

Contents

<i>Acknowledgements</i>	viii
<i>Preface</i>	x
<i>Foreword by Robert M. Solow</i>	xii
1 Modigliani's Early Life and Influences	1
2 Modigliani and Keynesian Economics	15
3 The Gospel of Keynesian Reality, Development and Application of Modigliani's Model, 1944–2003, The Realm of Stabilization Policies	45
4 The Life Cycle Hypothesis	79
5 Modigliani and Miller's (M&M) Hypothesis	107
6 Forecasting: The MPS Model	133
<i>Appendix A A Question of Identity</i>	157
<i>Appendix B Selected Personal Vignettes</i>	161
<i>Appendix C Overview on Modigliani's Works</i>	167
<i>Notes</i>	179
<i>Bibliography</i>	195
<i>Index</i>	205

1

Modigliani's Early Life and Influences

Introduction

Modigliani penned an autobiography relating his experiences in Italy, America and other European countries.¹ For each country, he presents his major works like a meal consisting of graphs, symbols, data, and explanations for general readers to digest. A “scientific autobiography” written by “a ferocious Galileo,” says Samuelson. “His memoirs are just like him. Any reader will get to know a delightful person and learn some economics besides,”² echoes Solow. *Adventures* stands besides other biographical pieces Modigliani had written, one for his Nobel Prize in 1985,³ and a chapter in a book.⁴ Why should we have another record of his life and works?

To know Modigliani is to know a genius

How many ways can we know a genius? Aristotle said that a wise person could grasp things that are further removed from the senses.⁵ Modigliani was a wise man because his works reach beyond common sense. Striving for perfection, his works appear timeless and fresh. He insisted on numerous refinements, amendments and revisions during the publication of his 2003 “The Keynesian Gospel According to Modigliani” in *The American Economist*, a journal we edit. The liquidity preference theory written in 1944 had its last revision in 2003. The Modigliani-Miller theory of the cost of capital, written in 1958, was revisited in 1988,⁶ and he had expressed his intention to further revisit it. He expounded his saving paradigm in the late 1940s, and applied it to China in a 2004 article,⁷ published posthumously.

At Modigliani's memorial service at MIT's Sloan School of Management, his colleague, Paul Samuelson, referred to Modigliani's

thought process as D-E-E-P. As an example he pointed to the way Modigliani penetrated into the intricate Dual Pasinetti theorem that they both formulated. During the collaboration Modigliani called Samuelson incessantly, demonstrating an exceptionally concentrated mind on the subject which shortly thereafter, led to the illumination.

A die-hard Keynesian

Modigliani took pride and delight in developing Keynesian economics, but he appeared to be a thorn in the flesh of the classical economists. From the publication of the *General Theory* in 1936, Keynes' teachings steered the direction of economics into the 1970s, when stagflation started to appear. Economists who share Modigliani's macroeconomic paradigm would view the main part of Keynes' theories as the "Gospel" truth. Others not only reject it, but try to overthrow it. The result is a constant tug-of-war between ideas from both sides. Ultimately, scientific progress is made "funeral by funeral."⁸

Modigliani's work is built around "hard-core" Keynesian thought. That hard-core element took birth in his 1944 dissertation from which he built a long lasting research program, as far as new theories of macroeconomics go. Modigliani's frequent revisions of his major works were an attempt to integrate new ideas, respond to and accommodate critics, and to articulate the models in different ways. The adjustments, however, occurred only in the protective belt around his hard-core model of Keynesian thought.

If Modigliani is seen as a committed Keynesian, then it is because of an unshakable belief in his scientific program. All scientific endeavors need repeated rounds of shaking up. Think what science would have been like had scientists adopted Greek philosopher Epicurus' notion that atoms are hooked. His atoms are motionless, as though they are nailed to a wall. The scientist, however, mobilizes and shakes-up ideas. As Henri Poincare compares ideas to the hooked atoms, "the mobilized atoms undergo impacts which make them enter into combinations among themselves or with other atoms at rest, which they struck against in their course. In those new combinations ... lie ... spontaneous inspirations."⁹ Modigliani's meticulous attitude and the multiple revisions of his works made it possible to shake up ideas.

Difficulty of the subject matter

Modigliani first embraced macroeconomics through his mentor, Jacob Marschak, at the now New School University in New York. The concern at that time was to crack the secret codes in Keynes' newly published

book, *The General Theory of Employment, Interest and Money*. The text lacks serious mathematics, yet Marschak advised him to study the subject. Modigliani went to R. G. D. Allen's, *Mathematical Analysis for Economists* text. Moreover, he studied statistics by attending the well-known Abraham Wald's seminars at Columbia University and participated in an informal seminar, at the invitation of Marschak, whose members included, besides Wald, Tjalling C. Koopmans and Oscar Lange.¹⁰ A glance at Modigliani's scientific writings confirms that Marschak predicted well. The general reader will appreciate Modigliani's contributions if they are not averse to the use of symbols, graphs, and data.

The area of macroeconomics developed rapidly after Modigliani and others had insisted on direct applications. Just after graduation, Modigliani joined Hans Neisser at the New School University in producing a quantitative macro model. One of the highlights of the model was the establishment of the relationship between foreign trade and domestic economic activities in a multi-country setting.¹¹ Subsequently, Modigliani continued to alter and improve the validity and compactness of the model.¹²

Formative years: A developmental profile of Franco Modigliani

We embark upon this journey with Modigliani's early days. The sources of information are from Modigliani's own works, general reports, and our interviews with Modigliani's family members, collaborators and colleagues. In his *Adventures*, Modigliani tells us that he had a happy childhood.¹³ Psychologists urge us to look at the external and internal factors of any protagonist. When we look at the environment surrounding Modigliani's birth, we find a mixture of positive and negative experiences. On the good side, we find that he had loving and caring parents. He describes holiday trips with his cousins as though he were never home alone. If there is any hurrying at all in his school days, it seems self-imposed.

Born into fascism

The dark environment surrounding Modigliani's childhood began around the time of his birth. He was born when WWI ended. Italy at that time was not as developed as France and England. Its industrialized, forward-looking northern regions were affluent, while the southern regions were impoverished and therefore more resentful of the ruling

powers.¹⁴ Social tensions started to emerge as the fascist regime began to place its emphasis on nationalistic issues. The Italian fascism that Modigliani confronted during his childhood was the doings of Benito Mussolini, who began in politics as a Marxist. But he did not bond with socialism. A split with the Italian Socialist party brought Mussolini national recognition.¹⁵ When he was expelled, he declared in his last speech to the party: "You think to sign my death warrant, but you are mistaken ... you have not seen the last of me!"¹⁶ As he urged Italy to enter the war, he added, "every epoch and every people has had its wars."¹⁷ After WWI, Mussolini remarked, "The war has been a jet of pure water for our nation."¹⁸

Italy did not fare badly immediately after the war relative to other European countries, even though it came under the rule of Mussolini's fascist dictatorship. Germany became a Republic. And in Russia, renamed the Soviet Union, central planning was introduced subsequent to the communist revolution in 1917. What ensued were years of Stalinist terror and deprivation. Stalin's favorite phrase was, "No man, no problem." In Germany, "the year before the end of inflation in November 1923. ... Everybody was a billionaire, but a billion marks would not buy a loaf of bread."¹⁹

Mussolini had three aims for Italy: nationalism, production, and protection of the working classes.²⁰ He began his drive for power by organizing "paramilitary, black-shirted units (*fasci de combattimento* – hence the name *fascist*)."²¹ He gathered support from the Catholic Church by declaring: "I maintain that Catholicism is a great spiritual power, and I trust that the relation between Church and State will henceforward be friendlier."²² He also had the support of the army and the press. In 1922, he organized a massive "March on Rome," and the Italian King, Victor Emmanuel III, invited him to become the new parliamentary leader, the prime minister, "Il Duce." Two years later his party won approximately 70 per cent of the vote, and Italy soon turned into a fascist country.

Italian fascism opposed "liberalism, democracy, rationalism, socialism, and pacifism."²³ It had shared elements in common with Hitler's Nazism that were developing in Germany, such as an "organic state, the importance of struggle and will, the glorification of militarism, and insistence on authority and discipline, rule by an elite, and a mystic faith in the leader."²⁴ But the Nazis were also known for their racist beliefs which Mussolini adopted. When Modigliani was about 20 years old, he wrote:

... we were surprised by the publication of the race laws that were to degrade the life of any Italian Jew who wished to remain in Italy.

It was no longer possible for Jews to attend public schools or to hold public office, including university teaching, and, what probably affected the Italian Jewish middle class more than anything else, it was forbidden to employ a non-Jewish domestic.²⁵

Modigliani, being from “an old Roman family of Jewish ancestry,” felt the discriminatory laws directly. This proved to be a turning point for him and led him to flee Europe. At Modigliani’s memorial service at MIT, it was suggested that such an experience had made him fearless. Modigliani was therefore not only prepared for his conferences and meetings – during which he never showed anxiety – and delivered his talks without notes, but he was uncompromising in the pursuit of truth. It is clear that his experiences with the brutality and degradation of fascism and anti-Semitism created indelible memories in his mind, and were to define how he approached new subjects. There is nothing like suffering to sharpen the social sense. As Ernest Hemingway once remarked, he understood Cezanne’s paintings far better when he was poor.

Modigliani’s relations with his parents, siblings, and cousins

Modigliani was “an obstinate child, with occasional wild tantrums.”²⁶ He communicated well with his father, whom he referred to as Papa. Modigliani’s mother, Olga Flaschel, was a voluntary social worker. Her father, Emilio Flaschel was from Krakow, Poland, and her mother Ernestin Cagil was from Florence. Olga Flaschel was born in Florence, and had attended the University of Rome, attaining a degree in pedagogy in the 1930s. After graduation, she managed her family’s business, trading in real pearls, but soon the competition with cultured pearls dominated the real pearls market causing their family’s business to close down in the 1930s. Modigliani observed “arbitrage” at work in his young days as his grandfather bartered pearls against coral between Italy and Poland.

Modigliani’s father, Enrico, was a famous pediatrician. He showed great dedication for illegitimate children for whom the law provided little protection at that time.²⁷ He met these children while serving at some of the institutions which cared for abandoned children. From his observations, he developed the theory that “the very high death rate of foundlings in the orphanages was due to lack of maternal love in the first weeks of life.” Franco Modigliani was thus exposed to two major economic influences: arbitrage through his mother, and demographic analysis and social concerns through his father.

Childhood memories

Modigliani was born on 18 June, 1918 in Rome, Italy. In *Adventures*, Modigliani tells us of three indelible childhood memories. The first is about a nickname his father gave him: “comfort spider.” The other two occurred at about the age of four. One occurred on a holiday when his cousin Maria fell into a lake while stepping into a boat. He remembered everyone in the party laughing. The other was a feeling captured by his Papa’s poem: “But by golly, That’s enough, We want bread, And we want stuff! We will call in, with hand grenades, all the fascist Black Brigades.”²⁸ These stories mixed fun with serious times.

His own words relay that his childhood was happy even though he admits that he had “the most awful tantrums and kicked out wildly.” He had few memories of his Papa, who died when he was 14, which he considered to be his childhood tragedy. He had an elder brother, Giorgio, to whom he was attached. In *Adventures*, Modigliani relates Giorgio’s struggle to survive during the Holocaust. A major reason for Franco’s continued attachment to Italy was because Giorgio’s family was saved by other Italians, most of them strangers.

Might Modigliani’s memory of his father calling him a “comfort spider” be a fantasy and not a reality? Freud wrote that childhood memories are like the history of antiquity.²⁹ Early history has heroes; later history, reflections. In *Adventures*, Modigliani offers an explanation for his reflection: “when I was a young boy I was very thin, bony, and fidgety, and maybe also because I was wiry like a spider.”³⁰ The reality is that the spider image is a popular symbol for creativity, since the spider spins its web from the inside. Also, a person needs comfort in order to create. We find it interesting that Modigliani mentioned his “comfort spider” childhood memory when he was at the pinnacle of his career. If he was not creating a history by reflecting back to his formative years, then might he have repressed his creativity instinct in childhood? The environmental factors – a bad teacher, attempts at other careers, such as medicine and law, and fascist and anti-Semitic sentiments favor repression. Yet, it appears that these factors became drivers for Modigliani. Whether his childhood memories were fantasy or reality, in our opinion they produced a well-rounded character.

Modigliani’s school days

At elementary school, Modigliani skipped the fifth grade. He spent two years at the upper secondary school skipping the third year. When he was 14 and in his first term at Regio Ginnasio Umberto I, his father died from a duodenal ulcer operation. Perhaps because he was grieving the

loss of his father whom he dearly loved, he showed a lack of discipline for schoolwork. His grades deteriorated and he was disciplined by one of his teachers. For this reason he chose not to continue at that school.

Modigliani entered the second term of the prestigious Liceo Ennio Quirino Visconti in 1934. The school boasted that it had turned out several future bishops, cardinals and popes. Being Jewish, he would leave the classroom with a protestant student during instruction in the Catholic religion. Two subjects were of special interest to him: literature and classical studies. The literature teacher, Carlos Graber, read Dante's *Divine Comedy* in class and other Italian poems, with "wisdom and passion," says Modigliani. Don Vannutelli, a priest, who taught Latin and Greek, and was well versed in Sanskrit, addressed his students in rhyme. Vannutelli was also a man of exceptionally good deeds; he saved many of his Jewish students from arrest or deportation during war time.

After graduating from the Liceo in 1935, Modigliani vacationed for two weeks in England. Besides improving his English, the trip to England helped him to "appreciate the strong critical attitude that prevailed in Britain toward the war in Abyssinia."³¹ Mussolini invaded Ethiopia, then known as Abyssinia, in October 1935. In order to settle the conflict Samuel Hoare, British Foreign Secretary, and Pierre Laval, French Prime Minister, proposed to hand over large areas of Ethiopia to Italy. Mussolini agreed to the plan, but British public opinion vociferously opposed it, and so Hoare had to resign, shelving the plan. Mussolini continued his aggression causing a break with England and France, and leading him to seek alliance with Germany.³²

The war with Ethiopia ended in 1936, followed thereafter by the Italy-Germany alliance in 1936 that was to gain in strength. In September 1937 Mussolini visited Germany, and was greeted with a magnificent display of Germany's military power. In May 1938, Hitler visited Italy, but the Italian people did not extend to him a warm welcome. "Italian police were ordered to lock up local Jews or expel them from towns which Hitler was visiting."³³ The introduction of the anti-Jewish "Racial Manifesto" in 1938 in Italy paralleled the introduction of the Nuremberg laws of 1935 in Germany.³⁴ The 45,000 Italian Jews were excluded from "the military, education, banking and insurance, the bureaucracy and Party, and any but small-scale business and agriculture."³⁵ Consequently, about 10,000 Jews were deported, and thousands emigrated to other countries. Modigliani was among them. Afterwards, a tit-for-tat game of invasion of European countries ensued – Hitler invaded Czechoslovakia in March 1939; Mussolini took Albania on Good Friday that year. The so-called Pact of Steel cemented the partnership of Fascism and Nazism in 1939.

And the Second World War erupted with the invasion of Poland by Germany in September 1939.

Some may assume that by skipping the third year at primary school and the fifth year at the upper division makes for an unusual student. Modigliani thought it was an achievement, for it allowed him to enroll at the University of Rome in 1935, at the age of 17, two years ahead of the norm.

Modigliani's father wanted him to follow in his footsteps and study medicine. However, the sight of blood frightened him and he decided to study law instead. Modigliani found "The curriculum in law was really very easy, and [he] had a lot of time."³⁶ What was he to do with his free-time? The mid-1930s was a stressful time for the Italian economy. Both the Depression and the war with Ethiopia were on. The stock market lost a third of its value during 1929–1932, unemployment remained high and real wages declined.³⁷ By chance, Modigliani found a job translating German articles into Italian. About 20 of those articles dealt with price controls in Italy that were occasioned by the Ethiopian war in 1935. Modigliani transferred that experience into an essay on price controls for a competition among university students. He won the competition. But more importantly, he began to think like an economist.³⁸ He was encouraged by the fact that economics was also taught at the Faculty of Law. At that time, he had access only to the works of the classical economists. Keynes' works, which were to steer his later life, were not yet available to him. He mainly studied the writings of Italian economists and the British classical school, especially Alfred Marshall.³⁹ This first brush with economics was soon interrupted by the fascist discrimination against Jews. Modigliani expresses this when he says,

After the Ethiopian war and the fascist intervention in the Spanish Civil War, I began to develop a strong antifascist sentiment and the intent to leave Italy, but the final step was the close alliance of Mussolini with Hitler, which resulted in anti-Semitic laws, which made it impossible to live in Italy in a dignified way.⁴⁰

With the encouragement from his future father-in-law, Giulio Calabi, Modigliani left Italy for France in 1939, expecting to continue his study of economics. He found that "the French university was even worse than the Italian. People did go to class in large numbers, but as far as I could tell, their only purpose was to make noises of various kinds – very effectively so that you could not hear what was going on."⁴¹

He made some progress studying in the quiet environment of the *Bibliothèque St. Genevieve* library. But his mind then veered in the direction of the United States. In May 1939, he married Serena Calabi,⁴² a childhood friend, returned to Italy in July 1939 to defend his thesis for the Doctor Juris degree, and set off for the United States in August 1939, just days prior to the onset of WWII.

Modigliani did not have prior arrangement for studies in New York. With the help of a well-known refugee, Max Ascoli, and a friend, Paolo Contini who held a research position at the New School, Modigliani obtained a scholarship. The New School, nicknamed "University in Exile," was a refuge for anti-fascist intellectuals fleeing Europe. Now, at the age of 21, his economic studies were to take off. The popular subjects at that time were Schumpeter on business cycles, and Keynes on macro-economics. Reading Keynes' *General Theory* left an indelible mark. He had several teachers – Fritz Lehman, Adolph Lowe, Kurt Wertheimer and Jacob Marschak, who became his mentor. Modigliani wrote:

Jacob Marschak was at once a great economist, a magnificent teacher, and an exceptional and warm human being. He took me in hand and persuaded me first of all that if I wanted to get anywhere as an economist, I had to study mathematics.⁴³

At the New School, "Modigliani's training as an economist can be said to have diminished in 1941 when Marschak left to join the University of Chicago."⁴⁴ In 1942, Modigliani taught at the New Jersey College for Women (then part of Rutgers University) in the areas of economics and statistics, and also taught at Bard College, which was then part of Columbia University. In 1944 he published his first article in *Econometrica*, which he adapted into the dissertation titled, "Liquidity Preference and the Theory of Interest and Money." The paper was the milestone that set his lifetime research work in economics.

In 1944, Modigliani returned to the New School as a Lecturer. Collaborating with Neisser, they published a book on *National Income and International Trade*. He also published on the theory of savings, starting his journey towards his breakthrough contribution on the life-cycle hypothesis.

Following the publication of the liquidity preference article, Modigliani received a prestigious fellowship in political economy at the University of Chicago in 1948. Shortly thereafter, in 1948, he was asked to join the College of Commerce of the University of Illinois where he researched expectations and business fluctuations and co-authored the

first version of the life-cycle model of saving with a brilliant graduate student, Richard Brumberg. During this time he was invited to join the Cowles Commission then attached to the University of Chicago. At the Commission, aside from Marschak, Modigliani interacted with three future Nobel laureates: Kenneth J. Arrow (1972), Tjalling Koopmans (1975) and Herbert Simon (1978).

In the early 1950s, as the reactionary atmosphere created by Senator Joseph McCarthy swept across the United States, the administration of the University of Illinois replaced the liberal faculty members along with the Dean, Howard Bowen, who hired them. Modigliani was the last holdout. The new Dean summoned and addressed Modigliani, who hilariously describes the scene:

Dear Modigliani, in the past you taught two subjects. One was macroeconomics, but you are evidently quite incompetent in that subject. There are plenty of old professors here that can teach it better than you. The other subject you have taught is mathematical economics, and I have to admit you are competent in that subject. But, you know, I'm afraid this subject, for which I personally have great admiration, can no longer be taught because it doesn't agree with the trustees. ...⁴⁵

This reminded Modigliani of the early stages of the fascist regime in Italy. Since the Dean could not dismiss Modigliani, given that he was a full professor with tenure, he wanted Modigliani to take offence at his words and resign. Indeed he succeeded. Decades later, the University of Illinois recognized its error and made amends by bestowing upon Modigliani an honorary doctoral degree.

A similar discriminatory encounter occurred in 1957, when Modigliani was offered a permanent position at Harvard by the economics department, but the anti-Semitic chairman, Harold Burbank, dissuaded him from accepting it.⁴⁶ Modigliani charmingly describes Burbank's argument.

Look Modigliani, if you have any common sense you won't accept this job we are offering you, because you know ... we have people here of the caliber of James Duesenberry, Sidney Alexander, Richard Goodwin, and many others. ... You'll never make it. Why don't you go back to the New School where you'll be a big fish in a little pond? Don't try being a big fish in this pond where there are plenty enough big fish already. ...⁴⁷

From Illinois, Modigliani moved to Carnegie-Mellon University where he spent eight very fruitful years until 1960. There, he did more work on the life-cycle hypothesis, but this time alone, for Brumberg died in 1955. He began to build his reputation in other sub-disciplines. He wrote on optimal production scheduling, with Charles Holt, John Muth and Herbert Simon, and began his work on what later became the famous Modigliani-Miller (M&M) theorem. Last, but not least, he had something to say about what has become the precursor of the now famous rational expectations hypothesis in a paper, "Predictability of Social Events," co-authored with Emile Grunberg. In 1960, he left Carnegie-Mellon for MIT to be a visiting professor, and at the same time to occupy a permanent chair at Northwestern University. He returned to MIT permanently in 1962, joining forces with Paul A. Samuelson, Robert M. Solow and others, making it at that time, the premier economics department in the world. Modigliani was named MIT Institute Professor in 1970, a title bestowed upon scholars of exceptional distinction, and received several honorary degrees from the University of Chicago, Bard College, University of Illinois, the Universite Catholique de Louvain and the Institute Universitario di Bergame. In October 1985, he was awarded the Nobel Prize for his work on the life-cycle of consumption theory, and the M&M hypothesis. In 1988, he became Professor Emeritus.

Development assessment

Studying social scientists involves exploring the relationship between a person's environment and his/her consciousness. As we look briefly at these aspects and how they correlate with Modigliani, we are guided by one principle: while argumentative, "Modigliani is also known as one who never argues for victory, but rather for truth."⁴⁸ Sigmund Freud gave us the psychoanalytic view, where parent and sibling relationships are significant in explaining a person's developmental stage. Arnold Gesell tackled maturational stages, Watson talked about the environment, and Piaget talked about cognition. Their works have formed a springboard for many current approaches to a person's development.⁴⁹ We are not even providing a "lay" analysis in the sense that Freud⁵⁰ has defined the term. Therefore, we can only offer observations about the character of our protagonist.

Character portrayal

Generally, Modigliani was warm to both strangers and friends. He took scientific research seriously, and since scientists can cast doubt even on their own paradigms, we expect even more discord with rival

paradigms. "Before he had even heard of Karl Popper, Modigliani was already practicing the advice that a scholar should be his own most stringent critic."⁵¹ On the one hand, he demonstrated his ability to build bridges among rival paradigms as he did between the Monetarists and Keynesians in the 1970s. On the other hand, he openly disagreed with collaborators and colleagues. Suffice to mention that he differed with Merton Miller on the M&M hypothesis, particularly in the area of taxes to the extent that he wondered whether two Nobel Prizes should be awarded on the subject. He disagreed with Robert Barro that the M&M hypothesis is linked to Ricardo's theorem through the way savings and debt are handled in the Ricardian Equivalence theorem. From the inception of his scientific career, he disagreed with his colleague, Abba Lerner, over the functional finance interpretation of Keynes' work.⁵² Robert Hall of the Hoover Institution and an MIT student of Modigliani tells us that in a "public academic interaction ... in a meeting of the Brookings Panel on Economic Activity ... [Modigliani argued that Hall's] MIT Ph.D. should be revoked, on account of some heterodox opinions" that he expressed in support of Chicago's Robert Lucas, who questioned the basic methodology of Modigliani's FRB-Penn-MIT- econometric model of the US economy. Most likely, Modigliani's harsh reaction to Hall was ignited by the fact that Hall had been his student. Furthermore, Hall states that Modigliani "liked originality, but wanted it to stay within the framework of modern Keynesianism."⁵³

That is the nature of scientific honesty. But he got along well with his companions, which is not paradoxical. Not surprisingly, the Keynesian revolution allowed a tug-of-war among practitioners that has more agreeable than disagreeable elements. He had sowed the seed of that agreeable element, according to Samuelson, when he "wrote a seminal article setting Model-T Keynesianism on its modern evolutionary path and probing its microfoundations in rigid, nonmarket-clearing prices."⁵⁴ His early foundation works bred widespread collaborations with his colleagues, where his name is mostly suffixed by Ando, Brumberg, Dreze, Grunberg, Miller, Papedemos, and Samuelson.

We see then that his character was multifaceted. We know he had something important to say, but it appears we cannot predict the manner in which he would have communicated it. And we are told several times that one didn't want to give Modigliani the chalk. He had that overpowering presence that tended to dominate a conversation or discussion. For this reason, Serena Modigliani decided to send their two children to boarding school, so that their independence could fully

develop. Robert Solow, the 1987 Nobel laureate, tells us about a seminar that he gave at the Carnegie Institute of Technology:

Someone – I can't remember who it was – warned me that there was this Modigliani person and said that, sometime during my talk, he would come to the blackboard and ask for the chalk. At that point, I would be dead. Sure enough, Franco came to the front with something on his mind: "May I have the chalk, please." So I replied: "No." It had apparently never happened before.

Robert Solow also shares an insightful experience he and Modigliani encountered while their families vacationed together in Martha's Vineyard, in which Solow invited Modigliani to race with him on his 17-foot dinghy:

In the course of the race, [Modigliani] was explaining some fine point about the life-cycle model to me. I pointed out to him that we were on a collision course with another boat in the race, and it had the right of way. Franco kept telling me more about the life-cycle model ... I reminded him that the other boat was still bearing down on us ... He continued to explain. A few seconds after my third warning, the other boat banged squarely into us. Franco was still explaining. The other boat was being steered by the wife of the chairman of the race committee. We were disqualified, but I learned a lot about the life-cycle model.⁵⁵

Modigliani had a phenomenal capacity to work coupled with an extraordinary concentration of mind. He was able to block out his surroundings and stay with the task at hand, oblivious to anything else. Ben Friedman tells us, "if he [Modigliani] engaged in a conversation and it touched upon a certain topic, he didn't let go. Even though others veered to other topics, he continued dwelling on the initial topic." Friedman also recounts a particular phone call he once received from Modigliani on a Saturday morning at 6:30 a.m., in which Modigliani stated, "I am going to New Hampshire." Friedman did not understand what this had to do with him. When he inquired about Modigliani's purpose for calling, he told him that they had a meeting scheduled to discuss the non-linearity of the Phillips Curve, and since his wife Serena convinced him to go to New Hampshire, he was calling Friedman to cancel the meeting. This meeting that Modigliani referred to was actually never arranged.⁵⁶ This anecdote reflects how Modigliani's mind was

so focused on the problem, he did not realize that a meeting was not even scheduled.

Dennis Snower, a collaborator with Modigliani, tells of a time when they were working on the Manifesto and were staying at the same hotel. Some of the major problems for the European Monetary Union (EMU) are summarized in a manifesto published by Franco Modigliani and others (Modigliani et al., 1998). The manifesto claims that demand side management with limited supply side policies have resulted in high unemployment rates in the EMU. Snower relates that after a long day of working together well into the night, Modigliani saw him early the next morning and said that he had had an idea occur to him at 3:00 a.m. and had continued to work on it throughout the night. Snower notes that Modigliani was inspirational in his ability to work for such lengthy periods of time.⁵⁷

Index

- absolute income hypothesis, 79, 84, 93, 105
adaptive expectation hypothesis, 147
Adventures, 1, 3, 6, 174
aggregate demand, 104
Allais paradox, 155
Allen, R.G.D., 3
American Economic Association (AEA), 18
American Economist, *The*, 1
Ando, Albert, 93, 94, 135, 145, 154, anti-Jewish, 7
anti-Semitism, anti-Semitic, anti-Semite, 5, 7, 10, 160
ARIMA model *see* Autoregressive Integrated Moving Average
Arrow, Kenneth J., 10, 122, 127, 155
Autoregressive Integrated Moving Average (ARIMA), 152, 153
- Bard College, 9
Barnett, William, 18, 161, 163
Barro, Robert, 12, 104
Barro's theorem, 105, 168
Bayes' theorem, 155
Bibliothèque St. Genevieve, 9
Blinder, Alan, 164
Boolean grid, 15
Brayton, Flint, 146
Brems, Hans, 133
Brookings Panel on Economic Activity, 12
Brumberg, Richard, 87, 92, 93, 94
Brunner, Karl, 162
Burns, Arthur, 135
Bush, President George, 99, 101
- Cagan, Phillip, 147, 148, 155
Calabi, Serena (Modigliani, Serena), 9, 12, 157, 163, 165
Capital Asset Pricing Model (CAPM), 132
Carnegie Institute of Technology, 13, 135,
Carnegie-Mellon University, 11
Catholic Church, 4
Central Bank 67, 68
Christ, Carl, 136, 137
Classical economics/school, 16, 22, 23, 28, 29, 108, 128
Columbia University, 3, 9
consumption (C), 82, 87, 88, 89, 92, 97, 104
consumption function, 81, 82, 103, 105, 171, 176
induced consumption, 80
lifetime consumption, 90
Czechoslovakia, 7
- Depression *see* Great Depression
disequilibria, 46, 47
dissaving, 89, 90, 92
Dual Pasinetti theorem, 2, 177
Duesenberry, James, 83, 103, 104
Duesenberry-Modigliani hypothesis, 104
Durand, David, 108, 109
- Earnings before taxes and interest (EBIT), 111, 173
Econometrica, 9
Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA), 99, 101, 106
EMU *see* European Monetary Union
ERTRRA, 106
Euler equation, 98
European Monetary Union (EMU), 14
Exchange Rate Mechanism (ERM), 75
Expectation theory, 140
- Fair, Ray, 152
Fascism, 3, 4, 7

- Federal Reserve, 45, 134, 135, 149, 162, 170, 173, 177
 Federal Reserve Econometric model, 164
 Federal Reserve-MIT-Penn model (FMP), 59
 Federal Reserve Bank model (FRB), 151, 155, 156
 Fisher, Irving
 Separation theorem, 128, 129
 FMP model, 70, 136, 153
 FRB *see* Federal Reserve Bank model
 FRB-MIT-Penn model, 162
 FRB-Penn-MIT-SSRC econometric model, 12, 134, 136, 173
 Freud, Sigmund, 11
 Friedman, Milton, 49, 67, 86, 101, 103, 148, 149, 162, 175, 176
 full employment, 16, 21, 23, 29, 50

 General Equilibrium, 122, 123, 124, 127, 145
General Theory of Employment, Interest and Money under the Assumptions of Flexible Prices and Fixed Prices, the, 2, 3, 9, 17–19, 21, 23, 27, 48, 169, 176
 Germany, 7, 8
 Goldsmith, Richard, 90, 96
 Gold Standard, 45
 Gramlich, Edward, 150, 151
 Greenspan, Alan, 162
 Great Depression, 16, 45, 46, 47, 48
 Theory of Stabilization for the G.D., 47
 Great Slump, 46
 Grunberg, Emile, 11, 168

 Hall, Robert, 97, 98, 99
 Hall's theory of consumption 97
 Harod-Domar model, 176
 Harvard, 10, 160, 162
 Hawtrey, R.G., 20
 Hicks, John, 15, 18, 23, 24, 26–28, 31, 47, 169
 Hicksian paradigm, 168
 Value and Capital, 27
 Hitler, Adolf, 4, 159
 Holocaust, 6
 Houthakker's methodology, 95

 Il Duce, 4
 inequitable distribution, 16
Inside the Economist's Mind: The History of Economic Thought, as Explained by Those Who Produced It, 163
 Institute Universitario di Bergame, 11
 involuntary unemployment, 21
 I-S curve, 28
 IS-LM diagram/blocks, 28, 135, 145, 146, 169
 Israel, 157
 Italian Socialist Party, 4
 Italy, 4, 6, 8, 10, 100, 174

 Jaffee, Dwight, 164
 Jew, Jewish, 4, 7, 157–160

 Kaldor, Nicholas, 169
 Kennedy, President John F., 101
 Keynes, John Maynard 15–17, 20, 22–24, 27, 45, 46, 49, 93, 96, 135, 141, 167, 176
 Keynesian absolute income hypothesis, 105
 Keynes' consumption function, 79
 Keynesian economics, 2, 108, 169, 174, 175
 Keynesian investment demand function, 107
 Keynesian model, 46, 107, 145, 169, 170, 174, 175
 Model-T Keynesianism, 12, 17, 18, 178
 Keynesian psychological law, 96, 134
 Keynesians 12, 47, 148, 172, 175
 Post-Keynesians, 173
 Klein, Lawrence R., 85, 105, 133
 Koopmans, Tjalling, 3, 10
 Koyck lag, 139
 Kuznets, Simon, 81, 82

 Lange, Oscar, 3
 LCH *see* Life Cycle Hypothesis
 Leontief, Wassily, 85
 Liceo Ennio Quirino Visconti, 7
 Life cycle hypothesis (LCH), 79, 80, 82, 85, 87–89 (Figure 4.1.), 90–93, 95–104, 105, 128, 171, 176

- liquidity preference (LP), 18–20, 23, 27, 46, 51, 52, 167, 170, 176
 “Liquidity Preference and the Theory of Interest and Money”, 9, 169, 175
 Luigi Bocconi University, 52
- M&M *see* Modigliani-Miller theory
 Magill, Michael, 131, 132
 Malamud, Janna, 158
 Mankiw, Greg, 98
 “March on Rome”, 4
 marginal efficiency of capital (MEK), 19, 20–22, 27
 marginal propensity to consume (MPC), 19, 22, 80, 96, 103
 marginal utility (MU), 88, 97
 Marschak, Jacob, 2, 3, 9, 10
 Marshall, Alfred 8, 21, 68, 108
 Martin, Chesney, 135
 Massachusetts Institute of Technology (MIT), 108, 157, 161, 163, 164, 165
 Mauskopf, Josephine, 146
 McCarthy, Senator Joseph, 10
 Medium of International Transaction (MIT), 73
 Meyer, Larry, 165
 Miller, Merton, 12, 108, 118, 126, 131, 132, 161
 Mishkin, Frederic, 99
 MIT *see* Massachusetts Institute of Technology
 MIT-Penn-Social Science Research Council (MPS), 53, 133, 135, 136, 137, 138 (Table 6.1), 142, 143, 144, 145, 146, 147, 149, 152, 155, 156, 177
 Modigliani, Enrico, 5
 Modigliani, Franco, 1–4, 8, 11, 81, 83–88, 90–92, 94–96, 98–100, 104–107, 110, 122, 130, 133, 134, 140, 141, 143, 147, 150, 156, 157, 160, 163, 165–167, 169, 170, 174, 176
 Modigliani, Leah, 129, 130, 132
 Modigliani – Miller theory/theorem (M&M), 1, 11, 47, 107, 108, 110–113, 115, 118, 120–131, 167, 172–174, 177
- Monetarists 12, 140, 147, 148
 Monetary Theory and Stabilization Policies, 52, 175
 Morton, W.A., 108, 109
 Mosak, Jacob, 83
 MPC *see* marginal propensity to consume
 MPS model *see* MIT-Penn-SSRC
 Mussolini, Benito, 4, 7, 174
- NAIRU *see* Non Accelerating Inflation Rate of Unemployment
 National Income and International Trade, 9
 Natural Rate Hypothesis, 148, 151
 Nazism, 4, 7
 Neisser, Hans, 3, 9, 133, 134, 135
 Nelson, Charles, 152
 Neoclassical-Keynesian Synthesis, 17
 Net operating income, 173
 New Jersey College for Women, 9
 New School for Social Research, 169, 175
 New School University, 2, 3, 9, 17, 133
 NIRO, 49, 52, 53, 171
 NIRU *see* Non Inflationary Rate of Unemployment
 Nobel laureates, 10, 13, 86, 97, 99, 157
 Prize 1, 11, 12, 82, 96, 132, 167, 174, 176
 NOI *see* net operating income
 Non Accelerating Inflation Rate of Unemployment (NAIRU), 48, 149, 155, 167
 Non Inflationary Rate of Unemployment (NIRU), 49, 52, 53, 148, 151, 170, 171
 Northwestern University, 11
 Nuremberg Laws, 7
- OASDHI (Old Age, Survivors, Disability, and Health Insurance), 143
 OPEC oil crisis, 18, 145, 170
 Ozmur, Suleyman, 85, 105, 133
- Pact of Steel, 7
 Patinkin, Don, 15, 47

- PC curve *see* Phillips curve
 permanent income hypothesis (PIH),
 101, 102, 104, 105
 Phelps, Edmund, 148, 149
 Phillips Curve, 13, 48, 53, 135, 145,
 147, 148, 149, 150, 151, 171
 Empirical Phillips curve, 149
 Pigou, Arthur Cecil, 15, 16, 21, 22, 24,
 169
 Employment and Equilibrium – A
 Theoretical Discussion, 22
 The Theory of Unemployment, 22
 PIH *see* permanent income hypothesis
 Popper, Karl, 12
 Predictability of Social Events, 11
 Put-Call Parity Theorem, 131
- quantitative macro model
 Quinzii, Martine, 131, 132
- Raffaele Mattioli Foundation, 52
 Rasche, Robert, 1, 152
 Rational Expectation Hypothesis
 (REH), 133, 147, 149
 Reagan tax policies/cut, 105, 106
 Relative Income Hypothesis (RIH), 84,
 86, 103
 Ricardian Equivalence theory, 104,
 106
 risk adjusted performance (RAP), 130
 Rocketdyne, 161, 162
- Samuelson, Paul A., 1, 2, 11–13, 22,
 46, 48, 113, 163, 174, 178
 Savings and Consumption
 Hypothesis, 167, 171,
 Say's Law, 16, 30–32
 Schiller, Robert, 163
 Shapiro, Harold, 152, 164
 Shove, Gerald, 20
 Simon, Herbert, 10, 11
- Smith, Adam, 29
 Smithies, Arthur, 82, 83
 Snower, Dennis, 14
 Social Security Taxes, 172
 Solow, Robert, 1, 13, 18, 48, 57, 163
 Special Drawing Rights (SDRs), 52,
 175
 Stabilization policies, 167, 175
 Steindel, Charles, 99, 143
 Stiglitz, Joseph, 122, 125, 127, 131
- Tinbergen, Jan, 79
 Tobin, James, 131
 Tract on Monetary Reform, 69
- Universite Catholique de Louvain,
 11
 University of Chicago, 9, 11, 161
 University of Illinois, 10, 11
 University of Rome, 8
- Varian, Hal, 111
 Vector Autoregression Expectations
 Hypothesis (VAR), 155, 156
 Victor Emmanuel III, 4
 Vietnam War, 135
- wage rigidity, 46, 47, 51, 53
 Wald, Abraham, 3, 133,
 Walras, Leon, 30, 47
 Walras' Law, 16, 30, 32
 Walrasian bell, 27
 Washington University, 163, 165
 Wilde, Oscar, 157
 Williams, J.B., 108, 109
 WWI, 3, 4
 WWII, 157, 171
 post-WWII period, 46, 82, 93, 134,
 172,
- Zellner, Arnold, 144