Abstracts of Papers Presented at the Annual Meeting[1]

SESSION 1: PLENARY
THE FEDERAL RESERVE AND THE FINANCIAL MARKETS

Anna Schwartz (NBER) and Henry Kaufman (President, Henry Kaufman & Co.) participated.

SESSION 2A: THE CULTURAL FRAMEWORK FOR MARKETS

Credit, Credibility, and Coalitions: Financing Trans-Saharan Trade in Nineteenth Century Western Africa

Trans-Saharan trade in nineteenth-century western Africa was made possible through a vibrant, flexible, and highly personalized financial market. Access to credit—the lifeline of commercial enterprise—was facilitated by the organization of commercial coalitions in which partners trusted one another and banked on their respective creditworthiness to promote their long-distance trading operations. Islamic law provided an institutional framework for the organization and regulation of commerce.

GHISLAINE LYDON, *University of California, Los Angeles*

Financing Spanish Expansion: Medieval Economic Ethics in Indian America

Despite the reputation of Spanish Catholicism as the antithesis of modernity, mendicant friars were the economic decision makers in one of the key processes of modernization: the assimilation of indigenous Americans into Spain's Latin American empire. Archival account books from one late Spanish colony (California) reveal the logic of the mission as a self-financing institution of colonial social control. The priests allocated their tiny budget from Madrid in accordance with medieval conceptions of virtue: they gave away what they had. This process of giving created alliances with Indian communities that resulted in baptism and re-allocation of their labor from a nomadic-Indian to a sedentary-Spanish economy. The communities that accepted baptism became the labor force that provided goods worth far more than the initial government subsidy. Indian labor then became the font of further generosity by the Franciscans to Indian communities hitherto outside Spanish control.

MARIE DUGGAN, *Keene College*

SESSION 2B: CRISES IN HISTORY

Shock and Aftershock: The 1906 San Francisco Earthquake and the Panic of 1907

Can distant, localized shocks result in global financial crisis? The question is a pressing one for many contemporary financiers as recent earthquakes in Japan and Taiwan have illustrated. History tells us that, indeed, events far removed from one's own country canhave devastating effects. In April 1906 an earthquake and fire destroyed much of the city of San Francisco. British fire-insurance companies, who had been heavily involved in writing policies for San Francisco, faced millions of pounds

[1] Because the meeting was rescheduled due to the attack on 11 September 2001, some of those who were scheduled to present papers could not do so. This record includes the abstracts of their papers.

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worth of claims. As those claims were settled in autumn 1906, the outflow of capital threatened the fixed exchange rate on the pound sterling. In defense of the pound the Bank of England nearly doubled its discount rate and refused to rediscount American trade bills. The resulting contraction pushed the United States into a recession and set the stage for the Panic of 1907.

KERRY ODELL, *Scripps College*,
AND MARC WEIDENMEIR, *Claremont McKenna College*

International Capital and the Brazilian Encilhamento, 1889–1893: An Early Example of Contagion among Emerging Capital Markets

This paper assesses the role of international capital in the Brazilian financial crisis of 1891 (the Encilhamento). It looks for the impact of the Argentine default in 1890 (the Baring Crisis) on Brazilian access to capital markets. The history of bond-yield fluctuations in London for Brazilian and Argentine debt, exchange rates, data on investment flows, and archival and journalistic accounts reveal a close congruence between the Argentine and Brazilian crises. Heightened reaction of international markets, if not outright contagion, carried the effects of the Argentine experience to Brazil because the open capital and money markets of the period easily transmitted crisis from one economy to another and because fundamental conditions in both economies rendered them similarly vulnerable to fluctuations in capital flows. The paper raises this case as a precedent for the spread of financial crises that emerging markets faced at the end of the twentieth century.

GAIL TRINER, *Rutgers University*

SESSION 2C: EARLY U.S. FINANCIAL EVOLUTION

Financial Deepening on the Frontier: The Antebellum Midwest, 1830–1860

One aspect of financial deepening is the development of nonbank financial intermediaries. In the United States, this is often associated with the so-called institutionalization of savings in the early twentieth century. This paper will show that these kinds of financial firms, such as insurance companies and savings banks, had an important presence much earlier in U.S. economic history. Financial centers in the antebellum Midwest were populated with a variety of financial firms, particularly after state legislatures adopted restrictive laws against note-issuing banks. The paper will paint a portrait of the financial sectors of Cincinnati, Chicago, and St. Louis between 1830 and 1860, including the number and size of different kinds of financial firms in operation (including state-chartered banks), and the array of payments, saving, and financing instruments they supplied. The paper will also discuss the role these "domestic" financial institutions played in Midwestern economic development in relation to the central role played by "foreign" capital during this period.

JANE KNODELL, *University of Vermont*

A Common Currency with "Uncommon" Bank Regulation: Some Lessons from U.S. Monetary History

The U.S. constitution took away from the states the power to issue their own currencies, but left them with the power to charter note-issuing banks. These banknotes were not a uniform currency. They circulated against each other and against specie at varying discounts or premia. We argue that a uniform currency with private issuers requires that currency holders can costlessly redeem it at par on demand in outside money. We examine the Suffolk Banking System, which eliminated much of the cost to a bank of redeeming other banks' notes. Consistent with our view, we show that notes of the banks participating in this system behaved as a common currency. Finally, we examine the Second Bank of the United States. It merely presented all banknotes it received to the issuer for redemption, but did not reduce redemption costs for note holders. Consistent with our view, it did not establish a uniform currency.

WARREN WEBER, *Federal Reserve Bank of Minneapolis and University of Minnesota*,
ARTHUR J. ROLNICK, *Federal Reserve Bank of Minneapolis*,
AND BRUCE D. SMITH, *University of Texas, Austin*

SESSION 3A: THE BIG PICTURE 1

A Market Economy in the Early Roman Empire

I argue that the economy of the early Roman Empire was primarily a market economy. The parts of this economy located far from each other were not tied together as tightly as markets often are today, but they still functioned as part of a comprehensive Mediterranean market. There are two reasons why this conclusion is important. First, it brings the description of the Roman economy as a whole into accord with the fragmentary evidence we have about individual market transactions. Second, this synthetic view provides a platform on which to investigate further questions about the origins and eventual demise of the Roman economy and about conditions for the formation and preservation of markets in general.

PETER TEMIN, *Massachusetts Institute of Technology*

A Human-Capital Interpretation of the Economic History of the Jews

This paper studies one of the most remarkable examples of successful economic performance in which religion, education, and human-capital accumulation seem to have played a critical role: the economic history of the Jews. The main question we aim to address is to what extent a human-capital model of occupational choice can explain the trends in Jewish population and their observed residential and occupational distribution. We present a model in which the conversion of Jews to other religions and their occupational choice is affected by the larger emphasis that Jewish religion placed on children's education starting from the first century of the Christian era. The model predicts that as the importance of children's education grows, a faster conversion of Jewish farmers to non-Jewish religions should occur; moreover, a higher proportion of Jews will work as merchants in cities. Preliminary historical evidence provides support to these predictions.

MARISTELLA BOTTICINI, *Boston University*, AND ZVI ECKSTEIN, *Tel Aviv University*

SESSION 3B: MEDIEVAL AFFAIRS

Finance Perspectives on the Organization of the Pre-industrial Economy

Economic relationships in the pre-industrial economy—especially share-cropping and putting out—have generally been understood as employment relationships. They have been interpreted either in Marxist terms of power and class struggle or, more recently, in terms of principal–agent problems. However, our understanding of these relationships can be enhanced by seeing them not as arrangements for the supply of labor, but rather as arrangements for the supply of financing. Doing so enables us to bring to bear insights from corporate finance, especially those concerning issues of ownership and control.

MEIR KOHN, *Dartmouth College*

The Origins of the Modern Financial Revolution: Responses to Impediments from Church and State in Western Europe, 1200–1600

Impediments provided by both Church (usury doctrine) and State (medieval bullionist policies, monopoly on coinage) provided the challenges necessary to provoke responses in the form of our modern financial institutions, especially in the form of bills of exchange and rentes (i.e., heritable annuities). The negotiable bill of exchange achieved its first success in England. It was a response not only to usury doctrine but more importantly to the almost universal bans on the export of precious metals. Merchants in England also faced a virtual prohibition against deposit and transfer banking; but they circumvented this barrier by developing a system of payments using transferable bills. Unfortunately, neither English Common Law courts nor continental courts recognized the rights of third parties (bearers) in such bills. The English contribution of major significance, from a London law-merchant court ruling in 1437, was to legally guarantee the bearers at least equal rights when claiming payment or seizing assets from defaulting debtors.

JOHN MUNRO, *University of Toronto*

SESSION 3C: THE GOLD STANDARD

A New World Order: The Emergence of the Classical Gold Standard, 1870–1913

It is rarely recognized that the classical gold standard only gradually became an international monetary regime, and to date, there has been no cross-country econometric analysis of the issue. I use duration analysis to show that network externalities explain the pattern of diffusion of the gold standard. Countries adopted the gold standard sooner when they had a large share of trade with other gold-standard countries relative to GDP. More developed countries with sound financial systems and the institutional capabilities to maintain a convertible currency adopted sooner. I find no evidence that exchange rate volatility or concerns about deflation mattered for the timing of adoption. The paper is relevant to research on why countries join currency unions today, and how monetary regimes and transaction costs affect trade.

CHRISTOPHER MEISSNER, *University of Cambridge*

Interest Rate Risk and Monetary Union in the European Periphery: Lessons from the Gold Standard, 1880–1914

I analyze time-varying risk premia in long-term government securities during the classical gold-standard period, 1880–1914. I employ a quasi–capital asset pricing model (CAPM) to analyze the time path of systematic risk for a cross section of six countries that adhered to the gold standard to varying degrees. The empirical results show that systematic risk was higher and more variable for the countries that shadowed the gold standard. The results are consistent with recent research that the gold standard was a signal of financial rectitude, "a good housekeeping seal of approval" (Bordo and Rockoff, 1996). Peripheral countries have benefited by participating in a monetary union as opposed to countries that pursue independent monetary policies. Countries adhered to the gold standard because they were able to obtain access to international markets at a lower price. In addition, there was a convergence of systematic risk for those countries that belonged to a certain monetary union. I also analyze the impact of the international crisis of 1890, or any other perceived financial crisis. Evidence indicates that there was a "flight to quality" during the 1890's crisis. Countries that did not adhere to the gold standard generally experienced a larger increase in risk during the crisis period. Finally, the results indicate an overall decrease in the volatility of systematic risk during the early 1900s. I interpret this as evidence of a "market-wide" effect of the international regime.

CONCEPCION GARCIA-IGLESIAS, *Universitat Pompeu Fabra*

SESSION 4A: THE GREAT DEPRESSION

Avoiding Default, Avoiding Bankruptcy: Household Behavior in the 1930s . . . and the 2000s?

Consumption spending collapsed in 1930, turning a recession into the Great Depression. I have argued (QJE, 1999) that the consumption collapse was due to households' efforts to avoid defaulting on installment debt in light of income uncertainty. It was a unique time in household behavior: a recent doubling of aggregate debt-to-income ratios had left many households facing unprecedented debt burdens, but penalties applied to those unable to meet their obligations were excessively punitive. Rather than risk being unable to make installment payments, families reduced consumption spending across the board. Recent changes in household indebtedness, net wealth, and federal bankruptcy laws seem to offer parallels to 1930. But do they? Will the new bankruptcy regulations force over-indebted families to reduce consumption spending across the board as they struggle to reduce debt? Will increased income uncertainty triggered by stock-market fluctuations lead indebted families to spend less? Will aggregate consumption spending decline precipitously?

MARTHA OLNEY, *University of California, Berkeley*

New Deal Policies and the Persistence of the Great Depression

There are two striking aspects of the recovery from the Great Depression. The recovery was weak, and wages and prices in several sectors were well above trend. These data contrast sharply with neoclassical economic theory, which predicts a strong recovery with low wages. This paper argues that New Deal cartelization policies were an important contributing factor to the weak recovery. The paper develops a model of the bargaining process between labor and firms that occurred with these policies, and embeds that bargaining model into an otherwise standard equilibrium business-cycle model. The model predicts that about 60 percent of the weak recovery was due to these New Deal policies that ironically had been adopted to foster economic recovery.

LEE OHANIAN, *University of California, Los Angeles*

Did Banking Distress Deepen the Great Depression?

This paper uses data disaggregated by state to investigate the extent to which banking distress acted as a source of shock to real activity or as a propagator of shocks originating elsewhere. We first investigate links between bank distress and commercial distress, using a quarterly panel VAR model with data defined at the state level, and find that commercial distress causes, but is not caused by, bank distress. Links between bank distress and state-level income growth are greater, and there is some evidence that contractions in the supply of bank lending produced by bank distress were an important contributor to economic decline in the early 1930s.

CHARLES CALOMIRIS, *Columbia University*, AND JOE MASON, *Drexel University*

Liquidity Provision by Market Makers and Financial Crisis: The Case of the Great Depression

This paper uses a new data set of daily price quotes by security dealers for U.S. Treasuries to explore the evolution of bid–ask spreads during the Great Depression. We provide evidence that market makers, in response to increased return and order-flow risk, dramatically scaled back liquidity provision during the third and fourth banking crises. Moreover, there is evidence that the seizing-up of secondary bond markets contributed to the banking crises by amplifying the impact of panic-induced bond selling on bond prices and acting as an independent source of asset price deflation that fueled panics.

J. PETER FERDERER AND KYLE RICHEY, *Macalaster College*

SESSION 4B: MACRO HISTORY

The Cost and Benefits of France Adopting British Style Stabilization Policies after World War One

In this paper we consider the costs and the benefits of the French and British strategies and the potential benefits of an earlier French stabilization. We construct two counterfactual scenarios for France. In the first case, France would have followed the British strategy and would have decided to return to the original parity by following a deflationary policy beginning in 1919 (the year when both the franc and the domestic price level were at their most favorable positions for such a strategy). In a second experiment, France would have succeeded in its 1924 attempt at stabilizing at a depreciated (but much higher than the actual 1926 one) level.

PIERRE CYRILLE HAUTCOEUR, *Université d'Orléans*,
AND MIKE BORDO, *Rutgers University*

Asset Prices and Economic Performance: Britain, 1870 to 1939

There are two periods of deflation in British economic history that particularly merit attention. One is a long period running from 1873 to 1896. The other is short but more severe one in the years 1929 to 1932. This paper aims to investigate what produced these falling prices and whether the price falls are an important part of the explanation for the economic performance at the time. We also consider whether recent supply-based explanations of the 1929–1932 experience add much of use to more traditional views. The approach in the main part of the paper will be to develop Keynes and Fisher models of debt deflation. They will be made operational by use of asset-price data in combination with time-series models. It will then be considered whether the data in either period behaved in a way which might be considered consistent with either the Keynes or Fisher models.

FORREST CAPIE AND GEOFFREY WOOD, *City University, London*

Efficiency, Stability, and Credibility in Early Target Zones: The Austro-Hungarian Case, 1896–1914

We have collected monthly data on the spot and forward exchange rates between the German mark and Austrian Florin between 1880 and 1914. We explore what the effect of going on a gold standard was on market efficiency. We find that market efficiency as measured by the relationship between forward premia and realized rates improved greatly as the florin moved from a system of floating exchange rate (before 1896) to a system of "target-zone" rates (afterwards). The stabilization of the florin had the natural effect of reducing the volatility of the florin exchange rate with respect to the mark. More fundamentally, though, it had the effect of improving the quality of the link between forward rates and actual variations. At the turn of the century, the forward premium on the Austro-Hungarian currency became an unbiased predictor of actual exchange-rate changes, and even more so as time passed. This is especially remarkable in view of the difficulty that researchers have had in reconciling the efficient-market hypothesis with data on modern foreign-exchange markets.

MARC FLANDREAU, *University of Lille, OFCE, and CEPR*,
AND JOHN KOMLOS, *University of Munich*

SESSION 4C: COLONIAL EXPERIENCES

The Opium Regie in the Netherlands Indies: Colonial Cash Cow or Drug Policy Triumph?

The causes and nature of the decline between 1914 and 1940 of the Opium Regie in the Netherlands Indies are examined. Contrary to the gist of some recent scholarship, it is argued that conscious government policy had little if anything to do with the decline of opium consumption. The fall in opium consumption was driven by two economic events whose origins were entirely external to the Opium Regie. These were the inflation of 1919–1922 and the Great Depression of 1929–1935. Using the rational-addiction framework, a characterization of the responses of opium consumers to changes in the price of opium and to changes in income is provided. Contrary to recent scholarship using similar data, which suggests that opium was "not very addictive," the characterization shows the addictive nature of opium.

SIDDHARTH CHANDRA, *University of Pittsburgh*

Signing with John Company: Contract Enforcement in Overseas Enterprises

Long-distance trade depends crucially on the enforcement of long-distance contracts, those in which principals are significantly removed from agents. The European trading companies of the eighteenth century were acutely aware of the importance of motivating and monitoring the behavior of their agents stationed overseas. The problem of contract enforcement in the English East India Company, the largest of the English chartered companies, is explored through textual

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analysis of the actual contracts and a quantitative analysis of the broader conditions of employment. These broader terms include private trade, job security and promotion, bonding, communication, and mortality. The mechanisms most crucial to contract enforcement are sometimes neither in the letter of the contract nor within the control of the corporate directors.

SANTHI HEJEEBU, *University of Iowa*

"Give Us Good Black Tobacco": Brazilian Tobacco, Indigenous Consumer Demand and Cross-Cultural Exchange in the Hudson's Bay Company's Fur Trade, 1750–1800

From the 1680s Brazilian tobacco played a prominent role in the Hudson's Bay Company fur trade. Cree traders rejected Virginia tobacco, insisting instead on the Brazilian variety introduced earlier by rival French traders. Indigenous consumer preferences forced the Company to buy this commodity despite its expense, its inconvenience to obtain and transport, and its direct competition with varieties produced within England's won empire. Brazilian tobacco's integration in the fur trade challenges interpretations that assume European dominance and indigenous dependence. Using Hudson's Bay Company records, my paper explores the use of this item in cross-cultural trade from 1750 to 1800. English factors used Brazilian tobacco to obtain furs, subsistence goods, and the services of guides and hunters, to attract new trading partners to the post, and to give as gifts preceding trade. Its use in such exchanges made Brazilian tobacco important not only to the fur trade, but also to establishing its context.

LINDA WIMMER, *Southwest State University*

SESSION 5A: THE BIG PICTURE 2

After Columbus: Explaining the Global Trade Boom, 1500–1800

This paper documents the size and timing of the world intercontinental trade boom following the great voyages in the 1490s of Columbus, da Gama, and their followers. Indeed, a trade boom followed over the subsequent three centuries. But what was its cause? The conventional wisdom in the world-history literature offers globalization as the answer: it alleges that declining trade barriers, falling transport costs, and overseas "discovery" explains the boom. In contrast, this paper reports the evidence that confirms unambiguously that there was no commodity price convergence between continents, something that would have emerged had globalization been a force that mattered. Thus, the trade boom must have been caused by some combination of European import demand and foreign export supply from Asia and the Americas. Furthermore, the behavior of the relative price of foreign importables in European cities should tell us which mattered most and when. We offer detailed evidence on the relative prices of such importables in European markets over the five centuries 1350–1850. We then offer a model which is used to decompose the sources of the trade boom 1500–1800.

JEFFREY WILLIAMSON, *Harvard University*, AND KEVIN O'ROURKE, *Trinity College*

World Trade and the Gold Standard, 1870–1939

An expanding and controversial contemporary literature examines the role of common currencies as a cause of trade expansion. Using the same augmented-gravity-model approach, we examine the role of the gold standard in the global trade boom from 1870 to 1914 and the global trade collapse from 1914 to 1939. We compare the quantitative effects of this kind of "monetary union" with the effects of tariffs and transport costs. The results do not always square with the conventional wisdom of the time as seen in political debates. In the nineteenth century national policy debates focused on tariff instruments and, for the most part, took the gold standard for granted as the default monetary arrangement. Yet the results show that the gold standard was an order of magnitude more important than tariff policy as a trade creating force in that era. In the 1920s the reverse obtained—policy debates revolved around the rise and fall of the reconstructed gold standard, but the results suggest that the slowdown in trade growth had more to do with the rise of protectionism. In the 1930s the situation changed again— being off gold was now almost taken for granted, and debates swung back more to the tariff wars, whilst the results show that it was the final and complete collapse of the gold standard that drove trade volumes to implode so dramatically. We speculate as to what these curious contradictions imply for the validity of the gravity-model approach, the logic of public-policy debates at the time, the traditional historical approach that treats trade and finance outcomes as disjoint, and the role of commercial and monetary policy co-operation in the postwar trade recovery.

ALAN M. TAYLOR, *University of California, Davis*,
ANTONI ESTEVADEORDAL, *Inter-American Development Bank*,
AND BRIAN FRANTZ, *United States Agency for International Development*

The Secret History of the Industrial Revolution

When was the decisive break from the pre-industrial world of slow technological advance and stagnant living standards to the modern world of constant technological progress and steadily improving living standards? Most historians have assigned the dawn of the modern world to England in 1770. There has followed a long debate about the cause of the Industrial Revolution where, for example, the Financial Revolution of the 1720s has been promoted as a key cause. Here I argue that all attempts to conclusively link the Industrial Revolution to some precipitating factor have been inconclusive for a simple reason. There was no significant break in 1770 from the earlier world. That break only occurred later in the nineteenth century. Instead the Industrial Revolution was the last of a series of localized growth spurts stretching back to the Middle Ages, as in the Netherlands from 1500 to 1650, and northern Italy in the fourteenth century. Accidents of demand, demography, trade, and geography made this spurt seem different than what had come before—but it was really more of the same. Indeed the decline in English interest rates that preceded the Industrial Revolution can be also be explained by population growth.

GREG CLARK, *University of California, Davis*

SESSION 5B: THE ROLE OF EQUITY MARKETS

The Long Term Evolution of the NYSE's Microstructure: Evidence from the Pricing of Seats on the Exchange

While the microstructures of established contemporary markets have been studied intensively, it is not clear how market rules evolve and perform over long periods of time. We examine the evolution of the microstructure of the NYSE using data on the price of seats on the exchange to determine the key changes over the last 120 years. Seats are capital assets whose prices reflect stockbrokers' expected future profits from the seat's special access. Thus, seat prices are influenced by the volume and level of stock prices, technology, and the rules that govern trading on the exchange. In this study we use new data from the NYSE archives on every seat traded from 1879 to the present. We model the expected price of a seat as a function of expected changes in the volume and prices of shares. We find that the largest changes in seat prices are usually not determined by these fundamentals. Our initial study of the evolution of the rules governing the exchange suggests that many of the big seat-price movements have their origin in changing rules and regulations.

EUGENE WHITE, *Rutgers University*, LARRY NEAL, *University of Illinois*, AND LANCE DAVIS, *California Institute of Technology*

Financial Development and Capital Structure in Nineteenth Century Japan and the United States

This paper composes the capital structure of private industrial corporations in the United States and Japan in the latter half of the nineteenth century. Based on this data analysis, we will discuss the characteristics and role of financial development in the early stage of successful industrialization. This paper uses mainly the handbook series of annual reports of industrial corporations compiled by rating-agency companies. We analyze capital structures in various Japanese industries in 1900 using a rating agency manual for data. For the United States in the 1880s we use *Poor's Manual of Railroads*, *Poor's Handbook of Investment Securities* and "Annual Reports of the Major American Companies" based on the Baker collection for data. We compare the capital structures of the United States and Japan by sector, capital size, age, number of stockholders, etc. in the latter half of the nineteenth century. The first result is that many large companies of the leading industrial sectors raised almost all of their capital from the stock market. The second one is that banks supported early industrialization in Japan, by providing loans to small, new venture enterprises.

MASAYOSHI TSURUMI, *Hosei and University of Virginia*

Stock Market Liberalization, the Cost of Capital and Economic Growth in Postwar Europe

For most of the postwar period, Europe's capital markets remained largely closed to international capital flows. This paper explores the costs of this policy. Using the familiar event-study methodology, we examine the extent to which restrictions of current and capital-account convertibility affected stock returns. We find that the delayed introduction of full currency convertibility increased the cost of capital. Also, a string of measures designed to reduce capital mobility before the ultimate collapse of the Bretton Woods System had considerable negative effects. As one of the first studies of capital controls we are able to document that the overall impact on growth was consistently negative. These findings demonstrate that the introduction of capital controls can impose significant costs.

HANS-JOACHIM VOTH, *Cambridge University and UPF, Barcelona*

SESSION 5C: FINANCE AND ECONOMIC DEVELOPMENT

The Law and Financial Development: Evidence from the Americas

This paper is part of a broader research program focusing on the Americas that aims to improve our knowledge of where institutions come from, and more specifically of whether there are empirical regularities in the ways institutions evolved. We are concerned here with laying out the record of laws and other policies governing the formation and regulation of banks across the range of New World economies and U.S. states over the course of the nineteenth and early twentieth centuries. We offer some preliminary hypotheses about the patterns we observe.

STEPHEN HABER, *Stanford University*,
AND KENNETH SOKOLOFF, *University of California, Los Angeles*

Enforcing Property Rights Through Reputation: Mexico's Early Industrialization, 1878–1913

Most explanations for the prevalence of groups multi-company firms with a common source of finance are based on hypothesized increasing returns to scale or missing formal capital markets. These explanations, however, fail to fit the empirical evidence for Mexico during its initial industrialization, although industrial growth was concentrated in grouped firms. We propose a simpler explanation. In the absence of secure property rights, collateral cannot be credibly offered. This is coupled with the fact that several kinds of idiosyncratic shocks are privately observed by the firm. Thus lending on the basis of past history, or reputation, entails that creditors punish firms for nonpayment along the equilibrium path. In such circumstances, firms have incentives to group together in order to insure each other against unpredictable idiosyncratic shocks, assuming that such shocks are not perfectly correlated and monitoring costs are low. We then present empirical evidence to support our hypothesis.

NOEL MAURER AND TRIDIB SHARMA, *ITAM*

Institutions and Modernization: The Rio de Janeiro Stock Exchange and the Industrialization of Brazil, 1889–1930

This paper analyzes the relationship between finance and modernization by studying the effects of the institutions that created the stock exchange in Rio de Janeiro, Brazil. The main question addressed is: What was the role of the Rio de Janeiro Stock Exchange in Brazil's industrialization? My hypothesis is that the new institutional framework that regulated financial markets after 1889 in Brazil enabled entrepreneurs and State governments to use new financial instruments to finance the bulk of infrastructure and manufacturing ventures during the period 1889–1930. To test my hypothesis I used disaggregated data for all the securities traded in the Rio de Janeiro Stock Exchange. I show that the role of the stock exchange in the process of industrialization was of primary importance. First, many large investment projects were financed issuing debentures, second, State governments participated actively by selling debt to finance infrastructure projects, and third, those governments swapped debentures for government bonds in order to subsidize risky projects in their States. My findings contrast with those of other authors, such as Triner (1994) and Levy (1977), who have underestimated the importance of the Rio de Janeiro Stock Exchange in Brazil's industrialization.

ALDO MUSACCHIO, *Stanford University*

SESSION 6: PLENARY
BUBBLE, BUBBLE, TOIL, AND TROUBLE?: THE ROLE OF FUNDAMENTALS IN FINANCIAL MARKETS

Larry Neal (University of Illinois, Urbana-Champaign) chaired the session. Niall Ferguson (Oxford University), Peter Garber (Brown University and Deutsche Bank) participated.

SESSION 7A: THE ROLE OF BANKING SYSTEMS

A Comparison between Unit and Branch Banking: Australian Evidence on Portfolio Diversification and Branch Specialization, 1860–1930

This paper examines the consequences of branch banking for the Australian economy. There is little evidence to show that branching increased the stability of Australian banking. In 1893 Australia suffered the worst panic ever in a branch-banking country. During the crisis, more extensively branched banks were more likely to suspend payments. However, it is shown that branching increased the provision of banking services to rural areas. This occurred because branch banks could reallocate capital from urban to rural regions at low cost, whereas unit banks typically conducted all of their business locally. Using data from the Union bank of Australia, I show that advances were typically considerably greater than deposits at rural branches, whereas the reverse was true for urban branches. Finally, I show that virtually all rural branches would not have been viable had they been constrained by the deposits they could raise locally.

ANDREW SELTZER, *Royal Holloway*

Economic, Political, and Legal Factors in Financial System Development: International Patterns in Historical Perspective

This paper inquires into the underlying causes of financial-system structure and development. The study first shows that few banking systems fit the extreme paradigms of universal-relationship or specialized–arms length banking, but that banking system structure has remained remarkably stable over the last 150 years. Economic factors relate relatively strongly to financial-system development, market orientation, and banking structure before World War I and in the present day. Political structure relates significantly to market orientation but not to banking-system design or legal tradition. Finally, legal tradition appears associated with both banking specialization and market orientation, but this relationship may result primarily from historical ties to England. Moreover, legal orientation exerted little impact on financial-institution growth at the turn of the twentieth century or on real economic growth rates over the past century and a half.

CAROLINE FOHLIN, *California Institute of Technology*

My Word is My Bond: Reputation as Collateral in Nineteenth-Century English Provincial Banking

Banks are information machines that function by selling savers a package of services and charging them a share of the price by the end users (borrowers) of the commodity savers wish to sell. The services banks sell are, in this perspective, screening and monitoring of the borrowers and their projects, as well as risk spreading via diversification. If banks sell information, it is interesting to understand how they gather it and assess it. From the banks' marginal condition, knowing rates and collateral posted, we can use the internal records and board minutes of two English industrial banks from 1850 to 1885 to quantify the probability of default estimated by their directors for some 200 borrowers. We can then relate the expectations of the directors to a set of borrower-specific characteristics to evaluate the relative importance of tangible (buildings, machinery, stocks) and intangible (reputation) assets in allowing applicants access to credit.

FRANCESCO GALASSI AND LUCY NEWTON, *University of Warwick*

SESSION 7B: THE TEXTILE INDUSTRY

The Skills of the Unskilled in the American Industrial Revolution

Were ordinary factory workers unskilled and was technology "de-skilling" during the Industrial Revolution? I measure foregone output to estimate the human capital investments in mule spinners and power loom tenders in antebellum Lowell. These investments rivaled those of craft apprentices, suggesting a different view of industrial technology. Accounting for skill, multi-factor productivity growth was negligible, contrary to previous findings. From 1834–1855, firms made increasing investments in skill, allowing workers to tend more machines and generating rapid growth of per-capita output. This growing investment was motivated partly by changing factor prices and more by a changing labor supply. Calculations show that firm policy and social conditions, including literacy, influenced the investment in factory skills. When skills are considered, technological change at Lowell appears as a broad social process, dependent as much on innovation in institutions as on invention of machines.

JAMES BESSEN, *Research in Innovation*

When Labor Hires Capital: Evidence from Lancashire, 1870–1914

Labor seldom hires capital. Using case studies of business organizations in the Lancashire textile industry, 1870–1914, I document the particular and peculiar conditions under which employee ownership did work. In the wake of changes to company law, Oldham firms introduced profit sharing. As elsewhere, employee participation led to high rates of productivity growth. In Bolton, workers did not take to profit sharing and the town's industry suffered. The problem to be explained is why these two towns—only 15 miles apart—could have such different types of business organizations. I reject explanations based on human-capital factors and product-market opportunities. I argue that profit- sharing was successful in Oldham because it was compatible with the empathy the town's workers demonstrated for one another. This empathy overrode the free-rider problems of profit sharing. In Bolton, workers were indifferent to the well being of their co-workers and profit sharing consequently failed.

MICHAEL HUBERMAN, *University of Montreal*

Can Lower Rates of Labor Productivity in U.S. Cotton Mills Be Explained by Higher Rates of Worker Turnover?

In earlier work I showed that—surprisingly—Britain had higher labor productivity than America in cotton spinning *c*.1900. This paper provides a quantitative rationale for that finding. We know that job tenures are shorter in the United States than in Britain. If workers learned on the job, shorter job tenures in the United States would imply lower average labor productivity than in the United Kingdom. To test the effect of experience on productivity, I have collected 14,000 weekly wage records for American ring spinners. Each record gives the individual worker's hours, output, and earnings for that week. Individuals' learning over time proves to be substantial, and sufficient to explain about two-fifths of the aggregate productivity differential. Learning continues for over 100 weeks, suggesting the literature is wrong in its characterization of female ring spinners as unskilled.

TIM LEUNIG, *London School of Economics*

SESSION 8A: FINANCE IN COLONIAL BRITISH NORTH AMERICA

The Demography of Debts in Colonial New England

The economic-history literature understates credit's role in the economy of colonial New England, and book credit itself is mischaracterized. Using a data set I built from more than 50 merchant account books with over 9,000 purchases and more than 4,000 payments, I estimate certain vital characteristics of book credit. Perkins (1988) and Martin (1939) place the average amount of time a debt lasted, its term, at three to nine months or one year. Neither cites extensive account records to support their estimate. I construct life tables and use other event-history techniques to measure average term length for complete debt repayment. My estimate, 14 months, is longer than that of either Perkins or Martin. The account books, new estimates of term length, along with the size and volume of credit purchases show the New England economy to be highly sophisticated in the use of credit.

DAVID FLYNN, *Indiana University*

Depression in Colonial New York: The Role of Monetary Mismanagement in Stirring Revolutionary Discontent

While the American colonists frequently complained about monetary shortages, recent scholarship has tended to dismiss these complaints. In New York, during the depression that gripped the colony in the 1760s, these complaints were especially prominent. This paper argues that New York's difficulties during this decade were consistent with the predictions of an open-economy IS–LM model. A detailed recounting of the narrative history establishes that these complaints, in this instance at least, were quite plausible.

RON MICHENER, *University of Virginia*

Interest Rate Risk, Illiquid Assets and Information Asymmetries: Balance Sheet Deterioration and "Debtor" Angst in Colonial America

American colonists easily evaded usury laws; so, despite some claims to the contrary, market forces largely determined interest rates, though quotations are difficult to find.

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Although data are limited, it is very clear that unstable macroeconomic and monetary conditions caused considerable interest-rate volatility. Because of both the illiquid nature of colonial assets and a high level of information asymmetry, interest-rate risk for colonial firms was particularly severe. Higher interest rates caused colonial balance sheets to deteriorate, resulting in increased numbers of "debtors," i.e., individuals or firms with negative net worth. Colonists, therefore, were willing to pay a relatively high price for liquid assets such as government debt and ground rents. To the extent that imperial policies caused, exacerbated, or prevented colonial reactions to unstable macroeconomic and monetary conditions, colonists' distrust of London was amply justified.

ROBERT WRIGHT, *University of Virginia*

SESSION 8B: THE CHANGING ASPECTS OF LAND IN THE UNITED STATES

Job Mobility over Time Across the United States: Evidence on the "Agricultural Ladder"

Mobility up the farm job ladder came to be seen as a problem in the United States in the early decades of the twentieth century. In this study we will use the census manuscript schedules from the 1920 Census of Agriculture for McLean County, Illinois (a typical corn-belt county) along with data from 1938 from a survey of farmers in Jefferson County, Arkansas (a typical cotton-belt county) to explore the dynamics of the agricultural ladder. We develop hypotheses to explain the extent of movement up and down the agricultural ladder and why it changes over time and across space. Our preliminary examination of the data from 1938 indicates that farmers fared worse (in terms of job mobility) in the 1920s than the 1930s. Consistent with expectations, the 1910s proved to be years of general ascent up the agricultural ladder.

LEE ALSTON, *University of Illinois*, AND JOE FERRIE, *Northwestern University*

The Origins of Modern Housing Finance in the United States: The Role of the Federal Housing Administration during the Great Depression

The primary institutions governing the modern housing-finance system emanated from the New Deal, especially the National Housing Act of 1934. There is significant debate today regarding the usefulness of the integrated public and private means of financing housing in the United States. While we intend to make no judgments about the current mortgage-finance system, the goal of this paper is to investigate the effects of the New Deal's spending and housing programs. Using a recently uncovered data set that describes over 30 federal New Deal spending, loan, and mortgage-insurance programs across all U.S. counties from 1933 to 1939, we empirically examine the New Deal's impact on housing and rental values and home-ownership rates from 1930 to 1940. In the process of estimating the impact of the New Deal, we develop an econometric model that controls for the endogeneity of New Deal activity and for the spatial correlation among neighboring housing markets.

PRICE FISHBACK AND SHAWN KANTOR, *University of Arizona*

Biological Innovation and Productivity Growth in American Wheat Production, 1800–1940

Contrary to what is generally believed, there was significant biological innovation in American wheat production before the biological revolution of the 1930s and 1940s. These innovations took two related forms. First, there were wholesale changes in wheat varieties that facilitated the spread of grain cultivation to the Great Plains and Pacific Coast. The new varieties, including all the hard red spring wheats and all the hard red winter wheats later grown, increased yields by about one-third over what would have occurred in their counterfactual absence. Second, farmers had to adapt varieties and methods to offset the growing threat of pests and diseases. Our estimates suggest that these efforts increased yields by about 40 percent. Formally accounting for these biological innovations leads to a substantial revision in the Parker and Klein estimates of the sources of labor-productivity growth in American wheat culture.

ALAN OLMSTEAD, *University of California*, *Davis*,
AND PAUL RHODE, *University of North Carolina*

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