

ITALIAN DEFLATION IN THE GOLD-EXCHANGE STANDARD

by

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Abstract.

The paper's main focus is on the deflation and its impact on economic activity that occurred in Italy from 1927 to 1933. During that time Italy joined the international community of the gold-exchange standard, a regime that had a deflationary bias. We compare the Italian deflation with the deflation in the United Kingdom and the United States in the same years. The paper also compares Italy of the Thirties with Italy of the late Eighties and the Nineties, when two disinflationary programs were undertaken, one under the auspices of the European Monetary System and the other under the prospect of joining the European Monetary Union. The first came to a halt with the currency crisis of September, 1992; the second was very successful and made it possible for Italy to join the European monetary union. The main lesson we draw from the paper is that fixed exchange rates are not a credible pre-commitment device for deflation or disinflation.

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I. INTRODUCTION

In 1927 the Italian general price level fell by almost 15 per cent; deflation continued for six more years, that is until 1933 (Figure 1). This deflation was sharper but briefer than the U.S. deflation, which had started in 1920, had an interlude of price stability from 1922 to 1929, and resumed from 1929 to 1933. The first differences of the log of the two price levels—that is, the inflation rate—confirm that Italy had a significant inflation rate from 1921 to 1926 before plunging into deflation; inflation emerged again in 1934 (Figure 2).

[Insert Figure 1-2 here]

The 7-year deflation and its impact on Italian economic activity is the main focus of this paper. Methodologically, we analyze Italian events in the context of the international gold-exchange standard and compare the Italian deflation with the deflation in the United Kingdom and the United States in the same years. The paper also ventures, briefly and incompletely, into a comparison between the Thirties and the late Eighties and the Nineties, when Italy undertook two disinflationary programs, one under the auspices of the European Monetary System (EMS) and the other under the prospect of joining the European Monetary Union (EMU). The first came to a halt with the EMS crisis of September, 1992; the second was very successful and made it possible for Italy to join the final phase of EMU.

The main lesson we draw from the paper is that fixed exchange rates, often adopted to signal the country's determination to a course of deflation or disinflation, create unsustainable conflicts with other goals of economic policy and, hence, are not a credible pre-commitment device for deflation or disinflation. In the gold-exchange standard, the fixed exchange rate system had a deflationary bias; those countries that stuck to it fared worse, in terms of output and unemployment, than countries that abandoned it. Italy did better than the US because it loosened the constraint of the gold-exchange standard at the end of 1931, while formally remaining on it. Faced between the exchange rate commitment and incompatible "fundamentals," Italy eventually let go of the exchange rate commitment in 1936. A similar dilemma presented itself during the "hard" phase of the EMS. Again faced with a choice, Italy let go of the exchange rate commitment, this time as a result of the September, 1992 currency crisis. On the other hand, clear objectives, inflation targeting and

an independent central bank delivered the much wanted entry into the EMU. This time disinflation was successful in a regime of flexible exchange rates.

The paper is organized as follows. Section II reviews the history of the period and provides the essential background material for the rest of the paper. Section III analyzes Italian deflation in the context of the international gold-exchange standard and concludes that the “failure” of the Italian monetary authorities is considerably smaller than the failure of their counterparts in the United States. Section IV considers the link between deflation and economic depression; the main conclusion there is that Italian nominal rigidities were less severe than in the United States. Section V, which is incomplete in this draft, compares the deflation in the Thirties with the two disinflations in the late Eighties and the Nineties. Conclusions are drawn in Section VI.

II. A POTTED HISTORY OF THE PERIOD

In this section we review the main economic events by starting with an account of the early Twenties, whose policies set the stage for the later policies.

The Mussolini government came to power on October 31, 1922. This date marked not only the end of an era of political and social instability, but also the beginning of a new economic regime. Several commentators record the positive impact of the new government on general market expectations (Alberti 1931). In the previous two months, the dollar rate had dropped to 20 lire; it then remained stable until the summer of 1923, when it again started to increase. Between August 1923 and August 1924, the dollar rate stabilized around 23 lire (Figure 3). The rate against the pound improved until the penultimate week of 1922; it increased until the second week of July 1923, then fluctuated (around the 100 lira mark) until the end of August 1924 (Figure 4). The beneficial impact of expectations showed up also on prices which continued to decrease until June 1924.

[Insert Figures 3-4 here]

Then, the economic situation degenerated in the autumn of 1924. The inflation rate surged by more than 10 percentage points from 1924 to 1925. In sympathy, the external value of the lira declined (Figures 3 and 4). This prompted the authorities to intervene massively in the foreign exchange markets. These interventions managed to stabilize the dollar and pound rates at 25 and 120 lire, respectively. But tranquility was of brief duration; on May 13, 1926, under increasing market pressure, the authorities halted their interventions. The dollar and pound rates climbed and on July 28 they peaked at 31.6 and 153.7 lire, respectively.

Pesaro speech and Quota 90

On August 18, 1926 Mussolini delivered a widely publicized speech in Pesaro, announcing that the government would defend the lira. The impact was immediate and spectacular: the lira appreciated immediately after the speech (Figure 2). By the end of the year, the pound had already dropped to 107 lire; at the beginning of May 1927, it was around 90 lire; in June, the authorities had to intervene to prevent a further currency *appreciation*. Between August and December 1926, the dollar rate fell to 22.5; in the following June, it recorded a value of 18.

In the second half of 1927, exchange rates remained stable. At the end of the same year, the authorities fixed the new gold parity of the lira and sanctioned the end of flexible rates, which had prevailed officially since 1894 and *de facto* since 1866. The commitment was to stabilize the dollar rate at 19 and the pound rate at the so-called Quota 90, literally (but only approximately) the 90-lire mark.¹

Money growth declined sharply in 1927, by approximately 7 percentage points with respect to the 1926 value (Figure 5). Domestic prices reacted quickly: in less than a year the wholesale price index dropped from 831 to 615. Its annualized rate of change, in the period of only fifteen months, declined by 34 percentage points. A similar pattern can be gleaned from the annualized change of the national income deflator, which between 1926 and 1927 swung from 17 to –13 percentage points (Figure 2).

¹ In fact, the parity with the pound was set at 92.46.

Far from being an isolated event, the Pesaro speech was part of a broader and structural economic policy design. In addition to the strong intellectual appeal of deflation and of re-establishing an exchange rate that prevailed in 1922, Quota 90 was also aimed at rejuvenating the country's industrial structure.² Traditionally, Italian imports had been very sensitive to domestic income and insensitive to own prices. Exports, on the other hand, had been much less sensitive to foreign income but quite sensitive to own prices. The consequence were persistent trade deficits (Figure 6). Furthermore, rising protectionism further eroded the size of the market for Italian exports (Paradisi 1976, pp. 274-5; Tattara and Toniolo 1976, p. 115; Gualerni 1982, p. 28). What could deflation do to help restructuring the economy?

[Insert Figures 5-6 here]

First, a monetary deflation would attract foreign capital by delivering a stable if not appreciating currency (Migone 1971, p. 46; Ciocca 1976, p. 33; Rey 1978, p. 286). Second, price deflation would be accompanied by wage deflation, which the fascist regime could implement through its control of labor unions. Wage deflation would have prevented a rise in real wages that, in absence of nominal wage cuts, would have been slow to come. This too was attractive to foreign capital. In fact, hourly nominal wages fell in 1927 and from 1930 to 1935; real hourly wages in 1925 and 1926 and grew for the rest of the period (Zamagni 1994, Figure 5). Third, the appreciating lira would reduce the cost of importing raw materials and machinery necessary to carry out the industrial restructuring program. Manufacturing, which depended on foreign imports, was very much behind Quota 90 (Grifone, 1971). Finance Minister Volpi (1928, p.259) reflected those interests when he stated that:

"...there is no doubt that for Italy, largely a nation importing raw materials absolutely necessary for its very existence and work force, it is beneficial that its currency has a higher purchasing power abroad".

² It is Mussolini himself to establish Quota 90 in the Council of Ministers of February 8, 1927 (Fratianni and Spinelli 2001, p. 305): "Sterling was 90 in October, 1922 ... when: a) the government budget was in deficit; b) foreign debt a problem; c) internal debt not yet consolidated; d) foreign capital did not flow into the country; e) uncertainty reigned on the new political regime; f) circulation was at 22 billion and rising; g) agriculture and industry had suffered a series of economic and political strikes; h) the balance of payments was unfavorable. It is obvious that sterling must go back to 90 ..."

But the strong lira policy penalized the exporting sector, with effects similar to those of the strong lira policy of the 1980s, when Italy as a member of the European Monetary System was devaluing its currency by much less than its inflation differential. Both in the 1920s and in the 1980s, the strong lira sparked a substitution of non-traded goods for traded goods, current account deficits and net capital inflows. In reaction, in the 1920s the Italian export sector resorted to dumping (Filosa, Rey and Sitzia 1976, p. 62; Rey 1978, p. 291); in the 1980s it sought subsidies from government (Minford 1994).

Role of international finance

At the end of the war and for the first time in its history, the United States became the center of the international financial system; this leadership position was enhanced by a large current-account surplus that permitted the country to export capital. The foreign policy of the United States aimed at promoting monetary and social stability in Europe, an objective that was consistent with the capital-export position of its financial industry (Migone 1971, pp. 43-44; De Cecco, 1993). It is not surprising, therefore, that the U.S. financial community monitored the evolution of the Italian crisis with interest, and encouraged Italian authorities to proceed with a stabilization program. Benjamin Strong, President of the Federal Reserve Bank of New York, was a close observer of the Italian scene and did not refrain from “advising” the Mussolini government on how best to implement such a program. Mussolini, on its part, was also very attentive to what Strong had to say, fully realizing that an official “imprimatur” by the Federal Reserve Bank President would be a necessary condition for Italy to tap the rich U.S. capital markets. To get some insights on what the U.S. financial industry desired from Italy, we reproduce parts of a long letter dated May 26, 1926 sent by Strong to George Harrison, deputy governor of the Board of Governors (De Cecco, 1993, pp. 211-219):

"After first explaining that we had no authority to deal with foreign governments, but only with the bank of issue..., I asked him [Volpi, Finance Minister] to consider the following points, which were of course an external point of view

1. The adoption of a plan which would be preceded by a careful study of the whole price structure and wage structure in Italy...
2. That equally careful study be given to the question of monetary circulation, what the experience of other countries had been, so as to arrive at some determination of a safe figure at which to value the lira

3. A balanced budget with a margin for debt reduction was essential
4. The settlement of foreign indebtedness must be concluded –and that has been done
5. External resources for use in connection with the return to the gold standard should be considerable...
6. The entire note issue should be in the hands of the Bank of Italy...
7. Some portion of the Government's debt to the Bank of Italy had best be put in salable form, so that any tendency towards inflation could be dealt with by liquidating the Bank's portfolios of Government securities in preference to a sudden and severe advance in discount rates.
8. ...
9. ...
10. If a fiscal program in connection with stabilization could be made satisfactory to foreign bankers who would do the financing, then it might be possible for the Federal Reserve Bank to establish relations with the Bank of Italy as a supplement to Government credits.
11. It would be free essential, as matter of policy, that the Bank of Italy be free to manage its discount rate and credit policy in the interest of the stability of the lira, without regard to possible expense to the Treasury or without interference by the Treasury for purely fiscal or financial reasons. Failure in this respect might break down any plan that was adopted.
12.
13. ...

...I think the above very briefly summarizes the points covered by my own talk, which was followed by a request from Volpi for information as to whether I thought it would be possible for them to arrange credits for as much as 250 million dollars, in addition to what they have now have. I avoided any answer to this, saying that it was largely a matter for him to discuss with the bankers that I would have no opinion as yet.

Strong was passing friendly advice to the Italian government fully aware of the weight of his recommendations.³ The list of do's and don'ts in the letter can be easily summarized with three phrases: fiscal discipline, monetary discipline and central bank independence from government. Strong went even further and suggested that the Italian authorities ought to discuss the program and reach an agreement with the French and Belgian governments, in order to minimize both the amount of foreign currencies required and the chances that the program might fail (Meyer 1970, pp. 45-6). It was implicitly understood by both sides that should the Mussolini government follow this advice, financial assistance and capital inflows would be forthcoming.

³ In fact, Mussolini welcomes Strong in Rome at the end of May (when the letter was sent to Harrison) with the pomp of a head of state (De Cecco 1993, p. 64).

In fact, foreign capital played a critical role before, during and after stabilization. The investment house of J.P. Morgan extended two loans to the Banca d'Italia before the Pesaro speech; after the speech the central bank obtained a large credit from 14 central banks and from Morgan, Hambros, Baring and Rothschild (Asso 1993, Tab. 3). The Italian government obtained loans from the Netherlands, Sweden, Brazil and most of all from the U.S. (Asso, Tab. 1). J.P. Morgan also took the lead in the issue of several dollar bonds, by both the Italian government and Italian corporations, in the U.S. capital markets (Asso, Tab. 13). There were significant net inflows of capital during the period. In 1928, net inflows amounted to 1.2 per cent of national income; in 1929 to 0.9 per cent of national income (Storaci 1993, Tab.1)

Table 1: Italian balance of payments, 1928-1933

Millions of lire

Balance	1928	1929	1930	1931	1932	1933
Current account	-2,590	-1,860	-900	1,510	660	-680
Changes in international reserves with Banca d'Italia	-1,040	-730	-720	-1,830	-870	-370
Net capital flows	1,550	1,130	180	-3,340	-1,530	310

Source: Storaci (1993, Tab. 5, p. 485).

In essence, 'Quota 90' turned out to be critical in the government's strategy to attract to Italy large inflows of foreign capital to finance the restructuring of the country's manufacturing sector.⁴ The international financial community, particularly that in the United States, played an important role in stimulating and supporting the new Italian economic policy.

⁴ The external objectives of 'Quota 90' are fully confirmed by Meyer (1970) and Migone (1971) and, indirectly, by Moreau (1986).

The deterioration of the 1930s

Between 1927 and 1930, the lira's real exchange rates remained relatively stable and close to the 1922 values. By 1930, the lira was slightly undervalued against the dollar, but overvalued by about seven percentage points against the pound. Later, the situation drastically changed, and the strong lira policy became increasingly unsustainable and controversial.

The first serious problems emerged with respect to the British pound. On September 21, 1931, the pound abandoned the gold standard and the Italian lira began to revalue both in nominal and real terms. Between 1930 and 1932, the annual average lira/pound rate dropped from 90.83 to 68.48. During the same period, the real rate declined from 93.56 to 72.09. The U.S. dollar depreciated against gold on April 19, 1933. From 1933 to 1934, the annual average lira-dollar rate fell first to 15.59 and then to 11.69 lire; the real rate decreased from 85.1 to 73.7. Overall, the lira appreciated against the dollar and the pound by about 25-30 percentage points in 1934.⁵

In the 1930s, a number of important developments would provide the Italian authorities with valid reasons for relaxing the strong lira policy. First, with the Great Depression came a sudden collapse in world trade, which amplified the inherent difficulties of that policy. Second, the international movement of capital (including that flowing from the USA to Europe, which was the most important from the Italian viewpoint) petered out. Under these circumstances, it became more difficult to pursue a strong lira policy and, in any event, it was clear that such policy could not attract the required foreign capital. Third, not only did the two key currencies of the international financial system depreciate (and a number of other currencies with them), but they also triggered a chain of competitive devaluations. Fourth, protectionism became widespread; this, coupled with devaluations, penalized mainly small countries like Italy, whose exports were relatively elastic with respect to prices.

In sum, the fundamentals were inconsistent with a strong real lira. In the short run, the strong lira could be defended only through a continuous hemorrhage of international reserves. The measures adopted

⁵ There is only another precedent in the monetary history of Italy, when the real exchange rate recorded such a wide variation with respect to its purchasing power value: this was in 1920.

by the authorities and business, aimed at mitigating the negative effects of the exchange policy, proved to be inadequate in relation to the gravity of the situation and, often, were even in conflict with each other. The action most widely utilized by business was dumping.

The authorities revised their trading policy, but not adequately enough with regard to the extent of the lira appreciation and the ongoing trade war (Mochi 1982, p. 131; Gualerni 1982; Guarnieri 1953, p. 256). Instead, they aimed at containing production costs by favoring a strategy of industrial and financial concentration. Despite these measures, Italian exports became less competitive; their international market share dropped from 2.8 to 2.3 per cent between 1931 and 1934.

International reserves

Metal and foreign currency reserves of BI rose dramatically in 1926-27, thanks to international borrowings, the transfer of some reserves from the Treasury and the revaluation of the overall stock. Altogether, incremental reserves totaled about 10 billion lire in 1927. Subsequently and until 1933, gold reserves grew slowly, but foreign currencies dropped substantially. The reduction of total reserves accelerated from 1933 onward; by 1936, the total stock was 2.8 billion lire, that is 22 per cent of the stock of reserves in 1927.

The trend of the trade and the current account balances explain the reasons behind the depletion of reserves. Between 1928 and 1930, both accounts improved rapidly and significantly, but still showed large deficits. A further improvement of the current account took place in 1931. Subsequently, the trend was reversed. In sum, the drain of foreign reserves can be attributed primarily to the current account from 1928 to 1930, to capital outflows in 1930 to 1931, and to a combination of current-account deficits and capital outflows from 1931 onward (BI R.A. 1934, pp. 13-14).⁶

Rescue operations, lending of last resort and banking reform

⁶ The notation BI R.A. refers to the annual report of the Banca d'Italia.

Between 1926 and 1936, the country's financial structure changed drastically. The changes primarily involved two closely related areas. Longer term industrial financing was separated from traditional banking activities. Furthermore, the role of the central bank was strengthened within the overall financial system but made more dependent on government, with banking activities being more thoroughly regulated. For our purposes, the second institutional changes are more relevant than the first and thus are emphasized in the following discussion.

Historic legacy had a great deal to do with the decision to separate medium and long from short-term financing. Elsewhere, we have shown that sectoral crises, particularly in industry, tend to propagate to the country's financial system (Fратиanni and Spinelli 1997 and 2001). The reason underlying this transmission process lies in the disproportionate share of loans allocated to these sectors by the country's large banking institutions. In all such cases, even when the financial system succeeded in correcting the shock and retaining stability, there was always a persistent deterioration of paper currency in circulation, in both quantitative and qualitative terms. At the root of the problem was not only an inadequate legislation, but an undeveloped capital market that propelled Italian banks to the fore stage of long-term financing. At the end of the 1920s and the beginning of the 1930s, the authorities intervened on three occasions to rescue industrial enterprises as well as their respective bankers. Italian monetary and fiscal authorities, unlike their counterparts in the United States, acted as lenders of last resort to prevent significant industrial and bank failures.

The first of these rescue interventions took place when, in the early 1920s, the Italian manufacturing sector had to grapple with a transition to a "peace" economy and with structural changes in international trade. In 1922 the government established the 'Sezione autonoma del Consorzio per sovvenzioni su valori industriali' (a Division of the Consortium for Financing Industrial Enterprises). The 'Sezione' was a financial entity, funded by the banks of issue, to grant loans to (or to liquidate) firms and banks in precarious conditions, such as Ansaldo, Banca Italiana di Sconto, Ilva, and Banco di Roma.⁷ In essence, the 'Sezione' played the role of crisis manager.⁸ The maximum amount that banks of issue could provide to the 'Sezione'

7 There several banks of issue in Italy until 1926. For details see Frатиanni and Spinelli (1997, 2001).

8 On the distinction between crisis manager and lender of last resort see Capie and Wood (1999) and Frатиanni and

was at first fixed at 1 billion lire, and then raised several times (De Angelis 1982b). As a result, the Sezione's notes grew from 898 million lire at the end of 1922 to 3,306 at the end of 1923, and reached a maximum of 4,081 million lire at the end of 1924. At that particular point in time, the value of the Sezione's notes, which were not guaranteed by collaterals and were not subject to reserve requirements, came to represent more than 20 per cent of total currency outstanding.⁹

The second intervention was connected with the implementation of deflationary measures to reach 'Quota 90'. These measures caused a collapse in capital goods prices as well as publicly quoted shares and, consequently, the failure of a large number of companies. The final rescue operation was concurrent with the Great Depression of the early 1930s.

Ten years after the creation of the 'Sezione Autonoma del Consorzio', the government closed it and replaced it with a Liquidation Institute (*Istituto di Liquidazione*), with the expressed purpose of avoiding rescue operations. In fact, the opposite took place. At the beginning of 1933, the total value of BI's rescue interventions to ailing companies and banks was around 7.5 billion lire, almost 50 per cent of total notes outstanding. The establishment of Istituto Mobiliare Italiano (IMI) and Istituto Ricostruzione Industriale (IRI) separated the financing of the industrial sector from commercial banking activities. This marks the end of universal banking. Central banking restricted its area of operations to commercial banking and monetary policy became potentially more effective.

The monetary stabilization program of the mid-1920s focused on two aspects: protection of bank depositors and a stricter (and politicized) control of the fascist regime over the central bank (BI) and the banking system. The 1936 Banking Law brought about a deeper reform of the whole banking system, including BI. The main features of the legislation were as follows. First, deposit-taking and credit activities were officially recognized as public services, even though provided by the private sector. Second, longer-term

Pattison (2001).

⁹ In principle, there should not necessarily have been a close relationship between the Sezione's notes and the overall stock of paper money. In fact, the authorities could have reacted to the creation of new notes by the Sezione by eliminating some other component of the monetary base. In practice, however, in view of the nature and urgency of the Sezione's activities, such a close relationship could not but exist. This was also later admitted by BI's Governor, Menichella (1956). Supino (1929, p. 240) speaks of a 'deterioration of currency quality' and Alberti

financing was sharply separated from short-term financing. The Italian banking system was divided between institutions that were lending for eighteen months and longer ('credito mobiliare') and commercial banks that were limited to lending eighteen months and shorter ('credito ordinario'). Third, the supervisory role over banking activities was delegated to the "Ispettorato per la Difesa del Risparmio e per l'Esercizio del Credito" (Office of the Inspector for the Protection of Savings and the Business of Banking), which had the critical task of ensuring that the banking system would fulfill the economic objectives set by political authorities. Finally, BI was transformed into a public-interest, functioning as bank of banks.

The purpose of the new legislation was twofold. It showed, as a matter of principle, the authorities' commitment to protect small depositors and to regulate banking activities. But it also brought all financial institutions, regardless of their legal status, under the supervision of one single entity, the "Ispettorato". The separation between industrial banking and commercial banking was made to formalize the functions of IMI and IRI. The role of "Ispettorato" was to ensure consistency and discipline in the activities of financial institutions across the system, as well as to enable political authorities to perform a more direct and effective control over credit strategies. The supervisory functions, which in the past were performed by a number of ministries and BI, were consolidated within the newly formed "Ispettorato", headed by the Governor of BI.¹⁰

In sum, two points need to be emphasized for this paper. The first is that the authorities acted as de-facto lenders of last resort. The rescue of industrial and banking firms prevented large bank failures and bank panics. This behavior stood in sharp contrast with the behavior of the U.S. monetary authorities who, instead, failed to act as lenders of last resort. The second point is that the Italian banking system fell under direct and

(1931, p. 188) of 'currency dilution.'

¹⁰ The type of banking restrictions envisaged by the 1936 Banking Law became evident when the Ministerial Committee, through the "Ispettorato", was empowered to intervene on a number of issues, such as interest rates applied by banks, charges relating to various banking services, the allocation of credit facilities to different sectors of the economy, the geographical distribution of banking services, the collection of bad debts, and so on. The intent of the law, therefore, was not only to safeguard the stability of the banking system, but also to subjugate it to political will, with its attendant and arbitrary influence on prices and quantities of banking services. There is some sense in interpreting the new legislation as a sort of nationalization of the banking industry. Finally, the 1936 law strengthened the role of BI, now a public-interest institution, at the top of the financial system. While the relationship of BI vis-a-vis Treasury was rather open ended, the legislation restricted BI's activities with the public and the banks. To the former BI could only make advances against the collateral of securities; to the latter credit was limited to rediscount facilities. In essence, the label of public-interest institution meant that government had privileged access to BI's credit. The dependence of BI on government had its legislative roots in the 1936 law.

heavy government control. While this outcome meant a significant efficiency loss for the industry (that would last all the way through the Nineties), it had the salutary effect of re-assuring bank depositors. The 1936 Banking Law was Italy's answer to bank deposit insurance.

End of the gold-exchange standard

Beginning with 1934, the probability of a lira devaluation rose. To be sure, the authorities were strongly opposed to this solution, even at the cost of introducing protectionist measures. But the Ethiopian war placed the government in a difficult situation. On the one hand, the increase in monetary base and domestic prices strengthened the possibility of a massive lira devaluation. On the other, the need to purchase large quantities of military equipment abroad, and the existing international sanctions were good arguments for keeping the exchange rate parity. In the short run, the latter considerations led the authorities to postpone the devaluation.

This took place in October 1936, after raw materials had been replenished. Various countries, such as Belgium, France, Switzerland and the Netherlands had devalued their currencies with respect to gold from 10 to 40 per cent. International sanctions against Italy had been removed and international trade again started to grow.

The decree passed on October 5, 1936 reduced the metal content of 100 Italian lire from 7.919 to 4.677 grams of fine gold. This implied a devaluation of 40.9 per cent, which was exactly the same as the 1934 dollar depreciation, thus restoring the gold parity lira-dollar to 19 lire and setting the lira-pound parity at 93 lire. Following the devaluation, the real value of the lira vis-a-vis both the dollar and the pound quickly returned to the 1922 purchasing power parity value. Thus, the strong lira policy came to an end.

In fact, the constraints of the gold-exchange standard had been weakened as early as September 29, 1931 with the introduction of exchange controls. The controls were applied a week after the UK abandoned the gold-exchange standard and were tightened over the years and in 1935 the so-called cover ratio of gold and convertible currencies to currency in circulation and sight liabilities of BI was abolished. More on this below.

III. ITALY IN THE GOLD-EXCHANGE STANDARD: AN INTERNATIONAL COMPARISON

It is instructive to put the Italian deflation in an international context. For this purpose we compare Italy with the United Kingdom and the United States. As we have seen, Italy returned to the gold standard on December 21, 1927 with a sterling exchange rate of 92.46. Fixed exchange rates lasted until October 5, 1936 when Italy devalued the gold content of the lira by 40.9 per cent. In fact, as we have already noted, the constraints of the gold-exchange standard had been weakened as early as September 29, 1931 with the introduction of exchange controls.

We sandwich the deflation period of 1927-33 between two adjacent periods, one preceding it (1921-26) and another following it (1934-37). The first sub-period coincides with the lira's domestic and international depreciation; the second with the stabilization program, the return to the gold-exchange standard and the world great depression; the third with the resumption of higher money growth and inflation.

In Italy, the growth of the money stock was high in the first period, low in the second and again high in the third (Table 2). Velocity growth showed a positive correlation with money growth, thus exacerbating the swings in the price level changes: 5.2 per cent in the first sub-period, -7.4 per cent in the second, and then back again to 5.4 per cent in the third. There is no precedent in the post-unification monetary history for the price level dropping so sharply and so continuously for seven consecutive years as it did from 1927 to 1933. The dynamics of real income did not differ qualitatively from those of the money stock, but the correlation between money and prices was much stronger than that between money and output.

TABLE 2
THE EXCHANGE EQUATION FOR ITALY, US AND UK: 1921-37
(annual percentage changes)

	Money	Velocity	Price level	Output
<u>Italy</u>				
avg. 1921-26	6.7	1.9	5.2	3.4
avg. 1927-33	0.9	-7.9	-7.4	0.4
avg. 1934-37	2.2	6.8	5.4	3.6
<u>US</u>				
avg. 1921-26	3.8	-1.9	-2.9	4.8
avg. 1927-33	-4.3	-5.4	-4.7	-5.0
avg. 1934-37	8.7	5.4	2.5	11.6
<u>UK</u>				
avg. 1921-26	-2.0	-3.1	-6.1	1.0
avg. 1927-33	1.6	-2.0	-1.9	1.5
avg. 1934-37	3.6	1.9	1.1	4.4

Sources: Fratianni and Spinelli (1997) for Italy and Friedman and Schwartz (1982, Tables 4.8 and 4.9) for the U.S. and the U.K.

To better grasp the meaning of the evolution of the variables of the exchange equation, it is also useful to consider what happened abroad. The work by Friedman and Schwartz (1982) enables us to analyze the United States and the United Kingdom (Table 2). With regard to money, velocity, and prices, there was more similarity between Italy and the United States than between Italy the United Kingdom. Italian inflation, however, lagged behind that of the other two countries. In fact, while on average the Italian price level grew at 5 per cent in the first sub-period, in the United States (and more so in the United Kingdom), it declined in absolute terms. In the third sub-period, inflation resumed everywhere, but more vigorously in Italy. With regard to output, the depression was deeper and longer in the United States than in Italy. British depression

turned out to be the least severe of the three.

Recent interpretations of the Great Depression have emphasized the deflationary bias of the gold-exchange standard. Shocks in a country, such as the monetary contraction of 1928 in the United States, would reverberate in the system with a general contraction. Part of the problem lied with the asymmetric response of surplus and deficit countries with respect to flows of gold and foreign exchange. Surplus countries sterilized foreign reserves inflows, whereas deficit countries did not, leading to a general monetary contraction (see, for example, Bernanke and James 1991; Eichengreen 1992; Bernanke 1995). The monetary contraction in the deficit countries followed automatically from the fact that there was a minimum ratio of foreign reserves –consisting of gold and convertible currencies-- to the monetary base, in the range of 30 to 40 per cent. In 1927 Italy set a 40 per cent ratio of gold and convertible currencies in relation to currency in circulation and sight liabilities of the central bank.¹¹

The reserve requirement implied that a one lira decline in foreign reserves had to be followed by a 2.5 lire decline in the monetary base. In Figure 7 we show the ratio of the total monetary base (MB), which in our case includes postal deposits to foreign reserves (BF);¹² this ratio is close but not exactly equal to the inverse of the mentioned cover ratio. In 1926, MB/BF was 13.6; the following year, with the return of Italy to the gold-exchange standard, it dropped to 2.7. The value of 2.7 is slightly higher than the theoretical value of 2.5 because our definition of monetary base is broader than the sum of currency in circulation and sight liabilities of the central bank. During the following four years MB/BF rose to 3.47. In 1931, MB/BF exceeded 4 and exchange controls were re-introduced. Further increases occurred from 1932 to 1934 as the gold-exchange standard constraint weakened. The reserve ratio of 0.4 was finally discontinued on July 21, 1935, when MB/BF had gone beyond 12. In sum, the evolution of the ratio of MB to BF indicates that the gold-exchange constraint petered out progressively rather than in a single massive event.

[Insert Figure 7 here]

¹¹ However, the lira was not convertible into gold.

¹² See Fratianni and Spinelli (1997, ch. 2) for an explanation.

To complicate matters, the Great Depression was also characterized by sharp declines in the ratio of money to the monetary base, or money multiplier. These declines, induced by banking crises, affected the currency-to-deposit ratio and the reserve-to-deposit ratio, and necessitated appropriately compensatory movements in the monetary base, which failed to materialize. Why? The growth of the foreign component of the monetary base was constrained by flows of foreign reserves. Surplus countries tended to sterilize flows of foreign reserves and, in so doing, kept in check the growth of the domestic component of the monetary base. Deficit countries, on the other hand, were reluctant to expand the domestic monetary base for fear of provoking currency crises. The net outcome was a general deflationary bias. Countries that were not on the gold-exchange standard or abandoned it early fared better, in terms of output loss, than countries that stayed on the gold standard (Choudri and Kochin 1980; Bernanke and James 1991). The UK, which left the gold standard in 1931, suffered a less severe depression than the United States, which left the gold standard in 1933, and France, which left it in 1936. Italy, as we have seen, fits between the UK and France: while the gold-exchange standard was formally abolished in 1935, its constraints were loosened progressively after 1931.

For Eichengreen the deflationary bias was the manifest symptom of a low level of central bank credibility that impeded international cooperation; the lack of effective cooperation, in turn, created fertile ground for destabilizing expectations. Bernanke (1995, p...) summarizes the findings as follows:

...exhaustive analysis of the operation of the interwar gold standard has shown that much of the worldwide monetary contraction of the early 1930s was not a passive response to declining output, but instead the largely unintended result of an interaction of poorly-designed institutions, short sighted policy-making, and unfavorable political and economic pre-conditions. Hence the correlation of money and price declines with output declines that was observed in almost every country is most reasonably interpreted as reflecting primarily the influence of money on the real economy, rather than vice versa.

Money growth comparisons

We now compare the behavior and determinants of money growth in Italy with those in the United States and the United Kingdom. We begin by decomposing money growth into the growth of the monetary base

and the growth of the multiplier (Table 3). The three countries restrained their monetary base in the first sub-period, relaxed it in the second, and speeded up its growth in the third. All of this is in accord with the restraint that the gold-exchange standard placed on monetary authorities. When the restraint of the gold-exchange standard was no longer operative, the monetary base had a big surge. In the first sub-period, 1921-1926, the sharpest decline in the monetary base occurred in the United Kingdom, as this country attempted to restore pre-war gold parity. The most moderate decline occurred in Italy, where money deceleration took place the latter part of the sub-period; more on this below.

The money multiplier declined sharply in Italy and precipitously in the United States, but not in the United Kingdom. The decisive role of the money multiplier in the money supply process in the United States has been exhaustively chronicled by Friedman and Schwartz (1963, pp. 332-33). From the first to the second sub-period the money multiplier accounts for a swing of over 10 percentage points of money growth. In Italy the swing is in the order of 6 percentage points. The money multiplier continued to decelerate in the third sub-period Italy but not in the United States.

More detailed information on the proximate causes of money growth in Italy and the United States is presented in Table 4. Money is defined as a money multiplier times the monetary base. The money multiplier is equal to $(1 + k)/(k + r)$, where k is the ratio of monetary base held by the public to total bank deposits and r is the ratio of total bank reserves to total bank deposits. The first column of Table 4 shows the average money growth for the indicated period and the other columns the contributions of k , r , the interaction between k and r , and the monetary base. The interaction term emerges because of discrete changes in k and r .¹³ The two determinants of the money multiplier, k and r , contributed to an annual destruction of 7.4 percentage points of money from 1927 to 1929. The Fed failure was in letting the monetary base compensate less than a third of this destruction. Another Fed failure was in not preventing or dampening banking panics.

¹³ For more details on the procedure see Friedman and Schwartz (1963, Appendix...) or Fratianni and Spinelli (1987, pp....).

The behavior of the Italian monetary base is shown in Table 5. The monetary base consists of a foreign component, defined as the sum of gold and convertible currencies, and a domestic component. The latter consists of lending to government and central bank to banks. As in the case of the multiplier, there is an interaction term. The Treasury component of the monetary base is related to government deficit and the ability of government to push monetization on the central bank. The foreign component contributes to the growth of the monetary base in both the first and second sub-period: capital inflows are primarily responsible for the positive growth of foreign reserves.

In Italy, the policy failure was small compared to that in the US. To begin with, the negative impact of k on money growth was small. Secondly, it was more than compensated by the growth of the monetary base. Government budget deficits were a potent source of monetary base creation. On average, from 1927 to 1933, 84 per cent of budget deficits was monetized. The policy failure in Italy was in restraining BI bank lending, which was used to buffer the growth of the Treasury component of the monetary base. This evidence is consistent with the hypothesis that the authorities were committed to the gold-exchange standard. The net outcome, however, was that while Italian money growth declined drastically in this period relative to the previous period, its decline was a small fraction of the U.S. money stock decline. Was the smaller Italian policy failure more the result of luck than conscious policy? In other words, what would the authorities have done if they had faced rising k and r of the order experienced in the United States. A look at the subsequent sub-period provides some insights on this important question.

The sub-period 1934-37 is distinct from the 7 deflation years in several ways. First, the k ratio rose sharply in response to concerns about the banking system and the economy and caused a destruction of 5 percentage points of money; the size of the event is comparable to what had happened in the US from 1927 to 1933. Second, there were significant losses of foreign reserves, such to produce a destruction of 2.4 percentage points of money.¹⁴ Finally, the Treasury component of the monetary base swung from a positive

¹⁴ The authorities reacted in two different ways to the depletion of foreign reserves. First, between May 1934 and December 1935, they restricted commercial and financial dealings with the rest of the world (BI R.A. 1934, pp. 34-35 and 1935, pp. 37-39). For the first time, therefore, the government introduced a protectionist policy in international trade and foreign exchange activities. The second reaction was to remove the 40 per cent reserve requirement against

to a negative source of monetary base creation. Confronted with this scenario, the monetary authorities opened the spigot of bank lending and in such a massive way to produce an annual average rate of 7 per cent of the total monetary base.¹⁵ The evidence on bank lending is consistent with the willingness of the monetary authorities to act as lenders of last resort.

BI bank lending was obviously tied to the official discount rate policy. Between the spring of 1932 and the autumn of 1934, this rate was lowered from 7 to 3 per cent to also facilitate the conversion of the 'Consolidated Debt 5 per cent' into redeemable securities at 3.5 per cent. Subsequently, the rate was raised, but never above 5 per cent. From 1932 onward, the domestic real interest rate declined on a continuous basis, and so did its differential relative to the U.S. rate, which became zero by 1934 (Figure 8). As a result, monetary policy became fully dependent on purely domestic political considerations. BI (R.A. 1935, p. 63) openly adapted itself to the political reality, as transpires from the following excerpt:

"Credit and monetary policies are no longer governed by a numerical ratio related to the value of metal reserves held, a ratio that often imposes hardship on the country's economy. In a fascist political regime, credit is more closely tied to the nation's resources and economic needs, while the currency's purchasing power is also protected by an adequate control over price levels".

In sum, Italian monetary authorities finally understood the implications of the gold-exchange standards and opted for reflation. Despite a rising ratio of currency to deposits and falling foreign reserves, they were able to create enough monetary base, through the bank lending channel, to raise money growth above the level of the 1927-33 period. In several ways the 1934-37 years resembles the earlier seven years in the United States.

[Insert Figure 8 here]

paper currency. This historic decision was embodied in a decree passed on July 21, 1935, and enabled the authorities to monetize a larger portion of the 1935 and 1936 budget deficits.

¹⁵ The interaction term complicates the interpretation of the data in Table 5. If the entire interaction is attributed to Treasury, we obtain a significant amount of BI lending to government; if we attribute it to the foreign component, we obtain that this makes a positive contribution to money growth; and if we attribute it to BI bank lending, our thesis is re-enforced.

TABLE 3
 Money, monetary base and money multiplier for Italy, the US, and the UK: 1921-37
 (annual percentage changes)

	Money	Monetary Base	Money multiplier
<u>Italy</u>			
avg. 1921-26	6.7	1.0	5.7
avg. 1927-33	0.9	1.2	-0.3
avg. 1934-37	2.2	7.0	-4.8
<u>US</u>			
avg. 1921-26	3.8	-0.4	4.2
avg. 1927-33	-4.3	1.8	-6.1
avg. 1934-37	8.7	12.5	-3.8
<u>UK</u>			
avg. 1921-26	-2.0	-2.9	0.9
avg. 1927-33	1.6	0.2	1.4
avg. 1934-37	3.6	4.2	-0.6

Sources: Fratianni and Spinelli (1997) for Italy and Friedman and Schwartz (1982, Tables 4.8 and 4.9) for the U.S. and the U.K.

Table 4
Decomposition of money growth in Italy and the US, 1921-1937

Period	Money growth	Contribution K	Contribution r	Interaction	Contribution monetary base
Italy					
Avg 1921-26	6.71	5.66	-0.05	0.05	1.05
Avg 1927-33	0.93	-0.65	0.32	0.01	1.25
Avg 1934-37	2.22	-5.09	0.26	-0.01	7.05
US					
Avg 1921-26	3.67	3.02	0.81	0.03	-0.19
Avg 1927-33	-4.77	-4.14	-3.26	0.38	2.25
Avg 1934-37	8.89	2.67	-5.88	-0.33	12.43

Table 5
Decomposition of the growth of monetary base in Italy, 1921-1937

Period	Monetary base	Contribution Treasury	Contribution Bank lending	Foreign component	Interaction
Avg 1921-26	1.05	-7.32	7.08	0.19	1.11
Avg 1927-33	1.25	6.97	-12.01	1.51	4.78
Avg 1934-37	7.05	-0.63	5.78	-2.39	4.29

IV. THE LINK BETWEEN DEFLATION AND DEPRESSION

We have already indicated that the loss of output during the 7-year deflation period from 1927 to 1933 was considerably less severe in Italy than in the United States (Table 2 and Figure 9). We have also argued that the behavior of the Italian monetary authorities had a great deal to do with this outcome. But money growth is not the entire story. The collapse of world trade was another reason for the Italian depression in Italy (Mattesini and Quintieri 1997, Table 2a). Italy was a small open economy and extremely sensitive to external shocks. International trade collapsed during the period under study. The extent of this collapse can be seen by the dramatic drop in the degree of the openness of the economy, measured by the ratio of exports to GNP (Figure 10). In 1924, this ratio was 18; by 1936 it had fallen to 6. In sum, money deceleration and the collapse of international trade explain a great deal of the Italian depression.

[Insert Figure 10 here]

The next question is how did price deflation discharge its effects on real economic activity. The literature underscores three separate channels: the real interest rate (Cecchetti 1998), real wages and financial crises (Bernanke 1995). The first channel impacts negatively on aggregate demand, through the interest rate sensitive sectors, and on the long-run aggregate supply, through a decline in the stock of capital. The second channel impacts negatively on the short-run aggregate supply of output. The third channel affects the real sector by redistributing funds from borrowers to creditors; this redistribution is not neutral because borrowers have a comparative advantage in selecting good investment projects and are effectively constrained by internally generated funds.

Available empirical evidence points to the importance of the real wage channel as a deflation transmitter. Neither real interest rates nor financial system variables appear to have played a role in the Italian depression (Mattesini and Quintieri, Tables 3a and 4). The finding that financial system variables have exerted no significant impact on the real sector is consistent with our assessment of the Italian authorities as lenders of last resort. The lack of evidence on the real interest rate channel may well result from money growth

deceleration being a mirror image of the real interest rate: money growth effects swamp real interest rate effects in the econometrics. More research is needed on this topic.

Figure 11 show the tradeoffs between inflation and output growth in Italy and the United States over the 7-year period under consideration. There is a significant difference between the two countries. The Italian observations show no dominant direction: the movements along the East and West path are just as important as the observations along the North and South path. In fact, the best characterization of the Italian data is that they move counter-clock wise. The U.S. observations, instead, show a clear positive relationship between inflation and output growth, suggesting that nominal rigidities were more of a force there than in Italy. Regardless of the nature of the aggregate demand shocks, the evidence suggests that the Italian aggregate supply schedule was more flexible than the U.S. supply. Part of the explanation must lie with the Fascist government decision to reduce nominal wages. While real wages did rise in Italy, despite those cuts, they would have risen even more in their absence. The nominal wage adjustment in the American economy was not present to the same extent.

[Insert Figure 11 here]

V. THE THIRTIES VS. THE NINETIES [incomplete]

The purpose of this section is to compare the 1927-33 deflation with two disinflationary periods of the recent past: the first during the hard phase of the EMS (1987-1992) and the second in the pre-EMU period. In the 1987-92 period Italy operated under a strict fixed exchange rate regime with respect to the currencies of the EMS (Fратиanni and von Hagen 1992). Yet, its inflation rate exceeded the inflation rate in the rest of the EMS (Fратиanni and Spinelli 2001, Figure 11.1). Not only did the lira appreciate in real terms, but the economy's "fundamentals" –fiscal and monetary policy—were not consistent with the maintenance of the exchange rate regime. The EMS crisis of September, 1992 brought to an end to that regime. The data and pre-crisis market commentaries indicate that the crisis did not come as a surprise, at

least insofar as Italy was concerned (Fратиanni and Artis 1996).

The second disinflation began after the EMS crisis of September, 1992 and lasted until the end of 1998. In those years Italy operated under flexible exchange rates and with an increasingly independent central bank. Antonio Fazio, the BI Governor, adopted inflation targeting, at least since 1995, and pursued diligently the elimination of the Italian inflation differential with respect to Germany. Monetary policy, to be sure, was helped by an extremely fiscal policy. Jointly, the monetary and fiscal “fundamentals” were responsible for the Italian qualification in the third and final stage of EMU.

The 1987-92 disinflation failed and was beset by output growth declines. Just like the 1927-33 deflation, the 1987-92 disinflation ended with the breakdown of the fixed exchange rate regime. The second disinflation, instead, was successful and was accompanied by stable output growth. The main lesson for this paper is that tying one’s hands with the fixed exchange rate is not a robust strategy for disinflation; and even less for deflation.

VI. CONCLUSIONS

Here are the main conclusions of the paper

1. Mussolini signaled the strong lira policy in August of 1926, 16 months before adopting the gold parity. The authorities used the lira policy not only to achieve price deflation but also to restructure the country’s industrial system.
2. The gold-exchange standard had a deflationary bias. Part of the problem stemmed from the asymmetric response of surplus and deficit countries with respect to flows of gold and foreign exchange. Surplus countries sterilized foreign reserves inflows, whereas deficit countries did not, leading to a general monetary contraction. The monetary contraction in the deficit countries followed automatically from the fact that there was a minimum ratio of foreign reserves to the monetary base.

3. The strong lira policy, undoubtedly supported by the international economic doctrine of the time, became difficult to sustain. The Italian authorities found it necessary to water down the rigor of the gold exchange standard. In addition to controls on capital flows and foreign exchange transactions, the Italian authorities implemented an income policy, introduced new tariffs, and progressively embarked on the road of trade and financial protectionism.
4. The decision to water down the rigors of the gold-exchange standard saved the Italian authorities from the type of policy failure that took place in the United States. Money growth deceleration in Italy was considerably less than in the United States.
5. The Italian authorities differed from their counterparts in the United States in another respect. They set an institutional structure designed to bail-out large industrial and banking firms. In essence, they acted as lenders of last resort. While the efficiency implications of this strategy were quite negative for years to come, the rescue operations prevented banking panics.
6. As a result, the Great Depression was less severe in Italy than in the United States. It would have been even less severe if Italy had not been swept by the sharp decline in international trade.
7. The link between deflation and economic depression occurred primarily through the real wage channel. Despite nominal wage cuts imposed by the Fascist regime, real wages rose during the deflation period. Nominal rigidities had less of an impact on the Italian real sector than on the U.S. real sector.
8. There are some similarities between the 1927-33 deflation and the 1987-92 disinflation. Both occurred under fixed exchange rates and both were beset by the incompatibility of the economy's "fundamentals" in relation to the exchange rate. In both instances the objectives ultimately failed and the exchange rate regime collapsed.
9. In contrast, the post-EMS disinflation was set in an environment of flexible exchange rates and central bank independence. Aided by a conservative fiscal policy, the central bank achieved the elimination of the inflation differential between Italy and Germany and brought the country into the European monetary union.

Data Appendix

Figure 1: Log of the price level

Italy: income deflator (Fратиanni and Spinelli 2001, p. 47)

US: Friedman and Schwartz (1982, Table 4.8)

Figure 2: Inflation rate

See Figure 1

Figure 3: Monthly wholesale price level and dollar exchange rate

See legend below figure

Figure 4: Weekly average sterling exchange rate

See legend below figure

Figure 5: Money growth

Italy: Frатиanni and Spinelli 2001, ch.2

US: Friedman and Schwartz (1963, Table a-1, col. 1 + col. 4)

Figure 6: Net exports

Net exports: Frатиanni and Spinelli (2001, Ch.2)

GNP: Rey (1991, Tav. 5.01)

Figure 7: The Inverse of the cover ratio

Frатиanni and Spinelli (2001, ch. 2)

Figure 8: Long-term real interest rates

Italy: Frатиanni and Spinelli (2001, p. 47) and Figure 2

US: Friedman and Schwartz (1982, Table 4.8) and Figure 2

Figure 9: Output growth

Italy: national income (Frатиanni and Spinelli 2001, p. 47) divided by income deflator (Figure 1)

US: Friedman and Schwartz (1982, Table 4.8)

Figure 10: Openness of the economy

Frатиanni and Spinelli (2001, ch.2) and Rey (1991, Tav. 5.01)

Figure 11: Inflation and output growth tradeoffs

Figure 2 and Figure 9

References

- Alberti, M. (1931), La vicenda economico monetaria dell'Italia dal 1913 al 1929. In *Banche di emissione, moneta e politica monetaria in Italia dal 1948 al 1929*, a cura di M. Alberti e V. Cornaro, Milano: GUF.
- Asso P.F. (1993), L'Italia e i prestiti internazionali, 1919-1931. In *Finanza Internazionale, vincolo esterno e cambi. 1919-1939*, Collana Storica della Banca d'Italia, Ricerche per la Storia della Banca d'Italia, volume III. Roma-Bari: Laterza.
- Banca d'Italia RA (various years), *Relazione annuale*, Roma: Banca d'Italia.
- Bernanke, B.S. (1995), The macroeconomics of the Great Depression: A comparative approach, *Journal of Money, Credit and Banking*, February, 27: 1-28.
- Bernanke, B.S. and H. James (1991), The gold standard, deflation and financial crisis in the Great Depression: An international comparison." In R. G. Hubbard (ed.), *Financial Markets and Financial Crises*, Chicago, Ill.: University of Chicago Press.
- Borgatta, G. (1933), *Bilancia dei pagamenti*, Milano: Giuffrè.
- Capie, F. M. and G. E. Wood (1999), The IMF as an international lender of last resort, *The Journal of International Banking Regulation*, Volume 1, Number 3, September.
- Cecchetti, S.G., (1998), Understanding the Great Depression: Lessons for current policy. In Mark Wheeler (ed.), *The economics of the Great Depression*, Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research.
- Choudri, E.U. and L.A. Kochin, (1980), The exchange rate and the international transmission of business cycle disturbances: evidence from the Great Depression, *Journal of Money, Credit and Banking*, November, 12: 565-74.
- Cianci, E. (1933), *Dinamica dei prezzi delle merci in Italia dal 1870 al 1929*, Annali di statistica, serie VI, vol XX, Roma: Istat.
- Ciocca, P. (1976), L'economia italiana nel contesto internazionale. In *L'economia italiana nel periodo fascista*, a cura di P. Ciocca e G. Toniolo, Bologna: Il Mulino.
- De Cecco, M. (a cura di) (1993), *L'Italia e il sistema finanziario internazionale 1919-1936*, Collana Storica della Banca d'Italia- Documenti, Roma-Bari: Laterza.
- Eichengreen, B. (1992), *Golden fetters: the gold standard and the Great Depression, 1919-1939*. New York: Oxford University Press.
- Filosa, R., Rey, G.M. and B. Sitzia (1976), Uno schema di analisi quantitativa dell'economia italiana durante il fascismo. In *L'economia italiana nel periodo fascista*, a cura di P. Ciocca e G. Toniolo, Bologna: Il Mulino.
- Fratianni, M. and J. von Hagen (1992), *The European monetary system and European*

monetary union, Boulder-London: Westview.

Fratianni, M. and M. Artis (1996), The lira and the pound in the 1992 currency crisis: fundamentals or speculation?, *Open economies review*, 7: 573-589.

Fratianni, M. and F. Spinelli (1997), *A monetary history of Italy*, Cambridge: Cambridge University Press.

Fratianni, M. and J. Pattison (2001), International lender of last resort: a concept in search of a meaning," typescript.

Fratianni, M. and F. Spinelli (2001), *Storia monetaria d'Italia: lira e politica monetaria dall'Unità all'Unione europea*, Milano: Etas.

Friedman, M. and A.J. Schwartz (1963), *A Monetary History of the United States, 1867-1960*, Princeton: Princeton University Press

Friedman, M. and A.J. Schwartz (1982), *Monetary Trends in the United States and the United Kingdom. Their Relation to Income, Prices, and Interest Rates, 1867-1975*, Chicago: Chicago University Press.

Grifone, P. (1971), *Il capitale finanziario in Italia*, Torino: Einaudi.

Gualerni, G. (1982), *Lo stato industriale in Italia 1890-1940*, Milano: Etas libri.

Guarnieri, F. (1953), *Battaglie economiche tra le due grandi guerre* (2 volumes.), Milano: Garzanti.

Mattesini, F. and B. Quintieri (1997), Italy and the Great Depression: an analysis of the Italian economy, 1929-1936, *Explorations in Economic History* 34: 265-294.

Menichella, D. (1956), The Contribution of the banking system to monetary equilibrium and economic stability: the Italian Experience, Banca Nazionale del Lavoro *Quarterly Review*, IX, 36-37, January-June: 5-21.

Meyer, R. H. (1970), *Banker's diplomacy. Monetary stabilization in the Twenties*, New York: Columbia University Press.

Migone, G. (1971), *Problemi di storia nei rapporti tra Italia e Stati Uniti*, Torino: Rosenberg e Sellier.

Minford, P. (1994), The political economy of the exchange rate mechanism, *Open Economies Review*, 5: 235-47.

Mochi, C. (1982), Commercio e turismo. In *Annali dell'economia italiana*, vol. 8, tomo 2: 1930-1938@MDNM, a cura di IPSOA, Milano: IPSOA.

Moreau, E. (1986), *Memorie di un governatore della Banca di Francia*, Bari: Cariplo-Laterza (ristampa).

Paradisi, M. (1976), Il commercio con l'estero e la struttura industriale. In *L'economia italiana nel periodo fascista*, a cura di P. Ciocca e G. Toniolo, Bologna: Il Mulino.

- Rey, G.M. (1978), Una sintesi dell'economia italiana durante il fascismo. In *L'economia italiana 1861-1940*, a cura di G. Toniolo, Bari: Laterza.
- Rey, G.M. (1991), *I conti economici dell'Italia*, Bari: Laterza.
- Spinelli, F. and L. Toso (1990), Il tasso di cambio settimanale a breve della lira nelle rilevazioni de Il Sole 24 Ore: 1865-1985. In F. Spinelli (ed.), *Per la storia monetaria Italiana*, Vol. II.
- Storaci, M. (1993), L'Italia e il blocco dell'oro (1933-1935). In *Finanza Internazionale, vincolo esterno e cambi. 1919-1939*, Collana Storica della Banca d'Italia, Ricerche per la Storia della Banca d'Italia, volume III. Roma-Bari: Laterza.
- Supino, C. (1929), *Storia della circolazione cartacea in Italia dal 1860 al 1928*, Milano, Societa' Editoriale Libreria.
- Tattara, G. and G. Toniolo (1976), L'industria manifatturiera: cicli, politiche e mutamenti di struttura (1921-37). In *L'economia italiana nel periodo fascista*, a cura di P. Ciocca e G. Toniolo, Bologna: Il Mulino.
- Volpi, G. (1928), La riforma monetaria illustrata dal ministro delle Finanze (discorso fatto in Senato il 17 febbraio 1928), *Giornale degli economisti*, Serie IV, XLIII, LXVII, 247-268.
- Zamagni, V. (1994), Una ricostruzione dell'andamento mensile dei salari industriali e dell'occupazione. In *Il mercato del credito e la borsa, i sistemi di compensazione e statistiche storiche (salari industriali e occupazione)*, Collana storica della Banca d'Italia –Contributi, ricerche per la storia della Banca d'Italia, Volume V, Bari: Laterza.
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