

1 Saloner 1989; Klevorick 1993) argued that, since information asymmetries do crucially  
 2 matter, any test for predation should include an assessment of the informational char-  
 3 acteristics of the market. No such test was, however, put forward, since any attempt at  
 4 deriving a legal standard on such basis soon appeared an impossible, if not a thor-  
 5 oughly senseless, task. The game-theoretic approach is valuable because it confutes  
 6 the *Chicago* critique even if the “possibility results” on the rationality of predatory  
 7 pricing do not allow the inference of practical conditions for antitrust enforcement.  
 8 Alternatively, even if strategic models do not exclude that a price passing the Areeda-  
 9 Turner test may be successful in keeping out of the market an asymmetrically informed  
 10 competitor with given beliefs, to strictly remedy information asymmetries cannot be  
 11 the goal of antitrust. In conclusion, I would not infer a failure of economic analysis  
 12 to play a role in modern antitrust law and economics from the wide consensus gained  
 13 by the Areeda–Turner test, at least not in the sense in which there was indeed a fail-  
 14 ure in the early period. Rather, by turning the Areeda–Turner test into a legal stan-  
 15 dard, judges have not only seized its operational value but eventually endorsed an  
 16 economic principle: to be unlawful, a low price must prevent the exclusion of equally  
 17 efficient competitors. As the book clearly shows, such a principle had not prevailed  
 18 in the early period. The Areeda–Turner rule may not be fully adequate to this target  
 19 (Vickers 2005). Still, it provides economists and lawyers with a common starting  
 20 point for further thought.

21  
 22 Michele Grillo

23 *Università Cattolica del Sacro Cuore, Milano*  
 24

25 REFERENCES  
 26

- 27  
 28 Klevorick, Alvin. 1993. “The Current State of the Law and Economics of Predatory Pricing.” *American*  
 29 *Economic Review* 83 (2): 162–167.  
 30 Ordover, Janusz, and Garth Saloner. 1989. “Predation, Monopolization, and Antitrust.” In Richard Schmalensee  
 31 and Robert Willig, eds., *The Handbook of Industrial Organization*. Amsterdam: North Holland,  
 32 pp. 537–596.  
 33 Vickers, John. 2005. “Abuse of Market Power.” *The Economic Journal* 115 (June): F244–F261.  
 34  
 35

36 Walter A. Friedman, *Fortune Tellers: The Story of America's First Economic Forecasters*  
 37 (Princeton: Princeton University Press, 2013), pp. 288, \$29.95, hardcover. ISBN  
 38 978-0-69115-911-9.

39 doi: 10.1017/S1053837215000565  
 40

41 Over the last few years several names associated with the USA financial sector, such  
 42 as Dow-Jones, Standard & Poor's, Moody's, Fitch, J. P. Morgan, and *Wall Street*  
 43 *Journal*, have become household names due to the 2008 financial crises, whose effects  
 44 are still unfolding. For the average reader who wonders how these names came about  
 45 and what they represent, this is the book to read. For the economist who wonders why  
 46 the reliability of economic forecasting remains highly questionable to this day, this is  
 47 the book to read.

1 The book narrates a fascinating story of the early economic forecasting in the  
2 United States, spanning the period signposted by two major economic calamities:  
3 the bankers' panic of 1907 that was instrumental for the creation of the Federal  
4 Reserve, and the 1929 stock market crash that led to the Great Depression of the  
5 1930s. In between these two calamities there was an unforeseen recession in  
6 1920–21.

7 The story revolves around the lives, times, and careers of economic forecasters  
8 who can be classified into two broad categories: non-academic practitioners (Roger  
9 Babson, John Moody) and eminent academics (Irving Fisher at Yale, Warren  
10 Persons at Harvard, and Wesley Mitchell at Columbia). They all competed in the  
11 market to persuade investors and business managers that their particular forecasts  
12 concerning future economic conditions were more reliable than those of their  
13 rivals. The author does a good job in 'setting the scene' for each of the protagonists  
14 by providing adequate biographical information as well as sufficient historical  
15 details of their times. One of the strengths of the book is that the narrative unfolds  
16 as a coherent story that both entertains and teaches at the same time. The author  
17 brings out the human side of the protagonists with their strengths, failings, fixations,  
18 and moralizing tendencies, which makes the story even more compelling. For  
19 instance, success in business by certain individuals was sometimes confused with  
20 superior intelligence and the right to criticize the flaws of less successful people  
21 and to pontificate on how society should deal with such failings by claiming the  
22 moral high ground.

23 The first economic calamity associated with the bankers' 1907 panic was primarily  
24 used by these forecasters as a learning experience. The 1920–21 recession tested their  
25 forecasting techniques and most were found wanting. The Great Depression of the  
26 1930s called their forecasting seriously into question because none but Babson—  
27 considered by the academics as a charlatan—predicted the looming depression!  
28 Indeed, the forecasters who flunked the initial test of predicting the stock market crash  
29 and the ensuing depression kept predicting a quick recovery from the downturn for  
30 several years afterwards. When challenged for their unwarranted optimism, they would  
31 invoke external unpredictable factors for their failures. Was Babson's correct predic-  
32 tion a lucky happenstance—after all, even astrologers get it right occasionally—or was  
33 there some merit in Babson's techniques? Could it be that the forecasting techniques  
34 of the 1920s suffered from the same weaknesses as the current econometric models  
35 that failed to predict the recent recession that began to unfold in 2008? Are such eco-  
36 nomic calamities beyond the scope of current methods of forecasting? Despite such  
37 spectacular and consistent failures, why do people continue to seek advice from a  
38 variety of pundits and forecasters?

39 The author does a good job in drawing discerning analogies between the 1930s  
40 depression and the recent recession and sheds some light on these questions, but not  
41 enough to provide clear answers. To be fair, the author never promises to do that, but  
42 he skillfully floats such questions around as his narrative winds down.

43 From an academic perspective this book is particularly interesting because it brings  
44 out several important methodological issues pertaining to empirical modeling and  
45 inference (including forecasting) that are as relevant today as they were in the 1920s  
46 and 1930s. These issues can be brought out by summarizing the different perspectives  
47 on forecasting by the protagonists.

## 1 ROGER W. BABSON (1875–1967)—CHAPTER 1

2

3 Babson's perspective on forecasting was influenced by earlier developments in fore-  
4 casting the weather in meteorology. It was based on focusing on key macroeconomic  
5 variables, such as agricultural and industrial production, manufacturing achievements,  
6 immigration rates, employment levels, import and export levels, commodity (hogs,  
7 corn, cotton, pig-iron) prices and gold prices, as well as variables relating to the business  
8 sector, such as bank clearings, stock-exchange transactions and prices, and business  
9 failures. These variables constitute relevant information that could shed light on future  
10 economic conditions of the economy as a whole and should be contrasted with company-  
11 specific information that could be helpful in deciding which securities to buy, but  
12 useless for knowing when to buy or sell them profitably—purchase at the ebb and sell  
13 at the crest of the business cycle.

14 Babson's view was that forecasters could discern regularity patterns in past data that  
15 are likely to repeat themselves in the future. Visual representation of times series data  
16 in terms of graphs, charts, and diagrams provide the key to finding such patterns,  
17 which then provide the basis for forecasting future turning points. In particular, he  
18 emphasized the importance of trends in key variables.

19 Babson combined a set of twelve basic macroeconomic time series relating primarily  
20 to industrial output with a number of business-related data series into a single series, a  
21 barometer index (Babson composite), representing the health of the economy. Like  
22 any good alchemist he never revealed his trade secret of how these series are combined  
23 into a single index. To enhance the value of his Babsonchart for sound investing, he  
24 would draw a line representing normal economic activity in order to designate the ebbs  
25 and the crests of business cycles. This line was motivated by invoking a loose analogy  
26 with Isaac Newton's theory of action-reaction and believing that most economic inves-  
27 tors follow the herd instead of acting rationally!

28

29

## 30 IRVING FISHER (1867–1947)—CHAPTER 2

31

32 Fisher held a mechanical view of the economy, but instead of industrial, Fisher empha-  
33 sized money and related variables, such as the price level, interest rates, and credit output,  
34 as providing the key to understanding business cycles. Business cycles were viewed by  
35 Fisher as primarily a monetary phenomenon, in the sense that monetary instability and its  
36 effect on prices, interest rates, and credit levels are the main cause of business cycles.

37 Instead of historic trends in a few economic time series combined in a single index,  
38 Fisher proposed explicit economic models, as in Newtonian mechanics, that aim to  
39 capture the causality connections among key macroeconomic variables, such as the  
40 famous Equation of Exchange,  $MV=PT$ , where  $M$ =money in circulation,  $V$ =velocity  
41 of circulation,  $P$ =price level, and  $T$ =volume of trade, and its extensions to include the  
42 banking sector. Such models stem from economic theory expressed in precise mathe-  
43 matical formulations. He was a pioneer of the mathematization of economics that has  
44 dominated economic theory ever since. His aim was to construct mathematical models  
45 that adequately capture most of the key features of the actual economy with the view  
46 to shed light on the causes of expansion and recession, and reliably forecast future  
47 economic conditions.

1 Instead of combining different data series using subjective ad hoc formulae, Fisher  
2 proposed sophisticated methods for devising index numbers by combining different  
3 data series into a meaningful index, including one for the aggregate price level.  
4  
5

#### 6 JOHN MOODY (1868–1958)—CHAPTER 3 7

8 Moody distrusted both the use of trends in forecasting as well as theory-based expla-  
9 nations of business cycles. Instead, he had a firm-centered view of the economy and  
10 his forecasting philosophy was altogether informal: (i) gather as much economic infor-  
11 mation (business-specific, in particular) as possible, (ii) organize and analyze all the news  
12 and information one could, and then (iii) employ judgment and intuition to forecast  
13 future economic conditions.  
14

15 His interest in forecasting was extended to the evaluation of the potential future  
16 returns on securities in the form of ratings from “Aaa” to “E.” This facet of his  
17 work began to dominate his activities after the Great Depression of 1929.

18 Moody’s primary aim was to provide detailed and reliable information about the  
19 health of different firms and institutions issuing bonds and shares (what we nowadays  
20 call “fundamentals”) in an attempt to better inform the average investor and render him  
21 less of a victim of the shenanigans of Wall Street insiders. His interest was primarily  
22 to level the playing field and make it harder for the insiders to mislead the average  
23 investor.  
24

#### 25 WARREN M. PERSONS (1878–1941)—CHAPTER 4 26

27 Under the administrative auspices of Charles J. Bullock (1869–1941) at the Harvard  
28 Economic Service (later Society), housed in the Economics Department at Harvard  
29 University, Persons constructed the first empirical leading-indicator model for the US  
30 economy. A leading indicator is a measurable economic variable that signals a change  
31 before the economy follows a particular pattern or trend. The rationale underlying this  
32 model was that trends and cycles in the economy are discernible through the statistical  
33 analysis of past episodes with similar empirical features. The primary aim of the  
34 leading indicator model was to produce reliable forecasts by examining the empirical  
35 connections between three aspects of the economy: speculation, business, and money.  
36 The statistical techniques employed to construct this model included the measurement  
37 and decomposition of different variables into different components: secular trends,  
38 seasonal variations, as well as cyclical and irregular fluctuations in time series  
39 data. The model was associated with a single three-curve (ABC) graph (A=speculation,  
40 B=business, and C=money) depicting business cycles over time, aiming to relate  
41 current alignments of shapes with past alignments of the three curves in an obvious  
42 attempt to forecast their future path. The idea was to identify which previous historical  
43 period most resembles the current and use that as the basis of the forecasts in the sense  
44 that analogous configurations of change in business cycles found in past periods of  
45 expansion and recession would repeat themselves in the future. The ABC graph  
46 was supplemented with various descriptive statistics relating to the business cycles  
47

1 associated with several economic time series, with a view to identify which variables  
2 in an economy (a) predate, (b) occur simultaneously, and (c) lag the cyclical move-  
3 ments. Such information could then be used to aid forecasting.

4 Persons went out of his way to criticize the other approaches to forecasting by  
5 Babson, Fisher, and Moody in an obvious attempt to promote his as the only scientifi-  
6 cally sound empirical approach. He and Bullock touted their emphasis on the detailed  
7 collection of accurate data relating to the business cycle in conjunction with the appli-  
8 cation of sophisticated statistical techniques.

9 Instead of using high-level theory to capture the workings of the actual economy  
10 (like Fisher), Persons opted instead for low-level theories that simply indicate which  
11 variables might be relevant and then rely primarily on the empirical regularities in the  
12 data chosen. He was highly skeptical that any mathematical model could adequately  
13 capture the complexity of the real economy as reflected in the empirical data.

14  
15

#### 16 WESLEY MITCHELL (1874–1948)—CHAPTER 5

17

18 Mitchell's perspective on empirical modeling and forecasting was data-based and  
19 much closer to Persons's than Fisher's, but he did not dismiss Fisher's monetary theory  
20 of the business cycle. Mitchell and Persons saw their approach as studying the real  
21 economy using inductive generalizations stemming from the actual data. This was  
22 contrasted with deductive reasoning based on mathematical models where the actual  
23 data are given only the subordinate role of quantifying such models. Mitchell and  
24 Persons viewed business cycles as inherent to economic activity, but in contrast to  
25 Persons, Mitchell understood forecasting as an integral part of policy making and  
26 believed in the possibility of smoothing out (moderating) business cycles by employ-  
27 ing the right economic policies in a timely fashion.

28 Mitchell's perspective on empirical modeling led him to focus primarily on measuring  
29 the business cycles accurately enough to be able to employ timely economic policies  
30 that would potentially moderate such cycles, including the active role of the Federal  
31 Reserve in such policies. He was instrumental in the establishment of the National  
32 Bureau of Economic Research (NBER) established in 1919. He was director of  
33 research at the NBER until 1945, by which time it was the elite institution for  
34 economic forecasting. Mitchell worked closely with Herbert Hoover (1874–1964) in  
35 the Department of Commerce as a member of the Business Cycles Committee and  
36 then as the chairman of the President's Committee on Social Trends (1929–33).

37 For forecasting purposes Mitchell did not put forward any single model. Instead, he  
38 emphasized the use of historical data, summarized in a variety of ways, as providing the  
39 best means to understand complex signals from numerous indicators for future ups and  
40 downs of the economy using reasoned assessment (which he called "educated intuition").

41  
42

#### 43 RETROSPECT AND PROSPECT

44

45 A retrospective view of the protagonists' perspectives on forecasting summarized above  
46 raises an interesting methodological issue for current forecasting methods. Despite the  
47 fact that today we have much better quality and variety of data, considerably more

1 sophisticated economic theory as well as statistical techniques, and easy access to  
2 computers and software programs, the reliability of forecasting is only marginally  
3 better than that of the 1930s. Could it be that the key weaknesses of the older fore-  
4 casting techniques have been passed on to today's sophisticated econometric and time  
5 series modeling and inference? A strong case can be made that the answer is yes. The  
6 main reason is that both generations of techniques have failed to make the best of the  
7 two types of information that are instrumental for reliable forecasting, theoretical  
8 (substantive, structural) and statistical (chance regularities), by accentuating the role  
9 of one and relegating the role of the other.

10 The one theme that seems to crop up in most quarrels among the early forecasters,  
11 as well as in current discussions on empirical modeling and inference, revolves around  
12 contrasting the data-based vs. theory-based approaches. This choice turns out to be a  
13 false dilemma in the sense that both sources of information, theoretical and statistical,  
14 play a crucial role in securing the reliability and precision of statistical inference  
15 (including forecasting). The difficult methodological problem, whose solution has  
16 eluded both generations of forecasters, is how to strike the right balance in a way that  
17 safeguards the validity (appropriateness) of both types of information.

18 What is often insufficiently appreciated is that both data-based and theory-based models  
19 are invariably an amalgam of substantive and statistical information. Both types of  
20 information need to be appraised in order to secure their validity (appropriateness)  
21 before being imposed on the data. Their validity (appropriateness) will secure the reli-  
22 ability and precision of the ensuing inferences, including forecasting.

23 All data-based models (implicitly) invoke some type of substantive subject matter  
24 information. This comes in the form of low-level theory that determines the rele-  
25 vant variables and the potential connections among such variables: the substantive  
26 premises. The invoked substantive premises can easily be inappropriate, rendering the  
27 estimated model substantively inadequate. That could derail the reliability of any fore-  
28 casts stemming from the data-based model. Moreover, the reliability and precision  
29 of the various statistical techniques invoke probabilistic assumptions pertaining to the  
30 stochastic process that generated the data: the statistical premises. The invoked statis-  
31 tical premises, in the form of distribution, heterogeneity, and dependence assumptions  
32 imposed on the data, can be invalid for the particular data, rendering the estimated  
33 model statistically inadequate. That will ruin the reliability of any forecasts by trans-  
34 forming a 95% prediction interval into, say, a 10% actual coverage interval; the nom-  
35 inal and actual error probabilities will be significantly different, leading any inference  
36 astray.

37 All structural (substantive) econometric models in empirical modeling, in addi-  
38 tion to the high-level theory, invoke (often implicitly) statistical premises pertain-  
39 ing to the probabilistic structure of the data chosen; this provides the justification  
40 for the statistical techniques employed in inference. When the invoked statistical  
41 premises are invalid for the data chosen, no amount of theoretical finagling could  
42 address the unreliability of inference based on the estimated structural model.  
43 Moreover, a statistically inadequate structural model cannot provide a reliable  
44 basis for appraising its substantive adequacy. The latter can be reliably appraised  
45 only after its statistical adequacy has been secured to ensure that a 5% significance  
46 level test does have an actual type I error probability round 5% and not 90% (see  
47 Spanos 2010).

1 It is important to note that reliable forecasting does not mean that one gets all the  
2 ups and downs exactly right. It only means that the forecast errors for several periods  
3 ahead can be shown to be statistically non-systematic (white noise). For such reliable  
4 forecasts, “precision” refers to their sum of squared errors’ being smaller than that of  
5 other forecasts for the same period whose reliability has been checked.

6 Modern macroeconometric modeling began with Jan Tinbergen’s (1939) model of the  
7 US economy and continued with the Lawrence Klein and Arthur Goldberger (1955)  
8 model. Unfortunately, subsequent attempts to ameliorate the adequacy of such macro-  
9 econometric models ignored the statistical adequacy and focused primarily on  
10 enhancing the substantive adequacy by broadening their scope and ‘realisticness.’ As  
11 a result, the number of equations of these model increased dramatically from fifteen in  
12 the Klein–Goldberger model to several hundred equations of the Brookings and  
13 then the Wharton quarterly model of the USA (see Fromm and Klein 1975). Looking  
14 back, the poor forecasting performance of these and subsequent models can be attrib-  
15 uted to a number of different factors, the most important of which is that they do not  
16 account for the statistical regularities in the data (statistically inadequate), giving rise  
17 to untrustworthy empirical evidence and poor predictive performance.

18 The Dynamic Stochastic General Equilibrium (DSGE) models that currently  
19 dominated macroeconometric modeling, although theoretically elegant, are invari-  
20 ably substantively and statistically inadequate, rendering such models poorly chosen  
21 for reliable and precise forecasting and policy simulations. Hence, before modelers  
22 can address both types of inadequacy by validating the information they invoke, the  
23 reliability of the resulting forecasts will be questionable at best (see Spanos 2009).

24 Using the above methodological perspective, one can look back and briefly evaluate  
25 the forecasting techniques of the protagonists retrospectively.

26 *Babson’s* choice of what the relevant variables are could not provide an adequate pic-  
27 ture of the economy to avoid substantive inadequacy. Moreover, it is also doubtful that his  
28 statistical modeling techniques for capturing the chance regularities in the data were  
29 based on valid assumptions concerning the probabilistic structure of his data. Having said  
30 that, his correct forecast of the 1929 to 1931 recession and the Great Depression might not  
31 have been a fluke, but due to his model’s capturing enough of the underlying trends to  
32 alert him to the looming downturns. This is because a substantively inadequate but statis-  
33 tically adequate model might give rise to reliable-enough, short-term forecasts.

34 *Moody’s* focus primarily on business-specific information ensures that his fore-  
35 casting techniques were not based on substantively adequate premises. Moreover, his  
36 informal forecasting techniques based primarily on judgment and intuition are highly  
37 questionable from the statistical adequacy perspective. Statistical inferences, however  
38 informal, do invoke statistical premises that can easily be invalid for one’s data.

39 *Fisher’s* use of structural models is clearly a major achievement that broke new  
40 ground, but it is highly unlikely that his various equations of exchange could pro-  
41 vide even the crudest substantively adequate premises for forecasting business cycles.  
42 Moreover, the essentially static nature of these structural equations had no chance to  
43 secure the statistical adequacy of his estimated models.

44 *Persons’s* choice of the relevant variables to set up his empirical leading-indicator  
45 model, although innovative, could not provide even the crudest substantively decent-  
46 enough picture of the economy. Moreover, his statistical techniques, although sophisticated  
47 enough for his time, were unlikely to have been based on statistically adequate premises.

1 Indeed, he never tested the validity of the probabilistic assumptions he was invoking  
 2 for separating the various components: secular trends, seasonal variations, and cyclical  
 3 and irregular fluctuations.

4 To give the reader some idea of what these assumptions might be, consider the case  
 5 where one estimates the correlation coefficient between two random variables Y and X  
 6 using the formula:

$$\frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}}$$

7  
 8  
 9  
 10  
 11  
 12 Where  $\bar{z} = \frac{1}{n} \sum_{i=1}^n z_i$ . This formula (implicitly) assumes that the processes underlying  
 13 the data  $\{(x_i, y_i), i=1, \dots, n\}$  have a constant mean, constant variances, and covariance as  
 14 well as independence over  $i=1, 2, \dots, n$ . For time series data none of these assumptions  
 15 are likely to be valid, rendering the above estimated correlation statistically meaning-  
 16 less (spurious) (see Spanos 1999). Similar probabilistic assumptions are also  
 17 involved when using regression and least-squares curve-fitting techniques.

18  
 19 *Mitchell's* choice of the relevant variables and the precision of his data, although more  
 20 sophisticated than that of the others, is highly unlikely to have achieved even the crudest  
 21 but substantively decent-enough picture of the economy to capture (measure) and forecast  
 22 business cycles. Moreover, despite the obvious sophistication of his statistical techniques,  
 23 he never brought out or validated the implicit statistical premises. Hence, any forecasts  
 24 based on his 'educated intuition' were unlikely to be reliable in an inferential sense.

25 To sum up, the forecasting techniques of these early pioneers never had a chance to  
 26 yield reliable-enough forecasts consistently, despite the occasional short-term correct  
 27 forecast. The main lesson from the above retrospective viewpoint is that the economics  
 28 profession has still a long way to go before one can expect reliable-enough and precise  
 29 forecasting consistently. It has to begin by securing the statistical adequacy of the  
 30 inductive premises of the econometric models being used; i.e., the probabilistic  
 31 assumptions (implicitly) imposed on the data need to be validated. Unfortunately,  
 32 many modelers are unaware of the fact that behind every structural model, there is a  
 33 statistical model that comprises the probabilistic assumptions the structural model  
 34 imposes (often implicitly) on the data via error terms. Hence, these probabilistic  
 35 assumptions are rarely validated and, as a result, the statistical reliability of any form  
 36 of inference is undermined by statistical misspecifications that induce sizeable dis-  
 37 crepancies between nominal (the assumed) and actual error probabilities. Once the  
 38 statistical adequacy is secured using thorough misspecification testing and respecifica-  
 39 tion, the resulting statistically adequate model can then be used as the relevant empir-  
 40 ical basis for appraising and improving the substantive adequacy of the associated  
 41 structural model (see Spanos 2012). More importantly, such a statistically adequate  
 42 model can provide a sound basis for reliable and precise forecasting.

43 In conclusion, the book is a pleasure to read and the narrative is both informative  
 44 and insightful. I highly recommend it to both economists and non-economists.

45  
 46  
 47

Aris Spanos  
*Virginia Polytechnic Institute and State University*

## 1 REFERENCES

2  
3 Fromm, Gary, and Lawrence R. Klein, eds. 1975. *Brookings Model: Perspective and Recent Developments*.  
4 North-Holland: Elsevier.

5 Klein, Lawrence R., and Arthur S. Goldberger. 1955. *Econometric Model of the United States, 1929–52*.  
6 North-Holland: Elsevier.

7 Spanos, Aris. 1999. *Probability Theory and Statistical Inference: Econometric Modeling with Observational*  
8 *Data*. Cambridge: Cambridge University Press.

9 ———. 2009. “The Pre-Eminence of Theory versus the European CVAR Perspective in Macroeconomic  
10 Modeling.” *Economics: The Open-Access, Open-Assessment E-Journal* 3. [http://www.economics-](http://www.economics-ejournal.org/economics/journalarticles/2009-10)  
11 [ejournal.org/economics/journalarticles/2009-10](http://www.economics-ejournal.org/economics/journalarticles/2009-10), pp. 1–14. Accessed 11 September 2015.

12 ———. 2010. “Statistical Adequacy and the Trustworthiness of Empirical Evidence: Statistical vs.  
13 Substantive Information.” *Economic Modelling* 27: 1436–1452.

14 ———. 2012. “Philosophy of Econometrics.” In U. Maki, ed., *Philosophy of Economics*. Handbook of  
15 Philosophy of Science series, edited by D. Gabbay, P. Thagard, and J. Woods. North-Holland:  
Elsevier, pp. 329–393.

16 Tinbergen, Jan. 1939. *Statistical Testing of the Business-Cycle Theories*. Volumes I–II. Geneva: League of  
17 Nations.

18  
19  
20  
21 Michael Bordo and William Roberds, eds., *The Origins, History, and Future of the*  
22 *Federal Reserve: A Return to Jekyll Island* (New York: Cambridge University Press,  
23 2013), pp. 432, \$109.99. ISBN 978-1-107-01372-8.

24 doi: 10.1017/S1053837215000577  
25

26 A dramatic step towards the Federal Reserve Act of 1913 was a November 1910,  
27 Jekyll Island, Georgia, meeting of New York bankers, a Treasury official, and Nelson  
28 Aldrich, long-time chairman of the Senate Banking Committee (1899 to 1911) and  
29 joint sponsor of the Aldrich–Vreeland Currency Act of 1908 that had been a response  
30 to the Panic of 1907. Aldrich’s plan for an American central bank, consisting of fifteen  
31 branches owned by subscribing commercial banks, doing business only with banks,  
32 and empowered to issue currency in the course of loans to banks and purchases of  
33 government securities, had bogged down politically, with little support from the public  
34 or the multitude of small banks, both suspicious of the money center institutions.  
35 Prospects had diminished with the Democratic victory in the recent congressional  
36 elections, and the meeting was apparently devoted primarily to the search for a central  
37 bank with bipartisan support.

38 Frequent financial crises in the United States, highlighted by the greater stability in  
39 Europe, had stimulated discussions of banking reform. The leading candidate as pri-  
40 mary cause of the crises—the multitude of predominantly small and undiversified  
41 banks (19,000 in 1910)—was politically untouchable (until the 1980s), and, looking to  
42 the European central banks, the solution sold to the public was an institution that  
43 would provide an “elastic currency” sufficient to the needs of business.

44 Interesting as the Jekyll Island conference was, it had little, if any, impact on the  
45 Federal Reserve Act. Democrats, who took control of the House in 1911, and also the  
46 Senate and the presidency in 1913, publicly opposed Aldrich’s plan as a scheme of  
47 the “money trust.” Nevertheless, President Woodrow Wilson was persuaded by party

AQ1