) appears to be considerably greater than that of the LBOs. The effective ownership interest in the gains realized by the buyout pool generally runs about 20% or more for the general partners as a group. LBO business unit heads also have far less bureaucracy to deal with, and far more decision rights in the running of their businesses. In effect, the LBO association substitutes incentives provided by compensation and ownership plans for the direct monitoring and often centralized decision making in the typical corporate bureaucracy. The compensation and ownership plans make the rewards to managers highly sensitive to the performance of their business units, something that occurs infrequently in major corporations.

In addition, the contractual relation between the partnership headquarters and the suppliers of capital to the buyout funds is very different from that between the corporate headquarters and stockholders in the diversified firm. The buyout funds are organized as limited partnerships in which the managers of the partnership headquarters are the general partners. Unlike in the diversified firm, the contract with the limited partners denies partnership headquarters the right to transfer cash or other resources from one LBO business unit to another. Generally all cash payouts from each business unit must be paid out directly to the limited partners of the buyout funds. This reduces the reinvestment risk and waste of free cash flow so prevalent in most diversified corporations.

IV. The Empirical Evidence on the Source of LBO Gains

The evidence on LBOs and management buyouts is growing rapidly. In general, this evidence shows that abnormal gains to stockholders are significantly positive and in the same range as gains from takeovers. The estimated average total premium to public shareholders ranges from 40% to 56%. Kaplan (1988) shows that for those buyouts that eventually come back public or are otherwise sold, total value, adjusted for market movements, increases 96% from two months before a buyout to the final sale about five years after the buyout. Prebuyout shareholders earn premiums of about 38%, and the postbuyout investors earn about 42%.

This 42% return to postbuyout investors is measured on the *total purchase price* of the prebuyout equity and not the equity of the postbuyout firm. The median net of market return on the postbuyout equity alone is about 785%, but these returns are distorted by the fact that the equity is highly leveraged. In effect, the equity returns are almost a pure risk premium and therefore independent of the amount invested. Average total buyout fees amount to 5.5% of equity two months prior to the buyout proposal.

Kaplan (1988) and Smith (1989) examine the operating characteristics of LBOs after the buyout and find real increases in productivity. Kaplan finds average increases in operating earnings of 42% from the year before the buyout to the third year after the buyout, and increases of 25% when adjusted for industry and business cycle trends. He finds 96% increases in cash flow in the same period (80% after adjustment for industry and business cycle trends). Smith also finds significant increases in operating earnings and net cash flows. In addition, she documents improvements in profit margins, sales per employee, working capital, inventories, and receivables, and finds no evidence of delays in payments to suppliers. She finds no changes in maintenance, repairs, and advertising as a fraction of sales, and no evidence that these items are being cut in ways that harm the long run health of the enterprise.

Corporate debt rises significantly from about 20% of assets to almost 90%, after a buyout. Some argue that a major part of the shareholder benefits is simply wealth transfers from bondholders who suffer when their bonds are left outstanding in the new highly leveraged company. Although it is undoubtedly true that some bondholders have lost in these transactions, there is no evidence that bondholders lose on average. Convertible bond and preferred stockholders generally gain a statistically significant amount, and straight bond holders show no significant gains or losses. This result is somewhat surprising, since in most cases the old bonds experience significant downgradings by rating agencies.

The effects of LBOs on labor have not been thoroughly studied to date, but evidence in the Kaplan study indicates that median employment increases by 4.9% after a buyout (-6.2% after adjustment for industry conditions). Thus, employment does not fall systematically after a buyout. No data have been found that allow inference on whether wages are cut.

There is also concern about the effect of LBOs on R&D expenditures. This concern seems unwarranted, because the low-growth old-line firms that make good candidates for highly leveraged LBOs don't invest in R&D. Kaplan found only seven firms out of 76 in his sample that engaged in enough R&D to report it; Smith found seven out of 58 firms in her sample that reported R&D in their financial statements.

Another area of controversy is the amount of value transferred from the U.S. Treasury in the form of tax subsidies to buyout transactions. The argument is that the massive increases in tax deductible interest payments virtually eliminate tax obligations for buyout firms. In the year following the buyout, Kaplan finds

that 50% of the firms pay no taxes. However, because of operating improvements and the retirement of some debt, average tax payments are essentially back to the prebuyout level by the third year after the buyout. Moreover, these subsidy arguments ignore five sources of added tax revenues: (1) the large increases in tax payments generated by the buyout in the form of capital gains tax payments by prebuyout shareholders who are forced to realize all the gains in their holdings; (2) the capital gains taxes paid on the sale of assets by the LBO firm; (3) the tax payments on the large increases in operating earnings caused by the buyout; (4) the tax payments by the buyout-firm creditors who receive the interest payments, and (5) the increased taxes generated by the more efficient use of the firms capital.

Direct estimates of the total effect on Treasury tax revenues taking account of all such gains and losses indicate the present value of revenues increases by about \$110 million under the 1986 tax rules on the average buyout with a price of \$500 million. Converted to an equivalent perpetual annual increase of \$11 million, these revenues are an approximate annual increase of 61% over the average \$18 million tax payment by buyout firms in the year prior to the buyout. On a current account basis — that is, considering only the tax effects in the year after the buyout — the Treasury gains \$41 million over the average prebuyout tax payments. Conservative estimates indicate that, at worst, the Treasury is unlikely to be a net loser from these transactions. If the value increases are the result of real productivity changes, rather than merely transfers of wealth from other parties, then it is not surprising that the Treasury is a winner. In the controversial RJR-Nabisco case the \$12 billion-plus gains are likely to generate net incremental tax revenues to the Treasury totaling \$3.8 billion in present value, and about \$3.3 billion solely in the year following the buyout. RJR-Nabisco was paying about \$370 million in federal taxes prior to the buyout.

V. High Leverage and the Privatization of Bankruptcy

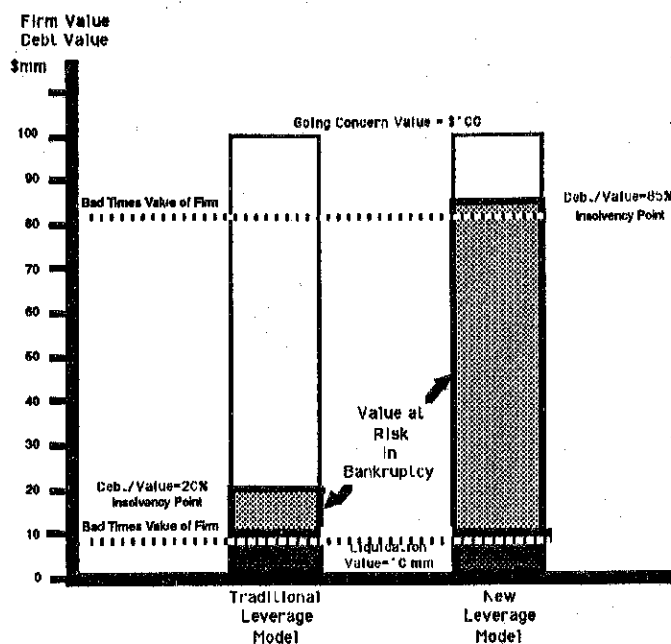
One important and interesting characteristic of the LBO organization is its intensive use of debt. The debt-to-book-value ratio in the business units of these organizations averages close to 90% (Kaplan [1988]). LBOs are not the only organizations making use of high debt ratios, however. Public corporations are following suit, as witnessed by recapitalizations, highly leveraged mergers, and stock repurchases.

There has been much concern in the press and in public policy circles about the dangers of high debt ratios in these new organizations. What is not generally recognized, however, is that high debt has benefits as a monitoring and incentive device, especially in slow-growing or shrinking firms. Even less well-known, the costs for a firm in insolvency — the situation in which a firm cannot meet its contractual obligations for payments — are likely to be much smaller in the new world of high leverage ratios than they have been historically. The reason is illustrated in Fig. 2.

In a world of 20% debt-to-value ratios (with value based on the going-concern value of a healthy company), the liquidation or

salvage value is much closer to the face value of the debt than in the same company with an 85% debt/value ratio. Fig. 2 shows a company under these two leverage ratios, and assumes that the salvage or liquidation value of the assets is 10% of the going-concern value, or \$10 million. Thus, if the company experiences such a decline that it cannot meet its payments on \$20 million of debt, it is also likely that its value is below its liquidation value.

Fig. 2



This figure illustrates the relation between the insolvency point and liquidation value when the debt/value ratio is low vs high. The darkly shaded area represents the liquidation value for a given firm with assumed healthy-going-concern value of \$100 million. Traditionally leveraged, the firm would have about a 20% debt to value ratio, while it would have about 85% debt in the new leverage model characterizing LBO and restructuring transactions. The lightly shaded areas represent the value at risk in bankruptcy. The much larger value at risk in the new leverage model if the firm should go into bankruptcy, provides larger incentives to reorganize outside the courts.

An identical company with an 85% debt ratio, however, is nowhere near liquidation when it experiences times sufficiently difficult to cause it to be unable to meet the payments on its \$85 million of debt. That situation could occur when the company still has total value in excess of \$80 million. In

this case there is \$70 million in value that can be preserved by resolving the insolvency problem in a fashion that minimizes the value lost through the bankruptcy process. In the former case when the company cannot meet the obligation on only \$20 million of debt there may be so little value left that the economically sensible action is liquidation, with all its attendant conflicts and dislocation.

Although insolvencies will be more frequent, the incentives to preserve value in the new leverage model imply that a very different set of institutional arrangements and practices will arise to substitute for the usual bankruptcy process. In effect, bankruptcy will be taken out of the courts and privatized. This institutional innovation will occur to recognize the large economic value that can be preserved by resolving the conflicts of interest among claimants to the firm privately.

When the going concern value of the firm is vastly in excess of the liquidation value, it is likely to be more costly to trigger the cumbersome court-supervised bankruptcy process that diverts management time and attention from managing the enterprise to focus on the abrogation of contracts the bankruptcy process is set up to accomplish. These large potential losses provide incentives for the parties to reorganize the claims more efficiently outside the courtroom. This fact is reflected in the strip financing practices commonly observed in LBOs where claimants hold approximately proportional strips of all securities and thereby reduce the conflicts of interest among classes of claimants. Incentives to manage the insolvency process better are also reflected in the extremely low frequency with which these new organizations actually enter bankruptcy. The recent Revco case is both the largest LBO bankruptcy and one of the handful that have occurred in the two decades that LBOs have been in existence.

LBOs get in trouble frequently, but seldom enter formal bankruptcy. They are reorganized in a short period (several months is common), often under new management, and at apparently lower cost than would occur in the courts. The process has not been formally studied yet, so good empirical data are unavailable. Some assert that the success of LBOs has been ensured by the greatest bull market in history. The story is not that simple, because during the last eight years of good times, major sectors of the economy have experienced bad times, and buyouts have occurred in many of these sectors. So although they have not been tested by a general recession, they have survived well the trials of subsectors of the economy in the recent past (textiles and apparel are examples).

In addition, organizations such as Drexel Burnham Lambert (which has been most active in facilitating the intensive use of debt) have anticipated these insolvency problems. They are sensitive to the potential gains from innovation in the workout and reorganization process. Indeed they have reorganized the debt of almost 300 companies in financial distress through exchange offers before they went into formal bankruptcy, and

the default rate on these exchanged high yield securities has been equal to the historical default rate on all non-investment grade debt in the 10 years 1977-1986. (CHECK dates) We expect such innovation when there are large efficiency gains to be realized from new reorganization and recontracting procedures to deal with insolvency.

There has been much concern about the ability of LBO firms to withstand sharp increases in interest rates given that the bank debt, which frequently amounts to 50% of the total debt, is primarily at floating rates. Most LBOs now protect themselves against sharp increases in interest rates by purchasing caps that limit any increase or by using swaps that convert the floating rate debt to fixed rates. Indeed it has become common for banks to mandate such protection for the buyout firm as a condition for lending. These new financial techniques are another means whereby some of the risks can be hedged away in the market, and therefore the total risks to the buyout firm are less than they would have been in past years at equivalent debt levels.

It will undoubtedly take time for the institutional innovation in reorganization practices to mature and for participants in the process to understand that insolvency will be a more frequent and less costly event than historically. It is also reasonable to predict that this will be an area of intense academic study.

It is likely we will discover that debt and insolvency can serve a very important control function to replace what seems to be the failed model in which the public board of directors monitors management and its strategy directly. Although I have not studied it in detail, and therefore my conclusions are tentative, the recent Revco bankruptcy seems to be an example. Revco management pursued a strategy to upgrade its drugstores to department stores. The strategy failed, but the high debt load prevented the company from pursuing the flawed project for long because insolvency and bankruptcy allowed the creditors and owners to replace managers and facilitate abandonment of the strategy. Such rapid change in management and strategy is highly unlikely to occur under the usual public director/low leverage control model of the typical American corporation.

It is interesting that the Japanese system seems to have many of the characteristics of the evolving American system. Japanese firms make intensive use of leverage, and Japanese banks appear to allow a company to go into bankruptcy only when it is economic to liquidate it, that is, only when the firm is more valuable dead than alive. This appears to be the norm in the American LBO community as well. As leader of the consortium of banks lending to any firm, the Japanese main bank takes responsibility for evaluating the economic viability of an insolvent firm, and for planning its recovery—including the infusion of new capital and top-level managerial manpower (often drawn from the bank itself). Other members of the lending consortium commonly follow the lead of the main bank and contribute additional funding, if required, to the

reorganization effort. The main bank bonds its role by making the largest commitment of funds. Viewed in this light, the most puzzling aspect of the Revco experience is why Revco's investment bankers and creditors let the firm get into formal bankruptcy.

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MACROECONOMICS IN HISTORY

Thursday, December 28 at 2:30 p.m.
Marriot Hotel - Cabinet Room

WAGES, PRICES, AND LABOR MARKETS BEFORE THE CIVIL WAR

Claudia Goldin Robert Margo
University of Pennsylvania Vanderbilt University

America experienced several expansions and contractions in economic activity between its founding and the Civil War. The Embargo of 1807 abruptly ended the export boom of the Napoleonic Wars, a recession followed the War of 1812, there was a panic in 1819, and a crisis in 1825. An expansion in the late 1820s and early 1830s gave way to several downturns; rapid recovery succeeded the first, a minor one in 1837, but the second, in 1839, was more prolonged. Minor contractions in the late 1840s and early 1850s were followed by another downturn in 1857. Associated with most of these expansions and contractions, especially the so-called Panics of 1837 and 1857, were sharp changes in the price level. While the existence of these fluctuations in economic activity is not in doubt, their severity has been questioned. There are two opposing views of the antebellum economy. One is that the period was marked by at least one severe depression, from 1839 to 1843, and other lesser recessions. Aggregate economic activity, according to this view, was severely diminished during the downturns, and unemployment was substantial and prolonged in cities and industrial towns. The other interpretation is that antebellum fluctuations were more apparent than real; more often only prices, not quantities,

changed. Furthermore, whatever unemployment may have been created did not endure for long; the unemployed, particularly laborers, teamsters, and other unskilled workers, migrated to the countryside and returned to industry when conditions turned more favorable. The resolution of the two opposing views of the antebellum economy might be found in direct evidence on unemployment and real output during periods of rapid price change. But there are no annual unemployment series for the period, and annual real GNP for the nineteenth century are not constructed to isolate shocks to small sectors, such as industry and commerce.

We therefore evaluate the two views using an indirect method that assesses the persistence of shocks to real wages. Persistence is measured by the degree to which the time-series properties of real wages deviate in both the short and long run from those of a process following a deterministic trend with a white-noise error. Long-run persistence is indicated by the presence of a "unit root" in real wages, which means that any change today will affect the real wage into the distant future. We test for a unit root using classical statistical procedures and measure its importance using a non-parametric method.

Our results indicate that persistence of shocks was less for agricultural labor than for other occupations, less for growing regions than for more mature ones, less for unskilled than for skilled labor, and probably less before 1860 than after. Although nominal wages and prices never strayed far from each other over the long run, the persistence of shocks was considerable during the 1821 to 1856 period. We find that shocks to real wages persisted even five years after an innovation, but that the impact eventually vanished. In other words, the random-walk component of real wages was small. Persistence was considerably less in the growing Midwest regions than in the more stable Northeast and South Atlantic. And shocks to real wages were more persistent for clerks than for laborers and artisans, and least persistent for agricultural laborers in the Northeast. Although our study concerns the antebellum period, we report provisional evidence that shocks to real wages were more persistent from 1870 to 1908 than during 1821 to 1856, and post-World War II evidence suggests the random-walk component of real wages is substantial.

The Persistence of Shocks to Real Wages: An Econometric Analysis

A nominal wage series series, extracted from the payroll records of civilian employees of the United States Army, has produced annual dollar estimates and indices of nominal daily wages for artisans (blacksmiths, carpenters, machinists, masons, and painters), and laborers (common laborers and teamsters) from 1820 to 1856, for four census regions (Northeast, Midwest, South Atlantic, and South Central). We have, in addition, constructed a new series from the same source — regional indices of nominal wages for clerks. This wage series is, we believe, the first for a white-collar occupation in the antebellum period. All the nominal wage series are deflated

by a variant of the Cole price series for cities located in each of the census regions.

Marked fluctuation in real wages, particularly during the 1840s, characterize the real wage series for all occupations and all regions. Such fluctuations could arise if nominal wages were relatively stable or responded with a lag while prices varied greatly. The question to which we now turn is how rigid nominal wages were across the four regions and among the three occupations. We approach this through an analysis of the persistence of shocks to real wages.

Studies such as ours typically begin with an assumption that the time path of real wages is determined by a combination of real and nominal forces. The long-run, or "equilibrium" wage is determined by real forces — the supply and demand for labor given the price level. In the short run, however, the real wage can deviate from its long-run value, depending on the behavior of nominal wages and prices. When nominal wages are slow to adjust to changes in prices, a rise in the price level causes real wages to fall below their equilibrium level, and the opposite occurs for a fall in the price level. The shock to real wages caused by the change in prices can persist, possibly for several periods. Provided long-run neutrality holds, however, economic forces are set in motion to return the real wage to its equilibrium path.

We make use of two time-series techniques to examine the persistence of shocks to the real wage — parametric tests for a unit root and a related non-parametric technique. A time series x_t is termed I

(1), or integrated of order 1 (has a unit root), if it can be written in the form $B(L)(1-L)x_t = \hat{E} + A(L)\hat{O}_t$

(2) where L is the lag operator; $B(L)$ and $A(L)$ are polynomials in the lag operator; \hat{E} is a constant, possibly zero ("drift"); and \hat{O}_t is a "white-noise" process (a mean zero, finite variance, serially uncorrelated error). A random walk, $x_t = x_{t-1} + \hat{O}_t$, is the simplest example of an I(1) series. Shocks to an I(1) do not evaporate, but rather influence all future values; in the case of the random walk, note that $x_t = \hat{O}_t + \hat{O}_{t-1} + \dots + \hat{O}_0$.

Suppose, instead, that the series x_t were stationary or integrated of order 0, I(0). Then representation (2) would exist without the $(1-L)$ term on the left-hand side — that is, without first differencing. An example is a series with a constant mean. Alternatively, x_t could be trend-stationary, that is, have a mean which follows a deterministic time trend, as in $x_t = \dots + \hat{E}t + A(L)\hat{O}_t$ (3) In the case of (3), shocks eventually die out, and the series returns to its long-run growth path given by the deterministic trend, $E(x_{t+k}) = \dots + \hat{E}(t+k)$. The antebellum trend in real wages was generally upward although there were often large fluctuations around trend. Testing representation (2) against (3) is a first step in determining whether annual fluctuations in antebellum real wages had permanent or merely transitory effects. Toward this end,

we estimate regressions of the form $(1 - L)(w/p)_t = \alpha + \beta_t + \hat{\epsilon}_t(w/p)_{t-1}$ (4) where (w/p) is the log of the real wage. The null hypothesis is that (w/p) follows a random walk with drift, that is, it is $I(1)$ as in $x_t = x_{t-1} + \alpha + \epsilon_t$. We can reject the null (and accept the hypothesis of trend-stationarity) if the F-statistic for the joint hypothesis $\alpha = \beta = 0$ is sufficiently large. This procedure is known as the Dickey-Fuller test after its originators. We estimate equation (4) for three occupations in four regions — 12 regressions in all. In each case we are unable to reject the null hypothesis that real wages possess a unit root. The existence of a unit root indicates that shocks to antebellum real wages were, to some extent, permanent. But the test does not reveal the fraction of the variability in real wages that can be attributed to the permanent or “random walk” component. If the random walk component were small, shocks to real wages would still be primarily transitory in the long run. We make use of a non-parametric persistence estimator, suggested by John Cochrane, given by $\hat{A}2k = (1/k) \cdot \text{Var}\{(w/p)_t - (w/p)_{t-k}\} \cdot [T/(T - k + 1)]$. (5) The statistic $\hat{A}2k$ is $(1/k)$ times the variance of the k th difference of real wages, adjusted for sample size (T = number of observations). Then $\hat{A}21$ is the variance of the first difference of real wages. If real wages were a pure random walk, possibly with drift, the variance ratio $(\hat{A}2k/\hat{A}21)$ would equal one for all values of k . If real wages were the sum of a stationary series and a random walk, the variance ratio would approach a constant for large k . The closer the constant is to zero, the smaller is the random walk component of real wages. As a short-run benchmark, we compare the actual variance ratios with the hypothetical ratio that would arise if real wages followed a deterministic trend plus a white noise process. The greater the deviation between the actual and the hypothetical ratio for small values of k , the greater is the short-run persistence of shocks to real wages.

The Cochrane test reveals that the random walk component (when $k = 10$ to 15 years) for all three occupations among the four regions was small. But shocks to real wages persisted for many years. Even after 5 years, the variance ratio is only just below one — the value for the case of a pure random walk — in all but the Midwest region. After 15 years the ratio is highest for clerks and generally lowest for laborers in all four regions.

We conclude, then, on the basis of the Cochrane tests that the wage lag before the Civil War was long. Although shocks to real wages were mostly transitory in the long run (the random walk component was small), they were quite persistent in short run. The Cochrane test also suggests the adjustment process was rapid in the Midwest for both laborers and artisans, was extremely protracted in the South Atlantic region, and was slowest for clerks everywhere.

Further evidence on the persistence of shocks can be found by analyzing the real wages of agricultural workers in the Northeast, 1821-1855, using data collected by Winifred Rothenberg. We have deflated Rothenberg's nominal wage

series by our Northeast price index and by Rothenberg's agricultural price index. Shocks to agricultural real wages appear to have been much less persistent than any of the nonagricultural real wage series. Cochrane tests on wages for cotton-mill operatives from Robert Layer's study were also performed. Nominal wages for cotton-mill operatives were virtually flat over the period, and, not surprisingly, real wages demonstrate extreme persistence of shocks.

We have also estimated persistence measures for industrial workers in the late nineteenth century, during 1870 to 1908 and the subperiod 1870 to 1897, but we emphasize the provisional nature of these results. We find that real wage data for the late nineteenth century demonstrate extreme persistence. The period from 1870 to 1897 was one of secular deflation with one price spike during 1880 to 1885 and several smaller ones. Deflation, it appears, became a fact of economic life, and individuals adjusted their expectations accordingly. But gold discoveries in 1898 led to rapid price increases, and expectations were evidently slow to adjust. Thus the persistence of shocks to real wages during 1870 to 1897 appears much like that during the antebellum period. But the data including the post-1897 era distinctly do not. Shocks are as persistent as in a random walk process for the first five years. Recent work using post-World War II data indicates that the persistence displayed by the 1870 to 1908 real wage series is characteristic of much of the twentieth century. Thus, in comparison with the later data, the antebellum series demonstrate considerably less persistence, and nominal wages appear more flexible in response to shocks.

Implications for Antebellum Labor Markets

Our various findings, by region and occupation, reveal much about the functioning of antebellum labor markets and the effects of economic development. To reiterate, our main finding is that although shocks to real wages across all regions and (nonagricultural) occupations had little long-run persistence, there was a substantial short-run impact. Agricultural wages, however, display considerably less persistence.

At the two extremes, the Midwest and the South Atlantic were the most anomalous of the regions; the Midwest having the least persistent, and the South Atlantic having the most persistent, shocks to real wages. Agricultural workers and clerks (also cotton-mill operatives) were at the two extremes of the occupations.

Why did shocks to real wages persist in the short run? Price fluctuations in the antebellum period were generally monetary in origin. The precise mechanism causing monetary forces to have real effects may be related to Robert Lucas's “signal processing” theory. A decrease in the money supply, for instance, is noticed by producers as a decrease in the price for their goods. But producers do not know whether the price change is general or relative, and they will attribute some of the change to each cause. Because they perceive that at least

part of the decrease is specific to their industry or firm, they will decrease employment, investment, and other real variables by some amount.

Rather than attributing the relationship between the monetary and real phenomena simply to nominal wage rigidity, Lucas's "signal processing" theory is an equilibrium theory of adjustment in the face of imperfect information. Because the theory is more believable when information is limited, it seems particularly relevant to the nineteenth century when the public was less knowledgeable about the course of general economic variables. Information may also have been more confined and local in stable (Northeast) rather than growing (Midwest) regions, and in areas producing heterogeneous goods, such as cities, rather than those producing similar goods, such as agricultural districts. Thus the differences across region, occupations, and time period seem consistent with the theory.

This paper has presented an econometric analysis of the persistence of shocks to real wages before the Civil War. The results suggest that the labor history and revisionist descriptions of antebellum labor markets each have merit. Labor markets throughout the country and regardless of skill level worked well enough so that, in the long run, changes in the price level were fully reflected in nominal wages, controlling for real factors. In the short run, however, shocks to real wages displayed extreme persistence. Real wages generally fell during periods of inflation and rose during periods of deflation. Antebellum deflations went hand in hand with recession or depression, and almost all involved episodes of reduced employment in industry and urban areas. Only fully-employed workers, therefore, benefited from real wage growth during deflations. Others, it seems, were either out of work or migrated to agriculture. The emphasis labor historians have given to the wage lag in explaining labor strife, and in accounting for the importance of inconstant employment in working class culture and politics, seems deserved. But the flexibility of the antebellum labor force and the role of the agricultural hinterland in shielding labor from unemployment requires further investigation.

BANK CREDIT DURING THE GERMAN HYPERINFLATION

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1. Introduction

How does high inflation affect the economy? This paper extends the existing literature on this question by examining

the effects of inflation on the bank credit market. In general, if legal or informal constraints on banks prevent them from raising nominal deposit rates, high inflation will cause disintermediation (a fall in the real value of bank deposits and loans). In this situation, there are usually two types of firms: those with and those without privileged access to credit. The unprivileged firms are first to suffer restricted access to bank credit, and may have difficulty obtaining alternative sources of working capital. By contrast, privileged firms receive cheap credit from the central bank if their needs cannot be met by commercial banks.

This emphasis on the credit market suggests three questions. The first question is which types of firms are privileged. The second question is how unprivileged firms handle the interruption in bank credit. The third is what are the consequences of privileged firms retaining access to very cheap credit.

During the German hyperinflation of 1920-23, large firms had privileged access to credit. Only from mid-1922 did real deposits fall so far that credit to large firms was rationed by commercial banks. At that point the central bank stepped in to provide these firms with a large amount of credit. At the same time the central bank also had to lend more to the government, because commercial banks were unable to continue lending to the government.

The commercial banking system had virtually ceased to exist by the end of 1922 (one year before the end of the inflation). Surprisingly, despite the previous importance of bank loans for industry, and especially for small firms (the unprivileged borrowers), the collapse of bank lending had little or no adverse effect on output or real wages. Small firms were unable to raise capital in the bond market but survived by issuing shares and merging with other firms. Large firms did extremely well during the inflation, as they repaid in real terms very little of the loans they received.

The German monetary system was very vulnerable to an inflationary shock. In the middle of 1922, sudden capital flight resulted in a sharp depreciation of the exchange rate and an acceleration of inflation. This brought about a further fall in real bank deposits, and induced the rationing of bank credit to large firms. Because the central bank responded by increasing its loans to these firms, there was an acceleration in the rate of money growth. The usual view of indexed bank deposits is that they reduce the demand for cash and lead to higher inflation. But the German case suggests that there is another process at work. Effective indexation of bank deposits might have made the monetary system more stable and prevented high inflation from becoming hyperinflation.

The conclusion is that disintermediation had surprisingly little effect on the real economy. However, in 1922 the decline in real bank deposits appears to have contributed to the destabilization of the monetary situation.

2. The Pattern of Rationing

The available data on bank portfolios does not reveal the size of borrowers. However, because large and small firms turned to different sources when they were rationed it is possible indirectly to establish what happened.

The fall in real bank deposits caused the rationing of bank loans as early as 1919. However, the Reichsbank did not lend to private firms on a substantial scale until the middle of 1922 and because the Reichsbank only ever lent to large firms, the implication is that commercial banks first rationed credit to smaller firms. Large firms eventually had to turn to the central bank for loans-but only in 1922.

The fact that small firms had to seek new sources of funding is confirmed by the numbers on company formation. There was a marked increase in the number of limited liability and joint stock companies between the end of 1919 and the end of 1922 and share issues by new firms in 1921 were three times the real value of issues in 1922. Many small private firms were selling shares to the public for the first time (Angell 1929).

In addition, there is evidence that credit rationing after 1919 contributed to a change in industrial structure. There was a wave of vertical mergers in some sectors, especially heavy industry (Michels, pp. 27-32). The relatively few large firms with access to very cheap credit during the inflation were able to buy up smaller firms which found it difficult to borrow on any terms.

3. The Real Effects of Disintermediation

All the available statistics indicate that disintermediation did not cause a reduction in output during the German hyperinflation. (In 1923 output did fall, but this was primarily due to the occupation of the Ruhr in January).

Annual average industrial production almost doubled between 1919 and 1922 (the period of most severe disintermediation). Output in 1919 was very low due to the economic and social dislocation associated with the end of World War I, including the blockade of Germany. The resumption of imports and the resolution of the labor situation were large positive supply shocks. Nevertheless, it is important that the economic recovery was apparently not impeded by the lack of bank credit. In fact during 1922, when credit conditions worsened considerably, unemployment actually fell.

The data on sectoral employment do not reflect the credit problems of small firms. There was an increase in the percentage of the labor force employed in capital goods industries between 1913 and 1919, but from 1919 to 1922 there was a slight increase in the share of employment in consumer goods industries. The percentage increase in textile industry employment from 1919 to 1922 exceeded that of any heavy

industry. Large firms were predominant in heavy industry but the effect of their access to cheap credit is not evident in these figures.

The data on real wages are difficult to interpret, because of the problems associated with measuring the actual purchasing power of wages during high inflation. There is some evidence that real wages declined from the end of 1922, when the inflation rate accelerated greatly. However, real wages were roughly stable up to 1922, despite the disintermediation.

The conclusion must be that small firms were able to obtain sufficient funding when bank credit was rationed to maintain their output, employment and real wages. The fact that firms were able to survive without bank credit is indicated by the state on bankruptcy. The post war sectorally disaggregated figures are only available from 1922, but the total numbers confirm that bankruptcies were low in 1920 and 1921. Fewer firms failed in all sectors during the inflation than either before World War I or after 1924. This was a direct result of inflation eroding the real value of all nominal liabilities.

4. Disintermediation and the Acceleration of Inflation

The German monetary system was vulnerable, in the sense that a shock to the price level (such as an exchange rate depreciation) could cause an enormous acceleration of inflation. It was vulnerable for two reasons. The first is that nominal deposit rates were fixed. As shown above, this created a threshold for the level of inflation-when inflation rose above the threshold, disintermediation became bad enough for a decline in real bank loans to large firms and to the government. The second cause of vulnerability was the willingness of the Reichsbank to lend to large private firms and to the government (at low nominal interest rates) when they could no longer obtain commercial bank credit.

The process I am discussing bears some resemblance to the Olivera-Tanzi effect (Olivera 1967, Tanzi 1977). The Olivera-Tanzi effect concerns the fall in the real value of tax revenues as inflation rises. It is due primarily to lags in tax collection when the tax system is not fully indexed. The Olivera-Tanzi effect shows that higher inflation can cause a larger real budget deficit, requiring an increase in real central bank loans to the government. In my work, however, I emphasize how capital flight and depreciation can force inflation across a critical threshold and raise the real amount of loans to the private sector (as well as to the government) made by the central bank.

According to the Olivera-Tanzi effect, halting inflation should cause real tax revenues to rise at once. However, if the central bank is lending to large firms and these firms encounter financial difficulties due to the stabilization of the price level, they may need more credit than even during the inflation. If distress borrowing is from the central bank, stabilization of the price level (for example, by fixing the exchange rate) will lead

to an increase in loans to the private sector. If this increase goes too far, it will undermine attempts to maintain a fixed exchange rate. This is exactly what occurred in Germany.

Previous tests have provided suggestive, but not conclusive evidence for the endogeneity of the money supply during the German inflation (Webb 1984). These tests examined only monthly money growth over the whole 1920-23 period. In contrast I use weekly data and focus only on 1922. There is strong evidence that exchange rate depreciation and disintermediation preceded the acceleration of money growth in that year. The order of events is exactly as predicted by the theory that high inflation causes credit market segmentation and rationing.

The money supply became endogenous only once large firms and the government were rationed by commercial banks. The money supply process shows a significant increase in its mean growth rate between the last week of July and the end of August 1922. Dummy variables for weeks in which there were sharp depreciations of the currency have a significant lagged effect on money growth. Tests of Granger-causation provide further support for the proposition that exchange rate depreciation tended to precede incr debt discounted at the central bank during 1922.

Lending by the central bank to large firms is neither necessary nor sufficient for hyperinflation, but there are good theoretical and empirical reasons to believe it was important in the German case. In contrast, the real effects of the disruption in bank credit were mostly confined to reorganization of the way production was financed. However, how this reorganization affected the costs of disinflation is an important question which requires further research.

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DISEQUILIBRIUM DYNAMICS AND THE DOWNWARD SPIRAL: THE GREAT DEPRESSION REVISITED

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1. Motivation.

Despite the sustained efforts of several generations of economists, there is as yet little consensus on many aspects of the Great Depression. Two questions which have been the object of particularly hot debate are: (i) why did the Depression occur and what were the precipitating factors? And, (ii) why did it last for so long?

Received wisdom concerning question (i) involves the usual contrasting Monetarist and Keynesian positions, to which may be added Temin's recent (1989) hypothesis centered on the long-term effects of World War I. A taxonomy of the answers to question (ii) is not so clear-cut, but two common themes do emerge:

(a) Wage and price rigidity played an important role in the sluggishness of the recovery.

(b) The downward spiral from 1929 to 1933 was so protracted because of a sequence of negative shocks (the usual stories have them on the demand side).

The fascination with wage and price flexibility is unsurprising, given that it has become—to quote Gordon—one of the profession's "occupational diseases." There is also a widespread belief that wage and price flexibility are stabilizing. This last point is important because it highlights that the theoretical models underlying most explanations for the duration of the Depression are dynamically stable, meaning that the dynamics of the system tend to bring the economy back towards full employment (a typical example is Temin, 1976, who uses a standard IS-LM framework). From this assumption stems the need for the sequence of negative shocks: whatever is propelling the economy down towards the abyss of 1933 must be powerful enough to overwhelm the equilibrating forces of the macro-system.

These two elements—the dynamics of the downward spiral and the sluggish adjustment of wages and prices—have become the building blocks of our common understanding of the years following the Crash. In our opinion, it is unfortunate that the literature has chosen to incorporate these building blocks within the edifice of equilibrium macroeconomics—"equilibrium" in the naive sense that, either explicitly or implicitly, demand equals supply. If there is any historical episode for which this edifice crumbles, if there is any period during which an equilibrium *weltanschauung* is out of place, surely it must be the Great Depression. Tobin (1975) has underlined that Keynes "equilibrium with involuntary unemployment" does not mean a static equilibrium but rather "the possibility of a protracted unemployment which the natural adjustment of a market economy remedy very slowly...The phenomena he [Keynes] described are better regarded as disequilibrium dynamics."

To test any hypothesis regarding the Depression under the assumption that markets clear is, in our opinion, self-defeating. Thus, our understanding of the dynamics driving the downward spiral of 1929-1933 will of necessity be formulated within a disequilibrium framework. Such an approach has its origins in the highly original body of theoretical work initiated by Barro-Grossman (1971) and extended, among others, by Benassy (1982). Our approach is, however, theoretically agnostic, in the sense that many theoretical constructs could explain our empirical findings. In this paper we do not offer a theoretical interpretation of our results but present them in the hope that they will stimulate discussion.

2. The Model.

The model we construct and test revolves around aggregate demand and aggregate supply. However, the labour market must be dealt with in a way different from standard models (see for example, Dornbusch and Fischer, 1984) because the usual aggregate supply specification implicitly assumes a

clearing labour market. If the labour market does not clear, aggregate supply must be derived from labour demand. Our final system will therefore comprise three structural equations: aggregate demand, aggregate supply, and labour supply.

Our specification is based on Rosen and Quandt (1978) and draws on Smyth (1983). The model posits an explicit adjustment mechanism—a Bowden process—in which nominal wages adjust to bring the labour market back towards a situation in which labour demand equals labour supply.

2.1. The labour market.

The basic disequilibrium framework is given by a labour demand function, a labour supply function, the short-side principle, and a pair of nominal wage adjustment equation:

$$E_{D,t} = \beta_0 + \beta_1(W_t - P_t) + \beta_2 Q_t + \varepsilon_{D,t}; \quad [1]$$

$$E_{S,t} = \gamma_0 + \gamma_1(W_t - C_t) + \gamma_2 N_t + \varepsilon_{S,t}; \quad [2]$$

$$E_t = \min(E_{D,t}, E_{S,t}); \quad [3]$$

$$W_t - W_{t-1} = \zeta_1(E_{D,t} - E_{S,t}) \text{ if } E_{D,t} < E_{S,t} \quad [4]$$

$$W_t - W_{t-1} = \zeta_2(E_{D,t} - E_{S,t}) \text{ otherwise.}$$

It is well-known that one can re-parametrize wage adjustment as

$$W_t - W_{t-1} = (1 - \mu_1)(W^* - W_{t-1}) \text{ for } W_t < W_{t-1} \quad [4']$$

$$W_t - W_{t-1} = (1 - \mu_2)(W^* - W_{t-1}) \text{ otherwise}$$

where W^* , the equilibrium wage (W^* , such that $E_{D,t} = E_{S,t}$), is defined by

$$W_t^* = \frac{\gamma_0 - \beta_0 + \beta_1 P_t - \gamma_1 C_t + \gamma_2 N_t - \beta_2 Q_t + \varepsilon_{S,t} - \varepsilon_{D,t}}{\beta_1 - \gamma_1} \quad [5]$$

and $E_{D,t}$ is labour demand in period t ; $E_{S,t}$ is labour supply; E_t is observed employment; W_t is the nominal wage rate; P_t is a measure of wholesale prices; C_t is a measure of consumer prices; Q_t is output; N_t is population; $\varepsilon_{D,t}$ and $\varepsilon_{S,t}$ are disturbance terms which are assumed to satisfy the usual assumptions. Noticing that equation [4'] can be rewritten as

$$W_t^* = W_t + \frac{\mu_1}{1 - \mu_1} \Delta W \quad [6]$$

and similarly for upward movements in wages, it is then easy to establish the following estimating equations:

$$E_t = \beta_0 + \beta_1(W_t - P_t) + \beta_2 Q_t + \left[\frac{\beta_1 - \gamma_1}{1 - \mu_2} \mu_2 \right] \Delta W^+ + \varepsilon_{D,t} \quad [7]$$

$$E_t = \gamma_0 + \gamma_1(W_t - C_t) + \gamma_2 N_t - \left[\frac{\beta_1 - \gamma_1}{1 - \mu_1} \mu_1 \right] \Delta W^- + \varepsilon_{S,t} \quad [8]$$

2.2. The Goods market.

Aggregate demand is given by the usual solution to an IS-LM system in which the nominal interest rate enters the LM equation, while the real interest rate enters the IS equation

$$Q_t^D = \delta_0 + \delta_1(M_t - P_t) + \delta_2(E_t P_{t+1} - P_t) + u_t$$

Aggregate supply is obtained by solving equation [7] for Q_t :

$$Q_t^S = -\frac{\beta_0}{\beta_2} + \frac{1}{\beta_2} E_t - \frac{\beta_1}{\beta_2} (W_t - P_t) - \left[\frac{\mu_2}{1-\mu_2} \right] \left[\frac{\beta_1 - \gamma_1}{\beta_2} \right] \Delta W_t^+ - \frac{\varepsilon_{Dt}}{\beta_2}$$

We next write the price adjustment equations in producer prices (P_t):

$$P_t = P_{t-1} + v_1(Q_t^D - Q_t^S) \text{ for } Q_t^D < Q_t^S \\ P_t = P_{t-1} + v_2(Q_t^D - Q_t^S) \text{ otherwise,}$$

which we re-parametrize as in the case of the labour market. We then obtain the following goods market estimating equations

$$Q_t = \alpha_0 + \alpha_1 E_t + \alpha_2 (W_t - P_t) - \left[\frac{\mu_2}{1-\mu_2} \right] \left[\frac{\beta_1 - \gamma_1}{\beta_2} \right] \Delta W_t^+ \\ - \left[\frac{\beta_1 + \beta_2(\delta_1 + \delta_2)}{\beta_2} \right] \left[\frac{\eta_1}{1-\eta_1} \right] \Delta P_t^- + z_t \quad [11]$$

Assuming perfect foresight, aggregate demand is given by

$$Q_t = \delta_0 + \delta_1(M_t - P_t) + \delta_2(P_{t+1} - P_t) + \left[\frac{\beta_1 + \beta_2(\delta_1 + \delta_2)}{\beta_2} \right] \left[\frac{\eta_2}{1-\eta_2} \right] \Delta P_t^+ + u_t \quad [12]$$

with the third equation in the system being the labour supply equation. Finally, in order to endogenize consumer prices, we posit a "price-wedge" or markup equation given by

$$C_t = \phi_0 + \phi_1 P_t + \omega_t \quad [13]$$

One of the model's strengths is that —by going out on a "specification limb"— it provides an elegant and concise formulation of goods and labour market dynamics; namely, an explicit estimate of the stickiness of prices and nominal wages. Moreover, these estimates of wage and price flexibility are defined in terms of the extent to which wages and prices adjust to their market-clearing values. This is in contrast to most discussions of flexibility, which confine their attention to measuring the magnitude of movements in wages and prices. We believe such approaches to be rather uninformative in that they fail to address the key issue which may be succinctly expressed as: flexibility *with respect to what*? A wage rate that displays a high variance over a period of time may not be evidence of flexibility at all if it consistently "misses" the

equilibrium value. A wage rate that varies very little may not be evidence of inflexibility in that it may shadow the underlying equilibrium wage rate very closely.

3. Estimation Results.

Our paper considers the entire 1890-1940 period, and analyzes the different dynamics which characterize various intervals within that time-frame, 1890-1929 and 1929-1940 being the divisions of greatest interest. Moreover we estimate the model on Canadian (Urquhart and Buckley, 1965) as well as U.S. (*Long Term Economic Growth*, 1973) data. This allows us to compare dynamics in the two countries and provides an additional test of the robustness of the specification. In what follows, we confine most of our remarks to the U.S. results. Our empirical findings may be summarized in three points:

(i) We find evidence of *very little* price and nominal wage stickiness during the Depression. This is reflected in the estimated values of the parameters η and μ , which are near zero (for both upward and downward adjustment). Wage and price sluggishness, contrary to the widely held view, is thus incapable of explaining the downward spiral and the slow pace of the recovery. Note that this is entirely consistent with the view held by Tobin (1975) and DeLong and Summers (1986), among others, that wage and price flexibility are not necessarily stabilizing influences in the context of a deflation.

(ii) We find that the equilibrium restriction of our model is decisively rejected (for all sample periods for the U.S.) in favor of its disequilibrium counterpart. This provides strong support for our choice of a disequilibrium approach. Moreover the model is surprisingly robust, especially over the 1890-1940 period, as revealed by the results of the relevant Hausman test. Although the Hausman test allows one tentatively to reject the specification for the 1919-1940 period, rejection or non-rejection depends on the test size chosen (i.e., $\alpha = 0.025$ versus $\alpha = 0.01$).

(iii) The behavior of the estimated American aggregate demand function is our most striking result. We find an *upward sloping aggregate demand schedule* (in price/output space) for the 1919-1940 sample period. A number of reasonable micro stories which yield this result can be derived in the context of a financial collapse such as the Crash of 1929. Experimentation with sample periods revealed that the perverse behavior of aggregate demand was restricted to the years 1929-1940. Aggregate demand was found to be downward sloping for 1890-1918, 1890-1929 as well as for 1919-1928. This has important consequences for the dynamics of our macrosystem, to which we now turn.

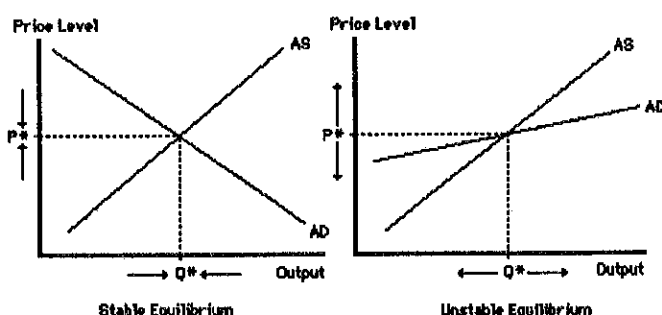
4. The Dynamics of the Downward Spiral and Concluding Remarks.

As we noted in the introduction, conventional explanations of the propagation of the Great Depression must rely on a

sequence of negative shocks which can outweigh the stable dynamics of the underlying system. There are a number of potential candidates (the most likely being the bank failures), none of which seems to be of sufficient magnitude. The usual macroeconomic system, and its inherent stability, is illustrated by the left-hand panel of Figure 1.

Our alternative explanation, based on the dynamics uncovered by our econometric work, is the following. The Crash and the upheavals which followed eventually caused a régime change in which the behavior of aggregate demand came to be described by the right-hand panel of Figure 1. In such a macroeconomic system a shock which would otherwise yield a recession is transformed into a deep depression by the laws of motion of the system, which lead the economy on a downward spiral in which prices and output fall. Thus, our econometric findings imply that one need not look to a sequence of negative shocks for an explanation of the propagation and the severity of the Great Depression.

FIGURE 1.
STABLE AND UNSTABLE DYNAMICS.



What conclusions can one draw from our results? First, the equilibrium specification of the model is consistently rejected in favor of its disequilibrium counterpart. Though it is obviously not possible to generalize this finding to other models *a priori*, we conjecture that tests of the equilibrium restrictions in more complex models will yield much the same result. If anything, the fact that a very simple two market equilibrium model does not survive a test for disequilibrium indicates that much of the equilibrium macro-econometric literature may be seriously flawed. Second, the perverse behavior of aggregate demand appears to be isolated to a restricted interval, and to the U.S (aggregate demand behaves in a perfectly conventional manner when the model is estimated on Canadian data). This can be taken as an indication either of misspecification or of underlying empirical regularities which standard models have failed to uncover. Of course misspecification is a possibility, but most of the models that we estimated survived Hausman specification tests. If the perverse behavior of aggregate demand survives further scrutiny, it will cast fresh light on the dynamics underlying the Great Depression.

BANK FAILURES, DEPOSIT INSURANCE, AND LENDERS OF LAST RESORT: HISTORICAL INSIGHTS AND THEORETICAL PERSPECTIVES

Saturday, December 30, 8 a.m.
Marriot Hotel - Consulate Room

THE FAILURE OF THE BANK OF UNITED STATES, 1930

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The failure of the Bank of United States (BUS) plays a major role in the narrative of the economic downswing of 1929-33. The Bank, which closed December 11, 1930, in the midst of a heavy run, was the largest bank (in dollar terms) to fail in the country's history to date. Before it began its slide, it had deposits of \$238 millions in September, 1929, and was the 28th largest commercial bank in the country. The Bank's failure has generated interesting commentaries by Milton Friedman and Peter Temin, among others.

I. Was it important? We present evidence that the Bank's failure contributed substantially to the outflow of currency from the banking system, and that it exerted a downward influence on consumer spending in New York City.

II. Was it exogenous? We are trying to evaluate the general significance of bank failures as a cause of the great depression. If this bank failure, and the volume of failures in general, were a normal and predictable response to the economic downswing which began in the summer of 1929, then we can scarcely regard the bank failures as contributing causes. We present evidence that the Bank's failure was not a normal and predictable response to the decline of incomes and prices in general. In order to explore this issue fully, we need to address the third question, namely

III. Why did the Bank fail (or did it?) We show that the Bank's failure arose from a management strategy designed to raise the market value of the Bank's stock and involving mergers and development of an extensive system of financial services. This strategy contained internal contradictions which would have gotten the Bank into trouble even if the macro economy had not turned down. The Bank also undertook heavy real-estate financing commitments without proper managerial safeguards, and as its condition worsened, showed clear signs of dishonest and managerial incompetence. In examining this question, we deal also with Friedman's claim that the Bank was not really insolvent and should have been rescued rather than closed.

I. A. My recently published study in *Research in Economic History* presents abundant evidence that the pattern of bank failures in each Federal Reserve district provides the chief explanation for currency withdrawals. Data for currency withdrawal from the Federal Reserve Bank of New York indicate a large reaction to the Bank's failure. According to the New York Fed, "The closing of the Bank of United States was followed by considerable withdrawals of deposits from several other banks doing business with a somewhat similar type of customer in the same general localities ... These banks called upon the Reserve Bank for large amounts of currency. Other banks moreover drew more than the usual amounts of currency to be prepared in the event of any possible exceptional withdrawals." (FRBNY, *Monthly Review*, Jan. 1, 1931, p. 1) In the New York district, Federal Reserve note circulation declined by \$111 million in the year ending October, 1930. In contrast, note circulation at the end of December was \$66 million above the preceding year. By June, 1931, the 12-month district increase was \$102 million.

B. Effects of the Bank's failure on people's expenditures can be inferred from the data on department store sales. The New York Fed published monthly data showing the percentage change in sales from the previous year for the entire second district and also for individual cities. Ordinarily the New York City figures were very close to the district average. We regressed New York City sales change against second district sales change using the six months before December, 1930, plus the six months after January, 1931, with the following result:

$$(1) \Delta S_{NYC} = 1.05 \Delta S_{2D} - 0.4 \quad R^2 = .965 \quad \text{s.e.} = 0.73$$

Using this equation, the estimated values for December, 1930, and January, 1931, for New York City sales change would be -6.3 and -7.6. The actual changes were -7.2 and -8.6. Thus actual sales in New York City sales fell about one percentage point more than would have been predicted from the entire second district, an error significantly larger than the standard error of 0.7.

At the time of its closing, the Bank had about \$160 million of deposits and approximately 400,000 depositors. When the Bank closed, other New York City banks agreed to lend to BUS depositors one half of the amount of their deposits at 5% interest. However, such loans amounted to only \$33 million by the end of February, 1931. Thus the direct short-run loss of spendable cash to BUS depositors was at least \$130 million. Thus it is plausible to expect a negative effect on consumption spending of the type represented by department store sales.

In considering the currency drain and the impact on spending, one should not neglect the enormous publicity generated in the New York City area by the Bank's failure and liquidation. Between December 11, 1930 and July 2, 1931 the *New York Times* carried at least one BUS item every day except two. The BUS situation made the front page of the *Times* on 78

different days in that period. Even in the last six months of 1931, the *Times* carried BUS items on 94 different days.

II. Was the Bank's failure endogenous? Many of the investigations of the causes of the downswing of 1929-33 have argued that the bank failures of the period were merely a reaction to business depression and the attendant inability of borrowers to pay their debts. There are several problems in identifying directions of causality. One is to determine what is the criterion of "normal" bank failure associated with a given degree of business depression. I have examined these matters in detail in a number of other papers and will give a brief summary of some relevant points here, as follows:

A. During the sharp and severe business depression of 1920-21, probably the closest analog to 1929-33, the level of bank failures never rose to an economically significant level.

B. A set of monthly data for the period 1918-October, 1930, was used to generate forecast values for bank failures and interpret their causality relationship. A five-variable VAR system was estimated, using industrial production, wholesale prices, commercial-paper interest rate, M2, and the proportion of deposits in suspended banks. Regressions were estimated among these variables to identify *prima facie* Granger causality. Over the sample period, bank failures were not Granger-caused by any of the other variables in the model. Bank failures did exert a causal influence on industrial production with the expected sign. These results were confirmed by variance decompositions. Thus, the large upsurge in the dollar volume of bank suspensions in November-December, 1930 was not a normal and predictable response to the economic downswing, based on data from previous fluctuations, including the major downswing of 1920-21.

C. When we turn to the specifics of the Bank of United States, however, it may be expedient to broaden our conception of endogeneity. The bank's collapse was closely linked to the downward movements in stock prices and in the real estate market. It may be fruitful to restate the issue in counterfactual terms. Given the personalities and attitudes of the Bank's management, would the Bank's failure have been averted had the macroeconomy in general or the stock and real estate markets in particular taken some different but feasible pattern? We could also try to judge the predictability of the deterioration of economic conditions. Urban real estate markets were showing unmistakable signs of deterioration even before 1929. It appears the Bank's real-estate management practices would have gotten them into trouble if that existing trend simply continued. However, much of the Bank's demise hinged on the collapse in the market value of its stock. What is a reasonable counterfactual assumption to apply to the Bank's stock? That issue will be explored below.

D. One piece of evidence that the Bank's failure was not endogenous is so obvious that it is easy to overlook. The Bank of United States was the only major New York City bank to fail during the entire downswing. Other major banks had securities affiliates. Others were heavily involved in real estate activities. In particular, the Manufacturers Trust was very similar to BUS — heavily Jewish management and clientele and very large real estate activity.

III. A. Before examining more fully the causes of the Bank's failure, we need to ask whether it did in fact really fail. Friedman has argued that the Bank was really solvent at the time of its closing, but was experiencing a liquidity problem analogous to that of the Knickerbocker Trust in 1907. Had banks been permitted in 1930 simply to suspend convertibility of deposits into currency, as they periodically did before the creation of the Federal Reserve, the Bank might have been revived. If the Bank was solvent, then its closing was an exogenous event, attributable to the failure of the rescue effort (a failure possibly attributable to anti-semitism). A careful look at the evidence suggests this contention is not very robust.

The Bank's liquidation dragged on until 1944. Ultimately the Bank's creditors as a group received 84 percent of their claims. Because of the long delay, however, we should discount the payments stream. Using a 4 per cent rate lowers the payout to about 78 percent. However, secured creditors (most notably the New York Fed) had to be paid in full. The discounted payout to ordinary depositors was only about 70 percent. Not all of this came from the Bank's assets. Stockholders were assessed \$25 per share, and more than \$10 million was collected from them. Additional funds were obtained from lawsuits against directors and management.

Finally, Friedman's contention ignores the importance of extensive repurchase agreements which the Bank made in marketing its stock in 1929. The Bank dishonored these, and was ultimately upheld by the courts. However, evidence that such agreements were made is strong. Further, they were in litigation at the time that the Bank was closed. Had the courts upheld the claims, the Bank's margin of insolvency would have been much greater.

Whatever the margin of the Bank's insolvency in December, 1930, it is evident that its condition was deteriorating rapidly. Efforts had been underway for months to rescue the Bank through some form of merger. These failed in large part because the Bank's management kept holding out for better deals, not because of malice on the part of other elements of the financial community. Nowadays, we are accustomed to intervention by regulatory authorities to replace defective management. But such intervention was simply unheard of in 1930.

Many banks which suspended during 1929-1933 were reopened if they were in fact solvent. Immediately after the

Bank's suspension, efforts were undertaken to reopen it. The proposals which appeared most likely to succeed indicated impaired solvency, with the Bank's depositors being obligated to accept 30 percent of their claim in the form of stock.

To evaluate the causes of the Bank's failure, we turn to narrative exposition. The Bank of United States was established in 1913 by Joseph Marcus, a successful Russian-born Jewish clothing manufacturer. The Bank cultivated loan and deposit business with the Jewish business community and developed a very large clientele of household savings depositors. By the end of 1927 the Bank held assets of \$107 millions and deposits of \$95 millions. This was not a "small local bank" (as Temin claims, p. 91), but one of the hundred largest banks in the country.

The Bank shared in the boom which began to affect stocks of New York City banks around 1924. Between January, 1924, and July, 1927, Standard and Poor's index of 500 nonfinancial stocks rose about 65 percent, but in the same period, their index of prices of 15 major New York City bank stocks doubled. During 1925 and 1926 the Bank's stock ranged in price from \$195 to \$350 and sold at about 15 to 20 times reported earnings, a ratio substantially above the average for nonfinancial stocks. This high multiple, which made the issue of additional stock attractive, was typical for large New York banks and probably reflected the public's belief that the city's banks provided a good combination of safety and stability, on one hand, with earnings growth and capital gains, on the other.

For stockholders in the large Wall Street banks, an important contribution to earnings came from securities affiliates. The first National Bank established its First Security Co. in 1908. National City Bank created its National City Company in 1911, and Chase National Bank followed with Chase Securities in 1917. Stock of the last two affiliates was linked share-for-share with stock of the parent bank by the simple expedient of printing the stock certificates back-to-back, and the two were not sold separately. The securities affiliates were thus owned by the same stockholders as the parent bank. They involved themselves in marketing new securities issues and in brokerage of existing securities, generating substantial service revenues which rose rapidly with the stock market activity of the late 1920s. Further, the security affiliates became themselves investment companies, holding substantial amounts of financial instruments for income and capital gains.

A securities affiliate which was particularly conspicuous in 1927-28 was Bancitaly, a New York-based element of A.P. Giannini's rapidly growing financial empire. Initially created in 1919 as an instrument for bank acquisition and control, Bancitaly experienced dramatic earnings growth and stock price appreciation in the 1920s. In February, 1928, Bancitaly played a central role in Giannini's acquisition of New York's Bank of America, an episode extensively published in New York.

In July, 1927, Joseph Marcus died. Managerial control then passed to his son Bernard Marcus, who acted in close association with Saul Singer. In the late months of 1927, Bernard Marcus and Singer began an adventurous series of maneuvers which can be analyzed in terms of three elements. One was expansion through mergers and bank purchases. The second involved a series of securities affiliates and a syndicate for stock trading. In both of these elements, there were obvious parallels to the Giannini developments. The third was extensive investment in real estate development projects. These operations generated a bewildering variety of affiliated corporations. The complex linkages among the Bank and the affiliates ultimately gave rise to the fraudulent bookkeeping on the basis of which Marcus and Singer served prison terms. We examine each of these three elements in turn.

B. Within the space of a year, between May 21, 1928 and May 13, 1929, when the stock market boom was very strong, BUS merged with or purchased five other banks with total book value of about \$26 million and with about \$170 millions in deposits. In most cases, the transaction was carried out by giving stock of BUS or an affiliate in exchange for the stock of the acquired bank.

Looking back at the merger process from the perspective of September, 1930, a bank examiners' report commented that Marcus and Singer "were endeavoring to build up a city-wide branch banking system that might prove attractive to large banking interests desiring to spread out into banking and that might be sold at a large profit to themselves and with the probability of their being placed in lucrative positions with the absorbing institution."

In the post mortem investigations, the authorities pressed the BUS executives to admit they had paid too much for the banks involved in the mergers. The executives, however, insisted the merger terms were based on market prices, and that appears to be correct. Although only fragmentary data are available, we can estimate that in purchasing the Colonial Bank for \$19.6 million, BUS paid about \$27 for each dollar of earnings acquired. In merging with the Municipal Bank in April-May, 1929, BUS issued a total of 175,000 "units" (see below) with a market value of about \$60 million to acquire earnings of about \$1.8 million, representing a cost of about \$33 per dollar of earnings. These multiples seem very high. However, in 1927, the last year for which data were released, BUS net earnings were \$25 per share and its stock price ranged between \$315 and \$615, putting the price/earnings ratio in the range of 12 to 24. New York bank stock prices increased substantially more than earnings in 1928 and 1929. A study of 16 New York City bank stocks released in late 1930 noted that at the peak of the stock boom in October, 1929, a dollar of earnings was selling for \$46.60.

The issue is worth investigating, because soon after the mergers were completed in the first half of 1929, BUS stock began to decline, at a time when the stock market in general

was rising, and when bank stocks in general were sharing the rise. The following sections establish the importance of the movements of BUS stock.

C. The second element of the Marcus-Singer strategy was the creation of securities and financial-services affiliates. In August, 1927, they organized City Financial Corporation, which was financed by selling \$30 million of (mostly) non-voting stock to the public. Investors eagerly bid for the stock, which quickly rose above its issue price. If the public was willing to pay more for a dollar of earnings in bank-related stocks than in nonfinancial stocks generally, it was potentially profitable for banks to form affiliates and sell their stock at a higher multiple to buy stocks with a lower multiple. City became active in brokerage and underwriting activities related to the stock of the Bank and its other affiliates. City was also a channel for investments in real estate. It was a vehicle for purchase of the Colonial Bank in 1929, and for investment in other financial-service affiliates. One of these was Consolidated Indemnity and Insurance Co., which was incorporated in June, 1928, with Marcus as president and other BUS officials as top management. Consolidated's initial capital (about \$5 million) consisted partly of cash received from selling stock to the public through City, and partly of stock in City and BUS received through an exchange of shares. Like a number of financial-service firms created by BUS, Consolidated was expected to generate service revenues, in this case by the sale of surety bonds and property and casualty insurance. Like many other property and casualty companies, it was also managed as an investment company, rapidly accumulating a large portfolio of securities and mortgages.

In December, 1928, Marcus and Singer formed a new affiliate, the Bankus Corporation. They adopted the custom of welding together one share of Bankus with one share of BUS stock into a "unit." A large issue of units was used to acquire the stock in City Financial. Marcus and Singer were able to reap about \$6 million paper profits from these transactions.

The proliferation of affiliates continued when in April, 1929, BUS acquired the Municipal Bank and Trust and its affiliate, Municipal Finance Corporation. Originally established in 1927, Municipal Finance had \$12 million in assets by the end of 1928, including \$7.3 millions in stocks. Among the latter were controlling interests in more financial service companies including Marshall Mortgage Co. and American Title and Guaranty, both active in real estate finance.

Although some diversification can be observed in the investments of the BUS affiliates, a major goal in their management was consistently the purchase, holding, and speculation in the stock of BUS and the other affiliates. Another instrument in the speculation was a private syndicate organized by Marcus and Singer and involving a number of other BUS management and directors.

Now the use of affiliates for the purpose of speculating in stock of one's own bank was not uncommon among the other banks, as the investigation of Chase and National City disclosed. But such speculation was not the center of their operations, whereas with the Singer-Marcus operations, the efforts, first to raise the value of the stock and then, with increasing desperation, to prevent its decline, became an obsession. Whatever their thinking, Marcus, Singer and other officials and directors of the Bank allowed concern for the value of the Bank's stock to become a dominant element in their strategy during 1929-30. This obsession led the Bank to become heavily involved in lending to the affiliates, buying their stock, and lending to individuals who were speculating in the Bank's stock. It led Marcus and Singer to become increasingly careless about mundane details of bank management and of banking and corporation law.

It is therefore highly significant that the market value of the Bank's units began to decline after reaching a peak of \$242 a share in April, 1929. This was the period of the mergers with Colonial and Municipal. A more clearcut divergence between BUS and other stocks was evident in the last half of 1929. Between early July and early October, while stocks in general were again rising, and while the index of 15 New York bank stocks climbed from 64.2 to 72.9, BUS "units" fell from \$207 to \$170.

These movements in relative stock prices had several important implications. First, influential stockholders felt the Bank was not as good an investment as formerly, compared with other banks. These influential stockholders were probably some of the people connected with the other banks which had been merged into BUS. Second, the decline in BUS stock led to a frenzy of efforts by the Bank's management to attract deposits and to sell shares. In July, 1929, they began a campaign to sell units to depositors. BUS employees were told they might promise depositors that BUS would repurchase their shares at or near the original price of \$198. About \$6 million of stock was sold in July-August, 1929, much of it to small depositor-investors.

The affiliates played a major role in the campaign to try to prevent the BUS units from declining in price. Large loans were made by the Bank to the affiliates to finance these and other purchases of units. By August, 1929, the three major affiliates owed the Bank \$11.6 million borrowed for this purpose. Bankus also made loans directly to Bank employees to help them carry units. The Marcus-Singer syndicate borrowed \$848,000 from Municipal Finance to help them carry units.

In August, 1929, the bank examiners strongly urged that the Bank cease making loans to enable people to buy or hold its stock.

D. The third element in the Marcus-Singer strategy was a heavy commitment to real-estate finance. To the Bank

and its affiliates, real estate finance offered the opportunity to make speculative profits and to earn revenues from rents and financial services.

Nationwide, however, the real estate market, in contrast to the stock market, had been showing signs of decline even before 1929. Furthermore, banking authorities in many parts of the country were sounding strong warnings against bank involvement in real estate finance. In spite of these adverse conditions, the Bank moved heavily into real estate activity after 1927. Consolidated Indemnity became a substantial mortgage lender. The acquisition of Municipal Finance in 1929 brought much more real estate activity into the BUS system. And in 1928 and 1929 the Bank created a vast array of new affiliates which engaged directly in purchasing land and constructing buildings, chiefly for apartments.

The bank examiners' report of August, 1929, chided the bank mildly for its real estate activities, but these strictures had no perceptible deterrent effect. The September, 1930, report, in contrast, cited real estate involvement as a major disaster area, indicating (perhaps erroneously) that the Bank had about \$70 million of real estate loans and investments.

The issue is not simply that the Bank was heavily involved in real estate lending; this was true for other major New York banks (such as Manufacturers Trust) which did not fail. What is evident is that the Bank made high risk commitments involving de facto property ownership and that the loans lacked the usual safeguards relating to borrowers' equity and collateral.

In support of these three elements in their business strategy, the Bank under Singer and Marcus turned increasingly to the Federal Reserve discount window. In October, 1928, they borrowed \$8 million, taking six months to repay, and in September, 1929, they borrowed \$18 million, taking 10 months to repay. (Lucia, p. 414)

Official efforts to reform the Bank began in August, 1929, when a state bank examiner told Marcus and Singer "he did not feel that the officials were qualified to conduct the affairs of such a large bank." The Bank undertook merger discussions with the highly respected financial house of J. and W. Seligman, but after carefully examining the Bank's documents, the Seligmans withdrew in September, 1929.

The general decline in stock prices hit the Bank very hard — harder than most.

In late June, 1930, units were selling for \$42, representing a decline of over 80 percent from their high in April, 1929. Over the same period, Manufacturers Trust stock had lost 70 percent, but the average of 15 New York banks had lost only 39 per cent.

In March, 1930, the state banking department examined Bankus and the Bank's safe-deposit affiliates. Their report "predicted the failure of the bank, to which the corporation was closely bound, unless certain abuses were immediately corrected." This supports the view that the Bank's condition was deteriorating rapidly.

The bank examiners returned to the Bank itself in June, 1930. The investigation, which involved 129 examiners, was not completed until September 15. At its conclusion, Superintendent Broderick indicated he felt the Bank was in serious difficulty, and that it could only be saved by a merger. From that time until its closing, the Bank's management was constantly involved in one or another negotiation for a merger. At several points, agreement seemed to be near, but each time it broke down because of the excessive demands by the BUS leaders. By the time arrangements were made satisfactory for BUS management, unfavorable reports were leading to decline in its stock and withdrawal of deposits. Prospective merger partners insisted on a massive line of credit from New York Clearing House banks to protect against heavy deposit loss, but the prospective lenders were unwilling to commit. Thus the Bank was closed.

Ultimately the Bank failed because its management was seriously defective. This can be documented in three areas, as follows:

1. The Bank's involvement in real estate finance after 1927 violated the most elementary canons of professional bank management. The Bank and its affiliates often took equity positions or junior creditor status. Many borrowers (especially Bank insiders) would not have passed standard tests of credit worthiness. Loan-to-value ratios were not reasonable. Collections procedures failed to insist that periodic payments on loans be made and that additional collateral be furnished if pledged assets declined in value.

2. The Marcus-Singer strategy was based on the expectation that the Bank's "units" would at least remain in the \$200-plus range, and probably increase. The proliferation of repurchase agreements and the use of the Bank's funds to finance stock purchase were all based on confidence that the stock would return to previous highs and presumably advance.

Even if corporate stocks in general had continued to rise in price — and that is not a very plausible assumption — the Bank's stock would have had difficulty maintaining its value. This is evident in its behavior relative to other stocks. In particular, strength in the Bank's "units" would occur only if the Bank's earnings continued to rise rapidly. But those earnings were very sensitive to the volume of stock market activity, to the point that a rise in general market activity was probably necessary merely to keep the Bank's earnings constant. A large part of their earnings came from capital gains, brokerage charges, and underwriting revenues. As things turned out, the Bank's earnings declined precipitously

after the middle of 1929. One may doubt that any plausible rise in general stock prices and volume could have sufficed to keep the Bank's units at \$200.

3. At the same time the Bank's stock was falling in value, the general standard of management honesty and competence was deteriorating. The most flagrant example was the repurchase agreements, which were honored for some insiders but not for depositors in general. Joseph McArdle, a member of the Bank's auditing firm, testified that "scattered through desks and drawers in the bank's offices and its affiliate corporations were scraps of paper and other casual memoranda of contingent liabilities and repurchase agreements." The Bank had failed to pay its 1929 federal income tax and was faced with a heavy tax lien because the authorities had been unable to examine its books.

Thus the Bank failed because its management undertook so much risk exposure that they could not withstand a continued downturn in real estate conditions, a predictable mild general economic recession, nor a predictable levelling off in general stock prices. To be sure, the precise date of the Bank's demise depended on general business conditions. To be sure, also, the Bank could have been saved had Singer and Marcus been willing to withdraw earlier. Their actions, rather than some inevitable consequences of the macroeconomic environment, caused the Bank's failure and the attendant damage to the economy.

THE INCENTIVE INCOMPATIBILITY OF GOVERNMENT-SPONSORED DEPOSIT-INSURANCE FUNDS: SUMMARY

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Government-sponsored deposit insurance has a long and checkered history. Before federal insurance emerged in 1933, 14 states had experimented with bank-obligation insurance schemes. These state systems were established in two waves: 1829-1858 and 1910-1917. Although several 19th-century systems enjoyed at least a "moderate degree of success" (FDIC, 1952, p. 60), pre-1933 state schemes survived only about 17.5 years on average, with a standard deviation of just over 10 years.

More-recent testimony to the difficulty of keeping a deposit-insurance fund whole is provided by the 1989 demise of the Federal Savings and Loan Insurance Corporation (FSLIC) and the hard times experienced by 13 post-1933 state-sponsored funds set up to guarantee deposits at state-chartered thrift institutions. In late 1984, eleven state-based guarantee funds

underwrote deposit insurance for about 650 state-chartered institutions. Since then, state-based funds have shrunk greatly in importance. Four have been declared insolvent, one no longer has any thrift clients, and three others wound down their operations. The remaining three funds decided to limit sharply the business they underwrite.

This paper argues that these funds' problems and prior insolvencies of deposit-insurance funds in Mississippi (1976) and Nebraska (1983) have systematic causes. The fundamental difficulty is that deposit insurers have hidden or unacknowledged objectives that conflict sharply with their ostensible long-run goals of protecting depositors of modest means and curtailing in a cost-efficient manner the threat of destructive runs. Golembe (1960) argues that bank deposit-insurance schemes were adopted primarily "to restore to the community, as quickly as possible, circulating medium destroyed or made unavailable as a consequence of bank failures" (p.189), particularly to overcome delays in repayment associated with the liquidation process. Such benefits are, of course, predominantly once over or transitional. An at least equally important goal, whose benefits are both transitional and continuing, has been to extend hidden (i.e., off-budget) subsidies to economically weak and/or politically strong deposit institutions. White (1981), develops evidence that the state schemes founded in 1910-17 were intended primarily to assist small country banks to compete with well-capitalized and better-diversified large banks. Marvell (1969, p.28) lists among the chief reasons for creating FSLIC that it "would help the savings and loan associations attract funds."

This paper seeks to explain and document the tendency for political processes to transform any ongoing government-sponsored deposit-insurance scheme's wealth-redistribution goal into its de facto paramount purpose. This is why, looked at as strictly economic enterprises, deposit-insurance funds tend to be operated in ways that are incompatible with the interests of the inherently underinformed taxpayers who serve de facto as guarantors of last resort. The limited life observed for government-sponsored funds is less a matter of bad economic luck or specific "mistakes" in regulatory management than of generic principal-agent problems that support structural imbalances in their information, monitoring, enforcement, and incentive systems (Kane, 1987). Large losses develop because informational, statutory, and political restraints make it technically difficult and personally painful for fund managers to rein in risk taking by aggressive or undercapitalized deposit-institution clients. Bureaucratic restraints and managers' career interests create a preference for accounting systems that can be used to conceal readily appraisable losses and for deferring resolution of these losses in ways that set the stage for even more severe losses in the long run.

I. Principal-Agent Problems and Incentive Incompatibility in Deposit Insurance

In a representative democracy, the polity may be conceived as taxpayer principals who delegate a set of tasks to elected and appointed government agents. Ideally, every principal would like its agents to perform the delegated activities exactly as the principal would choose to do them if the principal had the time, talent, or information available to the agent. However, every agent faces temptations to promote its own welfare at the expense of his or her principal. Conflicts between the interests of taxpayers as a whole and the specific interests of government bureaus and individual officials abound in real-world systems of deposit insurance. Politicians and deposit-insurance managers face strong political and economic pressures to tolerate and even to promote client gambles that impose unfunded long-run losses on the insurance fund.

Direct and indirect incentive incompatibility exists between taxpayers and all other contracting parties: politicians, insurance-fund managers, and the stockholders, managers, and creditors of insured deposit institutions. This incentive incompatibility manifests itself in pricing, client-monitoring, and risk-management procedures that lead these other parties to pursue risks that undermine fund reserves.

Incentives supporting innovative forms of risk-taking are particularly defective. The aggregate size of these incentives increases with the volatility of the financial environment, with opportunities for degrading the flow of information to regulators or taxpayers, and with the extent to which regulators count on exacting implicit post-government compensation (i.e., an ex post settling up) for their term of regulatory service (Kane, 1989).

Information asymmetries and other principal-agent problems make government-based deposit insurers slow to see the extent to which clients' reliance on innovative financial instruments and activities threatens the solvency of the funds they administer or protect. Even when fund administrators finally see the dangers inherent in client innovations, absence of takeover discipline makes them slow to control their funds' exposure to these risks. These two lags permit aggressive clients to extract unfunded subsidies to risk-taking. If and when risks taken by these clients produce hidden losses that loom large relative to fund size, the political pressure and short horizons under which the administrators operate make it advantageous for officials to temporize and to tolerate massive endgame gambles by failing clients. Opportunities for effecting a reputationally clean getaway to a better job encourage regulators to provide relief from capital requirements precisely when the continued solvency of associated insurance funds most strongly demands that such requirements be enforced.

II. Empirical Evidence of Regulatory Gambling

The paper draws primarily on a variety of court and legislative documents to show empirically that a principal-agent model of recognition and action lags and joint regulator-client gambling accounts for the downfall of the Ohio Deposit Guarantee Fund (ODGF) and the Maryland Savings-Share Insurance Corporation (MSSIC) in 1985 and of FSLIC in 1989. Evidence is developed to show that the recurrence of deposit-insurance scandals and crises supports the theory that government officials are tempted to defer needed regulatory adjustments and to suppress unfavorable information about the consequences of these and other short-sighted decisions. The key step in the evidentiary chain is to show that in these three instances regulators and politicians were not simply blindsided by the expanding cost of deposit-insurance subsidies, but labored to conceal for long periods relevant information on the effects and quality of their performance. It would be a mistake to view the evidence assembled as anecdotal. There is no reason to suppose that the three bureaus whose deterioration this paper analyzes do not form a representative sample from the population of modern government-sponsored deposit-insurance funds. The model under test is a special case of rational behavior, but one whose subjects are likely to conceal their motives or misrepresent them even to themselves. This renders straightforward survey research unreliable and leads one to look for admissions of lapses in regulatory behavior in legal proceedings, legislative hearings, official investigations, and public debates. In such forums, officials can be pressed by the weight of collateral evidence and by penalties that can be imposed for making false statements to give damaging testimony both against themselves and against one another.

To confirm the model empirically, data are collected from these sources to establish two common findings. First, insurance-fund managers engaged in systematic strategies of coverup and regulatory forbearance. Second, some elected and appointed officials can be shown to have been aware of the disastrous long-run consequences of these strategies. Other responsible authorities were at least culpably ignorant in the lack of awareness on which they insist. In all three cases, the evidence indicates that, when a substantial amount of unfunded but appraisable losses and loss exposures developed, this fact was systematically hidden from public view. Moreover, the coverup left top regulators more concerned with avoiding a bad press than with delivering a best-efforts regulatory performance to their taxpayer principals. Staff proposals for bringing insolvent clients' risk-taking under administrative control were regularly rejected on the grounds that the publicity they would generate might complicate the affairs of the insurance fund.

III. Implications for Deposit-Insurance Reform

Suppressing information on the weakening condition of insured deposit institutions lessens market pressure on

politicians and top regulators and creates rents for them to share. Given officials' sensitivity to media criticism, the most important regulatory reform is to increase accountability. To lessen officials' temptation to exploit them, taxpayers need two things: (1) a timely flow of accurate information on regulator performance, and (2) to constrain the capacity of elected officials and regulatory bureaus to generate unfunded subsidies and insurance-fund losses.

The Financial Institutions Reform, Recovery, and Enforcement Act of 1989 did not make authorities' more accountable for the effects their actions have on the present value of government deposit-insurance enterprises. Each insurer's unfunded losses still need not be calculated explicitly, let alone communicated openly to Congress or incorporated into the annual federal budget. Moreover, the insurer's ability to demand timely and adequate recapitalization from failing clients was further restricted by Congressionally-imposed grace periods and loopholes in the definition of what constitutes capital for regulatory purposes. At least three steps are needed. First, politicians and regulators must surrender the accounting discretion that permits them not to budget officially for changes in the size of appraisable financial commitments. Second, limits on the ways in which members of Congress can pressure regulators into giving troubled firms a break must be defined explicitly and enforced by means of a framework for reporting and evaluating this activity. Third, conformance with these requirements must be tested regularly by requiring government insurers to reinsure at least some of their coverages and to compete at least in part with one another and with private suppliers of deposit insurance.

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DEPOSIT INSURANCE NECESSARY?: AN HISTORICAL PERSPECTIVE

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Following the current FSLIC collapse, recent studies of deposit insurance funds have focused on the perverse incentives created by deposit insurance when it is not fairly priced. Insurance encourages excess risk taking by existing banks particularly if prior losses leave them with little to lose from pursuing long shots and allows unscrupulous, or simply inexperienced, entrepreneurs to enter banking as a means to finance excessively risky enterprises. The discipline of the market, which normally would prevent such intermediaries from having access to funds, is removed by insurance. Depositors of insured institutions have little incentive to discriminate with respect to where and with whom they place their funds. High leverage and excessive risk taking are tolerated more than they otherwise would have been by depositors, absent insurance. When financial regulators lack the political will necessary to close insolvent institutions they make matters worse by prolonging the collapse and thereby encouraging "desperation" risk taking by low or negative capital institutions.

U.S. financial history contains the answers to three fundamental questions of interest to would be reformers of deposit insurance today: Why was bank liability insurance created in the first place?; What evidence supports this presumed "special" need of banks?; Which experiments with insurance were most successful, and which aspects of these experiments account for the accomplishment of legitimate goals?

Happily, the answer to the first question is similar across various historical instances. Moreover, recent theoretical work on banking echoes its principal message. Banks are especially vulnerable because they offer short term (typically demandable) claims backed by longer term assets whose value is not easily observable to depositors. Thus banks are vulnerable to panics induced by depositors' uncertainty about the value of their portfolios. Disturbances, say, the increased probability of insolvency of some class of bank borrowers even if they are small relative to aggregate bank assets, and concentrated in only a few banks can provoke widespread disintermediation from all banks by depositors who lack information about the incidence or degree of the shock.

The social costs of such disturbances are high because banks provide a unique source of transacting balances and commercial credit to "information intensive" borrowers. Disruptions

of banking disrupt all industries abilities to transact and operate effectively. Not surprisingly, it was this concern for the viability of the economy's payments system (the availability of liquidity and trade credit) that prompted insurance plans starting with that of New York in 1829, and culminating in the federal system of the 1930s.

Bank insurance was not exclusively the domain of the government historically. The information externality created by depositors' confusion about the precise incidence across banks of a given shock prompted private coinsurance among banks to reduce the potential for disintermediation and to coordinate the banking system's response to such crises when they did occur. Formal coinsurance arrangements among bank clearing house members, and less formal arrangements among other banks especially in the branch banking states of the antebellum South provided many of the features of government deposit insurance. In these private insurance regimes banks agreed to make markets in each other's liabilities, to make interbank loans, and to coordinate suspensions and resummptions of convertibility to minimize disruptions during panics. In all cases, self imposed regulations and mutual monitoring kept members of the privately established coalitions from "free riding" on the collective insurance.

It is important to note that unit-banking laws (the prohibition of branch banking) increased the potential for such disturbances, and hampered banks' abilities to respond to them effectively. First, the confusion over the incidence of small shocks is accentuated in a system of many small banks, which makes runs more likely. Second, banks ability to coordinate behavior and coinsure depended on ease of communication and mutual monitoring (to prevent free riding), and these were hampered in systems of many, geographically isolated banks. Indeed, these barriers to private coinsurance explain why clearinghouse membership typically was limited to individual cities.

Historians long have stressed the destabilizing influence of unit-banking, and linked its peculiar prevalence in the U.S. to the unique vulnerability of U.S. banking historically. Indeed, studies of the political history of deposit insurance legislation show that it was the desire to preserve unit-banking, and the political influence of unit bankers, that gave rise to the perceived need for deposit insurance, both in the antebellum period, and in the twentieth century. It was understood early on (through observing the successful operation of branch banks in the South and in other countries) that branching with its benefits both of greater diversification and coordination provided an alternative stabilizer to liability insurance. But unit banks and their supporters successfully directed the movement for banking reform toward creating government insurance funds. All six antebellum states that enacted liability insurance were unit-banking states. In the antebellum branch banking South neither government insurance, nor urban clearing houses, developed. Similarly, the eight state

insurance systems created from 1908 to 1917 were all in unit banking states.

In evaluating the performance of the various liability insurance schemes below, I ask two principle questions: (1) Which experiments failed or succeeded, and why? Here I am particularly interested in ascertaining whether the failures of insurance systems are attributable to flaws inherent in their design, or to insurmountable exogenous shocks; and (2) Would allowing branch banking (the perceived alternative to insurance) have provided a more effective means to protect the payments system than bank insurance? I close with a brief discussion of the possible applications of these historical lessons to the current reform of deposit insurance.

I begin with a survey of six antebellum bank insurance plans, and find they can be usefully categorized in two groups, successful and unsuccessful. Successful plans (Indiana, Ohio, and Iowa) aligned the incentive and the authority to regulate by giving member banks, which had full unlimited liability for each other's losses, the power to enact regulations and penalize non complying banks. Unsuccessful plans relied on limited annual assessments to funds and government supervision, which left their funds illiquid during crises, and promoted fraud and unsafe banking practices due to lax supervision. The three successful systems kept the payments system liquid, avoided fraud or unsafe practices by catching offenders early on, suffered very few bank failures, and coordinated their response to crises in much the same way as private clearing houses or Southern branch bank coalitions. In all three failed experiments (New York, Vermont, and Michigan), the losses incurred by failing banks could have been absorbed by a properly designed system; thus the failures of these systems can be attributed to flaws in their design, rather than exceptionally large adverse shocks.

The eight deposit insurance fund systems of the early twentieth century failed to learn the lessons of the antebellum experience. They repeated and compounded the earlier errors of New York, Vermont and Michigan. Supervisory authority was placed in government, not memberbank, hands and often its use, or disuse, was politically motivated. Furthermore, the numbers of banks insured were many more than in the antebellum systems (often several hundred), and this further reduced the incentive for a bank to monitor and report the misbehavior of its neighbor banks, since the payoff from detection was shared with so many, and cost of monitoring was private.

During the halcyon days for agriculture, from 1914 to 1920, deposit insurance prompted unusually high growth, particularly of small rural banks on thin capital, often to finance new bankers' other expanding enterprises. The insured states grew faster, were smaller, and had lower capital ratios than their state chartered counterparts in fast growing, or neighboring states. Regression results confirm the unusually high growth of state chartered insured banks (controlling for other vari-

ables) relative to other agricultural states. A decomposition among voluntary and compulsory insurance laws reveals that the incentives to grow were especially pronounced in the compulsory insurance systems (where the potential for cross-subsidization, or free riding through excessive risk taking, was highest). When agricultural prices fell in the 1920s, insured banking systems suffered higher rates of decline and failure than uninsured state chartered banks in agricultural states, and showed an even greater difference in the asset shortfalls (relative to deposits) of insolvent banks. All the insured systems collapsed during the 1920s. Insured systems also saw greater delays in closing and liquidating insolvent banks, reminiscent of politically motivated delays during the current thrift crisis.

The three states that had long lived, free entry, compulsory deposit insurance (which provided the worst and most prolonged incentives for risk taking) experienced the most drastic losses by far among the state and national chartered systems. While several state chartered systems experienced comparable shocks to these three (North Dakota, South Dakota, and Nebraska), in no other cases were the asset shortfalls of insolvent banks nearly large enough to threaten the capital of the banking system as a whole. In contrast, these states showed shortfalls of between 1.5 and 5 times remaining bank equity of state banks.

The failings of deposit insurance systems stand in sharp contrast to their perceived political alternative, branch banking. States that allowed branch banking saw much lower failure rates reflecting the unusually high survivability of branching banks and responded well to the agricultural crisis by consolidating banks and expanding branching systems, where this was allowed.

From 1921 to 1929 only 37 branching banks failed in the U.S., almost all of which operated only one or two branches. Branching failures were only 4 percent of branch banking facilities, almost an order of magnitude less than the failure rate of unit banks for this period. In states hard hit by the agricultural crisis, branch banks' failure rates were roughly a fourth those of unit banks. In Arizona, Mississippi, and South Carolina, three hard hit states with existing state-wide branching networks, existing branches survived especially well, and new entry into banking (allowed only in Arizona and South Carolina) was especially strong.

Regression results on bank growth from 1920 to 1926, and 1920 to 1930, show that states that permitted expansion of branching saw substantially higher, and statistically significant, asset growth relative to other states. A comparison across the two time periods shows that the influence of branching persisted, and grew stronger with the passage of time. The effect of the presence of deposit insurance was negative, but this mainly reflected a retreat from the state systems until after the insurance laws were repealed. By 1930, previously insured state systems had recovered to

roughly the same levels of assets as other unit-banking state systems.

Contemporaries often remarked on the unusual survivability and growth of branch banks in the face of the crisis. Many states altered their branch banking laws in response to these observations. From 1924 to 1939 the number of (full or limited) branch banking states rose from 18 to 36. Four of the 8 states that previously had opted for deposit insurance were among those liberalizing their branching restrictions during this period.

I conclude that unlimited branch banking, combined perhaps with the sort of privately administered early insurance programs of Indiana, Ohio, and Iowa, would have been adequate to protect the payments system from exogenous disturbances that might produce banking panics. The greatest threats to systemic stability historically were unit-banking, and ill-conceived attempts to promote stability through government-controlled insurance, that actually had the opposite effect.

There may still be a role for government in regulating bank insurance programs, however, and this role would depend, *inter alia*, on whether branching was allowed for member banks of the private coalitions. In any case, the government has an anti-trust role to ensure there is freedom of entry into the coinsuring groups of banks, and competition among groups (for example, by defining groups to overlap geographically). In a unit-banking system the need for many groups (to keep the size of groups small enough to encourage monitoring) dictates attention to potential problems of local market monopolization.

THE LENDER OF LAST RESORT: SOME HISTORICAL INSIGHTS

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Introduction

The ongoing savings and loan crisis in the U.S. and the bailouts of a number of large banks in recent years in this country and similar rescues abroad have prompted renewed interest in the topic of the lender of last resort. Henry Thornton (1802) and Walter Bagehot (1873) developed the key elements of the doctrine of the lender of last resort (LLR) in England. They contended that monetary authorities in the face of panic should lend freely but at a penalty rate to illiquid but solvent banks. This paper discusses the role for an LLR in preventing banking panics and examines the historical evidence for the U.S. and other countries on the incidence of

banking panics and LLR actions. It also surveys the record of alternative LLR arrangements in the U.S., Scotland and Canada, as well as the historical record on bailouts. Banking Panics and the Lender of Last Resort. The need for a monetary authority to act as LLR arises in the case of a banking panic or a widespread attempt by the public to convert deposits into currency and, in response, an attempt by commercial banks to raise their desired reserve deposit ratio. Banking panics can occur in a fractional reserve banking system when a bank failure or series of bank failures produces bank runs which in turn become contagious, threatening the solvency of otherwise sound banks. Given that bank liabilities are convertible on demand, bank runs represent a rational response by depositors concerned over their ability to convert deposits into currency in the event of a bank insolvency. Bank runs in normal circumstances serve as a form of market discipline, reallocating funds from weak to strong banks and constraining bank managers from adopting risky portfolio strategies (Kaufman, 1988). Bank runs can also lead to a 'flight to quality' (Benston and Kaufman et al, 1986). Depositors may not shift funds from weak banks to those they regard to be sound, they may instead convert their deposits into high quality securities. The seller of the securities ultimately will deposit his receipts at other banks with no loss of bank reserves. However on occasion, in the face of an external shock to the banking system, incomplete and costly information may make it difficult for depositors to distinguish sound from unsound banks. In that case runs on insolvent banks can produce contagious runs on solvent banks leading to panic. A banking panic, in turn, will lead to massive bank failures, as sound banks are being forced into insolvency by a fall in the value of their assets when a scramble for liquidity induces a fire sale of assets. By intervening at the point when the liquidity of solvent banks is threatened supplying whatever funds are needed to meet the demand for cash the monetary authority can allay the panic. Private arrangements can also reduce the likelihood of panics. Branch banking allows funds to be transferred from branches with surplus funds to those in need of cash. Commercial bank clearing houses by pooling the resources of its members can provide emergency reserves to meet the heightened liquidity demand. A clearing house moreover represents a signal to the public that in time of panic help will be available to member banks. Neither branch banking nor clearing houses, however, can stem a nationwide demand for currency occasioned by a major aggregate shock such as a world war. Only the monetary authority the ultimate supplier of high powered money can be successful. Government deposit insurance can prevent panics by removing the reason for the public to run to currency. Ultimately, however, a monetary authority is required to back up an insurance scheme.

The Historical Record

In this section I present historical evidence for a number of countries on the incidence of banking panics, their likely causes, and the role of an LLR in their resolution. I then

consider alternative institutional arrangements that served as surrogate LLR's in diverse countries at different times. Finally I compare the historical experience with the more recent bailouts in the US, Great Britain and Canada.

Banking Panics and their Resolution

The record for the past 200 years for at least 17 countries shows a large number of bank failures; fewer, but a still considerable number of bank runs; and a relatively small number of banking panics. According to a chronology compiled by Anna Schwartz (1988), in the U.S. between 1790 and 1930 in 14 years bank panics occurred; Great Britain was next with 8 years between 1790 and 1866 in which panics occurred, followed by France and Italy with 4 each. An alternative chronology that I prepared (Bordo, 1986, Table 1) for 6 countries (the U.S., Great Britain, France, Germany, Sweden and Canada) over the period 1870-1933 lists 16 banking crises (defined as bank runs and/or failures), and 4 banking panics (runs, failures, and suspensions of payments), all of which occurred in the U.S.). It also lists, based on Kindleberger's definition of financial crises (as comprising manias, panics and crashes) 30 such crises and based on Morgenstern's (1959) definition lists 71 stock market crises. The evidence of a large number of bank failures in all countries, similar to failures of nonfinancial firms, reflects in large measure the normal operation of market forces. In addition to internal factors, the external factors of relative prices changes; banking structure; and changes in the overall price level were important. The relatively few instances of banking panics in the past two centuries attests to the fact that monetary authorities in time developed the procedures and expertise to supply the funds needed to meet depositors' demands for cash. Concurrently, the public developed confidence that the authorities would respond in appropriate fashion. A comparison of the performances of Great Britain and the U.S. in the past century serves to illustrate the importance of the lender of last resort function in preventing banking panics. Tables 1 and 2 present, for each country some detailed evidence on factors commonly believed to be related to banking panics, as well as a chronology of banking panics and banking crises for severe NBER business cycle recessions (peak to trough) in the period 1870-1933. The variables isolated include: deviations from trend of the average annual growth rate of real output; the absolute difference of the average annual rate of change in the price level during the preceding trough to peak and the current peak to trough as a measure of the effect of changes in the deposit currency ratio. The tables reveal some striking similarities in the behavior of variables often related to panics but a remarkable difference between the two countries in the incidence of panics. Virtually all six business cycle downturns designated by the NBER as severe were marked in both countries by significant declines in output, large price level reversals, and large declines in money growth. In addition, in both countries the deposit currency ratio produced declines in the money stock in the three most severe downturns: 1893-94 (U.S.) 1890-94 (G.B.); 1907-08; and 1929-32. However, the

difference in the incidence of panics is striking the U.S. had four, while Britain had none. Both countries experienced frequent stock market crashes (see Bordo, 1986, Table 6.1). They were buffeted by the same international financial crises. Although Britain faced threats to the banking systems in 1878, 1890 and 1914, the key difference between the two countries (see the last two columns of table 2) was successful LLR action by the British authorities in defusing incipient crises. Similar evidence over the 1870-1933 period for two other major countries: (France and Germany) and two minor countries (Sweden and Canada), is available in Bordo (1986). In severe recessions in all four countries the quantitative variables move similarly to those displayed here for the U.S. and Great Britain. Yet there were no banking panics. In France appropriate actions by the Bank of France in 1882, 1889, and 1930 prevented incipient banking crises from developing into panic. Similar behavior occurred in Germany in 1901 and 1931 and in Canada in 1907 and 1914. One other key difference was nationwide branch banking in all five countries whereas the U.S. had unit banking. That difference likely goes a long way to explain the larger number of bank failures in the U.S. However, the incidence of incipient crises which did not become panics in most of these countries suggests the primary importance of LLR action.

ii. Alternative LLR Arrangements

In the traditional view the LLR role is synonymous with that of a central bank. Goodhart's explanation for the evolution of central banking in England as well as other European countries is that the first central banks evolved from commercial banks which had the special privilege of being the government's bank. Because of their sound reputation, position as holder of the nation's gold reserve, ability to obtain economies of pooling reserves through a correspondent banking system, and ability to provide extra cash by rediscounting, such banks evolved into bankers' banks and lenders of last resort in a liquidity crisis. Though Goodhart (1985) Annex B demonstrates that a number of central banks evolved in this fashion, the experience of other countries suggests that alternative arrangements are possible. In the U.S. before the advent of the Fed a variety of institutional arrangements served on occasion to allay banking panics: deposit insurance schemes in a number of states which were relatively successful before the Civil war (Benston 1983, Calomiris 1989); others at the beginning of the twentieth century which were not (White, 1981); the issue of clearing house loan certificates (Timberlake, 1984, Gorton, 1984); restriction of convertibility of deposits into currency by the clearing house associations in the national banking era; various operations by the U.S. Treasury in the period 1890 to 1907 (Timberlake, 1978); and the Aldrich Vreeland Act of 1908. Two countries which managed successfully for long periods without central banks were Scotland and Canada. Scotland had a system of free banking from 1727 to 1844. The key features of this system were a) free entry into banking and free issue of bank notes, b) bank notes that were fully convertible into full-bodied coin,

and c) unlimited liability of bank shareholders. Scotland's record under such a system was one of remarkable monetary stability. That country experienced very few bank failures and very few financial crises. However, faced with a nationwide scramble for liquidity such as 1792-93, 1797 and 1830, Scottish banks were able to turn to the Bank of England as a lender of last resort (Cowen and Kroszner 1989). Although Canada had a competitive fractional reserve banking system throughout the nineteenth century, no central bank evolved (Bordo and Redish, 1987). Virtually all the elements of traditional central banking undertaken either by private institutions or directly by the government had emerged by the beginning of the twentieth century. In sum though Canada, Scotland and several other countries did not have formal central banks serving as LLR, they all had access to a governmental authority which could provide high-powered money in the event of such a crisis.

iii. LLR Assistance and Bailouts

The classic prescription for LLR action is to lend freely but a penalty rate to illiquid but solvent banks. Both Thornton and Bagehot advised strongly against bailouts assistance to insolvent financial institutions. They opposed them because they would encourage future risk institutions. Bagehot also advocated lending at a penalty rate, to discourage all but those truly in need from applying, and to limit the expansion in liquidity to just that necessary to end the panic. European countries from 1870 to 1970 in general observed the classical strictures. In the Baring Crisis of 1890, the Bank of England successfully prevented panic. The German Reichsbank in 1901 prevented panic by purchasing prime bills on the open market and expanding its excess note issue but it did not intervene to prevent the failure of the Leipziger and other banks (Goodhart 1985, p. 96). The Bank of France also followed classic precepts in crises in 1882 and 1889. The Austrian National Bank, however, ignored the classical advice during the Credit Anstalt crisis of 1931. The U.S. record over the same period is less favorable. In particular, the Fed has never lent at a penalty rate. By contrast to events before 1970, when LLR action if unsuccessful erred on the side of deficiency, in the past two decades it has erred on the side of excess. In the U.S. the monetary authorities (FDIC and the Fed), on three notable occasions, have provided liberal assistance to major insolvent banks: Franklin National in 1974, First Pennsylvania in 1980, and Continental Illinois in 1984. In each case the authorities guaranteed both insured and uninsured deposits. Moreover they advanced loans at subsidized rates (Garcia and Plautz, 1988). Apparently the Federal Reserve has switched to a policy of bailout reflecting a concern over the potential effects on the financial system and on the reputation of the authorities of allowing a major bank to fail. The Bank of England followed similar policies in the 1974 Fringe Bank rescue and the 1984 Johnson Matthey affair. In 1985, the Bank of Canada arranged for the purchase by the major charter banks of the assets of two small insolvent Alberta banks and compensation in full of all depositors.

Thus, although the classical doctrine has been long understood and successfully applied, the recent experience of a number of major countries suggests its basic message is no longer adhered to.