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"MONETARY UNION, INSTITUTIONS AND FINANCIAL MARKET INTEGRATION, ITALY 1862-1905"

GIANNI TONIOLO, LEANDRO CONTE AND GIOVANNI VECCHI

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MONETARY UNION, INSTITUTIONS AND FINANCIAL MARKET INTEGRATION: ITALY, 1862-1905.[1]

Gianni Toniolo (Università di Roma Tor Vergata, Duke University, and CEPR)

Leandro Conte (Università di Siena)

Giovanni Vecchi (Università di Roma Tor Vergata)

ABSTRACT

The paper draws its motivation from the observation that, three years into the single currency, EMU financial markets are making only slow progress towards integration and from the belief that economic history can offer useful insight as to the causes of the phenomenon. In this vein, we investigate a previous case of financial market integration in the wake of monetary unification, that of Italy after 1862. We find that the prices of the *Rendita Italiana* 5% (Italian Consols) across regional stock exchanges did not fully converge until 1887, twenty-five years after the creation of a "monetary union" in the Peninsula. Regression analysis shows that variables such as the spread of ICT, trade volumes and the diffusion of the 'single currency' fail to explain the delay in financial market unification. We argue that markets remained relatively fragmented because local vested interests resisted the legal and regulatory changes needed to make arbitrage across individual stock exchanges efficient. A single Italian financial market appeared only when the State imposed more uniform financial market legislation nationwide, a fact that the EU should perhaps not overlook

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One of the most convincing arguments in favor of the European Monetary Union (EMU) was its being a necessary condition for the completion of the so-called 'single market'. The retention of monetary sovereignty by individual members of the European Union (EU) allowed 'international' transaction costs to remain higher than 'domestic' ones: national markets continued to enjoy a certain degree of protection. More important still, currency devaluations, permitted within the European Monetary System (EMS), provided the political justification for innumerable discriminatory policies indirectly aimed at protecting domestic industries. In one extreme case, the devaluation of the pound and the lira in September 1992, some member governments in the EU went as far as advocating the temporary re-instatement of customs' duties on the products of Great Britain and Italy.

The expectation that the introduction of the euro, in January of 1999, would foster market unification has been only partly fulfilled. Car prices, for instance, have not converged across the EU, mostly due to captive retail national markets.[2] Nor have financial markets integrated as fast as one might have predicted. In spite of the enormous opportunities created by the advances in information and communication technology (ICT), a single European Stock Exchange, capable of competing with Wall Street, has yet to emerge, as diffuse vested interests stand in the way of uniform EU-wide legislation.

The study of past episodes of market unification is likely to provide a better understanding of the reasons for the slow emergence of a single financial market in Europe, in the wake of monetary unification. The most relevant instances of 19th century monetary unification were those of Germany and Italy. This paper investigates the latter, discussing the pattern of financial market integration following the introduction of a 'single currency' in 1862.

After outlining the history of Italy's monetary unification (Section 1), we proceed to describe the dataset and methodology adopted to measure financial market integration (Section 2), and to depict its post-unification pattern (Section 3). The impact on market

[2] See Goldberg and Verboven (2001).

integration of a set of economic variables is examined in Section 4, while Section 5 deals with rent seeking and institutional change.

1. Monetary unification: a slow process.

The defeat of Austria by the French and Piedmontese armies in 1859 paved the way for Italy's political unification. In 1860 Garibaldi landed in Sicily and from there moved north. Plebiscites legalized the annexation of the individual Italian states by the Kingdom of Sardinia,[3] which officially became the Kingdom of Italy in March 1861. Italy's alliance with Prussia in the war of 1866 yielded the region of Venice, and 4 years later Italian troops entered Rome.[4]

The swiftness of the nation-building process took by surprise even its main architects, Cavour *in primis*. In contrast with the case of Germany, Italy's unification did not slowly evolve from a *zollverein*: there was little market convergence prior to the event.[5] In the first months of its existence, therefore, the new Parliament exerted itself in a colossal effort to unify the legal system and to create a 'customs and monetary union'.

A relic of Italy's rich and complex monetary history,[6] about 270 types of legal-tender coins circulated in the Peninsula at the time of political unification, all of different weight and metal content.[7] The decimal system did not prevail. Paper note circulation was limited. The tremendous array of exchange rates blurred the meaning of prices: high information costs discouraged arbitrage outside local commodity and financial markets.

In spite of the seemingly obvious advantages to be gained from monetary unification, the process was resisted by significant segments of the population whose voices the Parliament could not ignore. A compromise was reached in July 1861 whereby the

[3] Kingdom of Sardinia was the official name of a state which included, besides the island itself, Piedmont and Liguria (as well as Nice and Savoy, ceded to France as compensation for its military support) on the mainland.
[4] The Italian-speaking regions of Trent and Trieste were added to the Kingdom as the result of the First World War.
[5] See Fumi (1993).
[6] For a survey see Cipolla (1958).
[7] See Martello and Montanari (1874), and Supino (1929)

Piedmontese Lira, re-named *Lira Italiana*, was made the legal tender of the whole Kingdom, while at the same time the divisional coins of the pre-unity states remained legal tender within their respective territories.[8] For a number of political as well as economic reasons, this proved to be only a temporary solution: a Monetary Act of 1862 made the gold Italian Lira the Kingdom's sole legal tender. The same act defined the metal standard of the new currency, to be exchanged at a 1 to 1 parity with the French Franc, and established the official rates at which the old Italian coins would be converted into Lira at the mint. The southern provinces, however, were allowed to go-on using their pre-unity notes as legal tender for local payments: an indication both of the popular resistance to monetary unification and of the difficulties encountered by the new state in establishing its authority.

Actual,[9] as opposed to legal, monetary unification was accomplished over a long number of years,[10] a circumstance that must be taken into account when discussing financial market integration. There was no rush to convert the old coins, which in any case maintained their intrinsic metal value. The use of the new currency spread slowly, as witnessed by mint exchange figures: only by the late 1870s had the old coins been almost entirely retired from circulation. Gresham's law contributed considerably to monetary unification after the suspension of banknote convertibility[11] at the time of the Austro-Prussian war of 1866, also known to Italy's schoolboys as the 'third war of independence'. The use of lira-denominated notes spread, crowding out coins: by the mid-1870s, paper money accounted for about 70 per cent of total circulation (up from only about 10 per cent in 1862). In 1874, a Banking Act introduced a comprehensive regulation of the operations of the six existing banks of issue, requiring each to contribute to total circulation in proportion to its own capital and reserves.[12] More stringent government supervision of the banks' operations was also included. Accompanied by severe fiscal discipline (the state budget was balanced in 1876), the Banking Act was

[8] See De Mattia (1959).
[9] The transition to a new single currency can be seen as achieved when agents are endowed with the quantity they demand of the new legal tender (no rationing occurs), and they prefer to use it for their payments even though private contracts denominated in previous currencies are an available option.
[10] See De Cecco (1990), Roccas (1990),Ripa di Meana and Sarcinelli (1990), and Conte, Toniolo and Vecchi (2002).
[11] Italy was then formally on a bimetallic standard.

instrumental in stabilizing expectations about the exchange rate of the lira, making it universally accepted even before the resumption of convertibility in 1883. It is, therefore, safe to say that, by the mid-1870s, Italy's *de facto* monetary unification was surely accomplished.[13]

2. Measuring financial market integration: data and method.

In the 1870s there were as many as 16 stock exchanges active in Italy.[14] A good number of these were so small that most securities were not traded on a daily basis. Others were larger and better organized. In the 1860s and 1870s Genoa, the financial center of the former Piedmontese state, hosted the Kingdom's most important Stock Exchange.[15] It appears, however, that by the late1880s Milan had taken the lead as Italy's main financial center.[16] Turin enjoyed fairly buoyant activity also, due to its geographical proximity to France. In central Italy, the Florentine Stock Exchange was prominent both because of the long-standing financial tradition of the Tuscan aristocracy and the fact that the city happened to be the Kingdom's capital from 1865 to 1871. The Stock Exchanges of Naples, and to a lesser extent Palermo and Messina, served the needs of the *Mezzogiorno*. The Venice Bourse, added to the list in 1866, was never particularly important due in part to its traditional links with Vienna, a financial center of declining significance within Europe. The relevance of the Rome Stock Exchange, which opened for business in 1871, was mostly a result of its proximity to the political power and never matched that of Milan, Genoa or even Florence.

We investigate the path of financial market integration on the basis of convergence (dispersion) measures of the prices for Italian consols (*Rendita Italiana 5%*), across the

[12] See Sannucci (1990)
[13] See Cotula and Garofano (1996), Pittaluga (1992), De Mattia (1959), and Spinelli and Fratianni (1991).
[14] The following were officially authorised to operate in the 1860s: Bari, Bologna, Catania, Florence, Foggia, Genoa, Milan, Naples, Palermo. The following were added in the 1870s: Alessandria , Cuneo, Leghorn, Messina, Padua, Rome, Venice.
[15] Unfortunately trade volumes were not regularly recorded during the period under consideration. An unpublished study by Chamber of Commerce of Genoa gives the following estimates for the annual volumes of transactions in the year 1872: Genoa 2 billion, Milan and Turin 1,5 billion each, Florence 1 billion, Rome, Naples, Leghorn, Messina and Venice together 2 billion, negligible amounts for the other Stock Exchanges (Archivio dello Stato di Genova, Camera di Commercio, *Verbali*, 1874).

main Bourses in the Peninsula. These bonds, also known in the colorful language of the time as the 'non-redeemable debt of the state', were first issued in August 1861. The *Rendita* was created by consolidating the outstanding public debt of the pre-unity states into a single bond. War expenditure and compensation granted to religious orders for the 'nationalisation' of their estates brought the nominal outstanding value of the *Rendita* to 5.3 billion liras in 1871 (about 95 per cent of GDP). 2.5 billion and 1.0 billion were later added to the stock in the 1870s and the 1880s respectively. The outstanding amount of *Rendita* bonds declined by about 800 million lira in the 1890s and remained constant thereafter until 1913, when it stood at 79 per cent of GDP.[17] Throughout the 1860s, wars and domestic turmoil came close to turning the Italian sovereign debt into junk bonds, yielding 8.3 per cent on average for the decade. In the following decades, the rating of the *Rendita* steadily improved: in the first years of the 20th century it was constantly traded above par, yielding less then 4 per cent. The *Rendita Italiana 5%* came to a glorious end in 1906 when bondholders were offered the alternatives of reimbursement at par or conversion of the old securities into new ones denominated *Rendita Italiana 3.75* per cent. The overwhelming majority of them, both at home and abroad, opted for the latter[18].

There are several reasons why the *Rendita Italiana 5%* is the financial asset most suited for an exercise in price convergence. (a) The *Rendita* fits the definition of a homogenous good from 1862 to 1905. All the other securities, both bonds and shares, traded in the main Italian markets underwent substantial changes over the time span covered in this paper (companies were created, dissolved, and merged, new capital issues took place, bonds were floated and retired from circulation, etc.). (b) The Rent's price was as 'certain' as a price can be: the law defined the procedures to determine its daily closing prices at the Stock Exchanges, and the latter were published on the official government daily paper (*Gazzetta Ufficiale*). (c) The informative set needed for risk premium assessment was as ubiquitous as possible, contrary to the case of company shares where territorial proximity often offered agents privileged access to idiosyncratic information. (d) The *Rendita's* market was by far the thickest of all the traded securities. The bulk of

[16] See Baia Curioni (1995, 2000), Da Pozzo, G. Felloni (1964).
[17] Bianchi (1975); Necco (1915);
[18] Biscaini, Cotula and Ciocca (1979); Della Torre (2000); Goldsmith and Zecchini (1999); Zamagni (1998).

Italy's outstanding debt consisted of these bonds. Bondholders included not only banks and wealthy individuals but members of the middle class as well. In the first decades after the unification, it was the only financial asset traded daily in all the bourses under investigation.

Our series cover: (i) four markets (Florence, Genoa, Milan, and Naples) for the years from 1863 to 1905, and (ii) six markets (adding Turin and Rome to the first series) for 1872 to1905. The starting dates were determined by data availability. As we find it desirable to assess market unification on the basis of a rigorously defined homogeneous (financial) commodity, our series stops in 1905, just prior to the aforementioned conversion, which introduced a 'new good'.[19]

Despite all the desirable properties of the *Rendita Italiana that were mentioned before*, the construction of the database turned out to be a painstaking exercise. To our own surprise, we found the actual content of the published prices to be extremely blurred. In fact, the difficulties met in disentangling a set of consistently-defined prices from those published by the individual Stock Exchanges turned out to be part of our explanation for the slow market-unification path. According to local customs, some of the Bourses' prices included the value of the coupon thus-far matured; others did not. In some cases listed prices assumed immediate cash payment of the bonds; in other cases the settlement was expected at the end of the month. It is impossible to say whether heterogeneous price listing practices arose from the attachment to local customs and the desire to avoid changeover costs rather than from protectionist instincts. Whatever the reasons, the long persistence of diverse price listing practices in the various Bourses blurred the information content of prices themselves for today's researchers and contemporary laymen alike. The difficulty is compounded by the lack of a single source reporting daily closing prices for all the main Bourses (see Appendix A).[20]

[19] In any case, as shown below, by 1905, Italy's financial markets had been unified for about twenty years: the 'conversion' of 1906 and the financial crisis of 1907 begs the question of the degree of integration of the Italian with the international financial markets. As such it is the topic for a different paper.

[20] In order to make prices comparable across markets we had to recover the information from a host of sources ranging from local trade journals to official publications. Appendix A provides the detail on the data sources.

Our database consists of homogenous price series for six different markets (four of them starting in1863, two in 1872), each containing weekly (Wednesday) observations. Prices correspond to ex-coupon bonds for day-end cash settlement. The data set included a small percentage of missing values that were filled in using a Kalman-filter-based procedure:[21] for each market we modelled the price time series as an ARMA (1,1) and replaced the original data with the estimated predicted values.[22]

The main features of the data set are summarized in Table 1.

Table 1 – Closing prices for the *Rendita Italiana,* summary statistics (1862-1905)

		Rome	Florence	Genoa	Naples	Turin	Milan
1863-67	mean	…	62.813	62.869	62.964	…	63.092
	Sd	…	7.664	7.642	7.554	…	7.557
1868-72	mean	…	61.013	60.915	60.883	…	60.927
	Sd	…	7.102	7.142	7.178	…	7.186
1873-77	mean	73.611	73.542	73.438	73.611	73.474	73.568
	Sd	2.544	2.542	2.544	2.534	2.529	2.499
1878-82	mean	87.625	87.375	87.453	87.470	87.285	87.487
	Sd	3.753	3.790	3.885	3.862	3.746	3.862
1883-86	mean	93.443	93.439	93.610	93.596	93.320	93.644
	Sd	4.056	4.148	4.191	4.109	4.147	4.150
1887-92	mean	95.946	95.926	95.909	95.935	95.933	95.917
	Sd	2.211	2.192	2.196	2.192	2.202	2.201
1893-97	mean	93.508	93.520	93.496	93.453	93.478	93.468
	Sd	3.538	3.506	3.526	3.527	3.527	3.533
1898-1905	mean	102.170	102.166	102.167	102.092	102.164	102.173
	Sd	2.066	2.074	2.065	2.063	2.074	2.069

It has been argued that the difficulty of measuring economic integration is embarrassing,[23] as suggested by the number of alternative measures proposed, none of which is entirely satisfactory. The most popular ones are (i) the coefficient of variation of prices, and (ii) the trend of correlation between prices in the different markets over time. We opted for the former. [24]

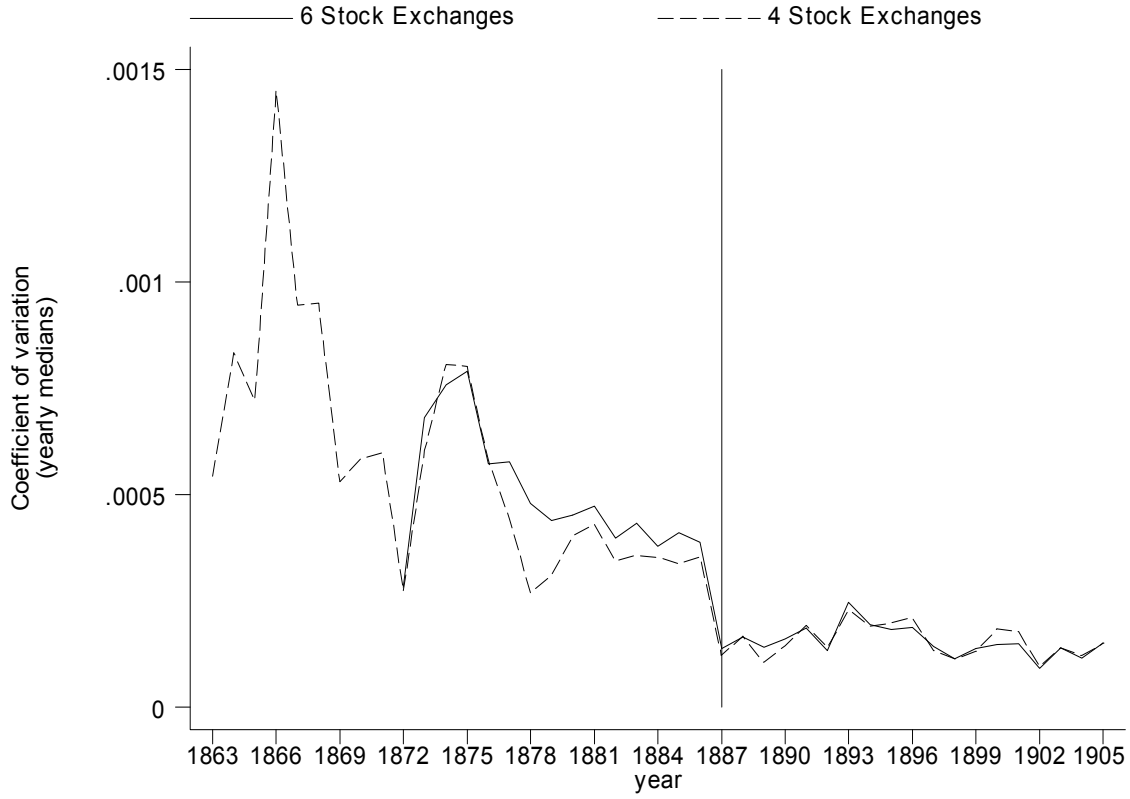
[21] See Harvey, *(1993)*.
[22] Alternatively, we could have used the ARMA(1,1)-fitted values to impute missing values, and then use the filled-in series as a basis for the analysis. The two procedures turned out to give extremely similar results. For the sake of simplicity we opted for the procedure discussed in the text.
[23] See Machlup (1977).
[24] We find Blyn's (1973) arguments that a higher correlation is neither a necessary nor a sufficient condition for market integration to be pretty convincing. See also Ravallion (1986).

In order to smooth out the "noise" resulting from the procedures employed to deal with the sources of data heterogeneity, we used the logarithm of prices for the *Rendita Italiana*. We measured the price dispersion by calculating the weekly coefficients of variation of the prices across the 4 or 6 Stock Exchanges. In order to identify the pattern of financial market unification, we calculated the yearly median CVs out of the weekly series and plotted them against time.

3. The pattern of financial market unification.

The pattern of financial market unification – measured by the yearly median values of weekly CVs – is shown in figure 1.

Figure 1 – *Rendita Italiana* price dispersion, 1863-1905



"Ocular econometrics" shows that the two series follow an almost identical pattern,

indicating that our measures of market integration are quite insensitive to the changes in the composition of the series (see also Appendix B). Moreover, it should be noted that the absolute level of the coefficients of variation is much smaller, possibly by one order of magnitude, to similar measures applied to commodity and labor market prices.[25] Italy was not different from most other cases: at the time of the political unification, the market for financial assets, characterized by free capital flows and relatively cheap ICT, was far more integrated than markets constrained by tariffs and high transportation costs.

The main features of the pattern of financial market unification are easily discernible from figure 1, and can be summarized as follows. (a) A slow overall convergence trend exists for the years 1863-1886. (b) The same period is characterized by two major episodes of market de-integration, culminating in 1866 and 1875 respectively. (c) A structural break in the series is *prima facie* apparent in 1887. (d) Starting from 1887 Italy's financial markets seem to have reached as much integration as was allowed by the existing technology and by the preferences of (local) investors: the coefficient of variation fluctuates around a flat plateau at a very low absolute level.

The fact that in the 1870s, the Italian financial market had a long way to go before achieving unification did not escape contemporary observers. In January 1872, for instance, observers were struck to see the price of the *Rendita* falling by 1.5 per cent in Rome, by 2.2 per cent in Genoa and Milan, by 2.85 per cent in Naples and Florence. Such a diverging behavior was attributed, in the language of the time, to the diversity of local 'sentiment'. Rome and Florence, it was said, took the lead from Paris.[26] The market in Naples was dominated by domestic political news while Genoese traders took into account both national and international developments.[27]

The influential weekly, *L'Economista d'Italia*, was adamant: "Those who believe that we shall soon have in Italy a leading financial center, regulating all the other ones, believe in the impossible".[28] Up to 1887, the paper drew attention to the lack of homogenous

[25] See Rosenbloom (1996), Collins (1999), and Jacks (2000).
[26] A statement, it should be noted, surprisingly incoherent with the diverging behaviour of the two markets
[27] *L'Economista d'Italia*, 2 February 1872.
[28] *L'Economista d'Italia*, 7 January 1872. The reason given by the (anonymous) writer for this state of affairs was the peculiar urban development of Italy where, contrary to the cases of England, France and Spain, no city was so much larger and important than the others to acquire a dominating position.

behavior of the Italian stock exchanges on numerous other occasion.[29] After 1887, the articles in *L'Economista d' Italia* only referred collectively to the 'Italian Bourses' and described market developments as if they were taking place within a single entity.[30]

A clearly visible discontinuity in the profile of the coefficient of variation (Figure 1) identifies the year 1887 as the break-date, a conclusion not rejected by the Chow test applied to the same year.[31] In order to endogenously estimate the break-date, we also treated the date of structural change as an unknown parameter and estimated it by applying least squares methodology.[32] Figure 2, plots the residual sum of squares resulting from the OLS estimates as a function of the break-date. The

Figure 2 – Dating financial market integration: least squares breakdate estimation



latter, defined as the date that minimizes the full-sample residual variance, is again neatly identified in 1887.

[29] See, for instance, *L'Economista d'Italia*, 20 September 1874.

[30] A typical statement is the following. "The Italian Bourses continued along last week's positive trend and the Rent closed yesterday at 98.5": the article carried on discussion of individual Stock Exchanges and gave only one closing price for the rent, without mentioning which market the information came from. (*L'Economista d'Italia,* 26 May 1888).

[31] Using 1887 as a break-date, the Chow statistic is 9.73, which compares with a 5 percent critical value for the F distribution equal to 3.3.

[32] Bai (1994). See also Hansen (2001)

4. The driving forces of financial market integration: puzzle without an answer?

In trying to understand the driving forces shaping the pattern of price dispersion over time (figure 1), three candidates stand out as the most likely explanatory variables: (i) progress in information and communication technology, (ii) the path of monetary unification, and (iii) market size (thickness). In what follows, we test the hypothesis that the time path of market unification can be explained by factors underlined by those three variables.

The rationale of our investigation can be summarized as follows. We first model the pattern of the coefficient of variation as a piece-wise linear regression, *i.e.* we fit two linear regressions to the scatter of observations in Figure 1, corresponding to the two sub-periods identified by the break-date. The specified relationship is:

$$(1) \qquad \ln CV_t = \gamma_0 + \gamma_1 D87_t + \gamma_2 D87YEAR_t$$

where D87 is a dummy variable taking the values 1 for the period *before* 1887 and 0 afterwards, and D87YEAR is a linear trend interacted with the dummy D87. Equation (1) was estimated by OLS, separately for the two samples corresponding to 4 and 6 Bourses respectively (see Table 2, columns 1 and 3). Our strategy proceeds to test the explanatory power of a set of variables intended to proxy for the factors listed under (i)-(iii) above. If the new set of covariates represents omitted variables with respect to model (1), then the estimates of the parameters associated to the regressors in the augmented model are expected to differ from those obtained in the base case (1).[33] This follows from the fact that, if model (1) incorrectly omits one or more variables, then its OLS estimates are biased. The bias only vanishes when the model is not affected by regressor misspecification.

We considered the following economic variables:

a) The number of telegraph offices (TELOFF). Time delays in communicating price information across markets provide an explanation for the persistence of

[33] We are ruling out the case when the omitted variables happen to be orthogonal to the included variables.

inter-market price differentials. We examine the impact of the improvements in ICT on the *Rendita Italiana* price dispersion across the Italian bourses by considering the improvements in the domestic telegraph system as captured by the variable TELOFF.[34]

b) The stock of the *Rendita Italiana* (STOCK5). This accounts for the market size (thickness): to the extent that the volume of traded bonds is positively correlated with the efficiency of the market, one would expect lower transaction costs, and hence less price dispersion.

c) The ratio of pre-unity monies converted at the mint to total outstanding circulation (MOUNIF). This variable stands for the degree of realization of monetary unification.

d) A log-linear trend (TREND). This variable is meant to capture the progress that took place in information availability due to sources other than the telegraph (e.g.. the appearance of trade journals, improved sources of price information, learning-by-doing processes in the acquisition of information, etc.)

Augmenting equation (1) with the above variables gives the following relationship:

(2)

$$\ln CV_t = \gamma_0 + \gamma_1 D87_t + \gamma_2 D87YEAR_t + \beta_1 TELOFF_t + \beta_2 STOCK5_t + \beta_3 MOUNIF_t + \beta_4 TREND_t$$

The regression results for equation (2) are reported in Table 2 (columns 2 and 4).

The fundamental result stems from two facts, which hold true irrespective of the number of markets considered: *(i)* none of the economic variables added to the base case is statistically significant, and *(ii)* the parameters associated with D87 and D87YEAR are remarkably stable under both models (base and augmented case). This finding implies that the presence of the economic variables in equation 2 does *not* improve upon the

[34] See Garbade and Silber (1978) and Baia Curioni (1995).

explanatory power of the base regression in equation 1, which itself does not provide any useful insight about the economic forces driving the process of market integration.

Table 2 – Coefficient of variation regression

Dependent variable: (log of) coefficient of variation in (log of) prices across Italian Stock Exchanges				
	1863-1905 4 Bourses		**1872-1905 6 Bourses**	
	(1)	(2)	(3)	(4)
D87	86.010	97.614	56.645	60.129
	[6.5]**	[2.2]*	[2.6]*	[0.9]
D87YEAR	-0.045	-0.051	-0.030	-0.031
	[6.4]**	[2.2]*	[2.5]*	[0.9]
TELOFF		-0.208		0.855
		[0.4]		[1.0]
STOCK5		0.214		-0.147
		[1.1]		[0.9]
MOUNIF		-0.005		0.008
		[0.1]		[0.4]
TREND		-0.001		-0.753
		[0.0]		[1.4]
CONSTANT	-8.805	-8.787	-8.808	-8.789
	[135.6]**	[44.5]**	[126.2]**	[48.4]**
Observations	43	43	34	34
F	122.01	58.78	112.41	213.35
Notes: Standard errors are Newey-West adjusted. t statistics in brackets. * significant at 5%; ** significant at 1%. With the exception of D87 and D87YEAR, we use standardized logarithms of all covariates.				

A comparison between the models in columns (1) and (2) is also revealing, as the latter nests the former. In other words, the two sets of estimates together provide a formal test of the following null hypothesis:

(3) $$H_0: \quad \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$$

The invariance of the estimated parameters for D87 and D87YEAR under the two models (columns 1 and 2) together with the lack of significance of the other covariates in the augmented regression implies that the null hypothesis (3) *cannot* be rejected. Because the parameters associated with the variables TELOFF, STOCK5, MONUF and TREND are not significantly different from 0, we conclude that they have *no* systematic effect on the trend of the coefficient of variation.

Overall, the regression results suggest that improvements in ICT, the unfolding of the effects attributable to the process of monetary unification, market size and time-related improvements in information did not significantly reduce the "ignorance in the market"[35]. We are therefore left with a puzzle: what determined the pattern of Italy's financial market unification?

5. Solving the puzzle: vested interests and institutional changes.

The puzzle about the pattern of financial market unification, as described in figure 1, is composed of three parts. (i) Why was the pace of the process so slow until 1886? (ii) Why did a structural break occur in 1887? (iii) What explains the two major episodes of market de-integration in the 1860s and 1870s? Each of these questions requires consistent explanations that the regression analysis seems inadequate to provide. We argue that the three parts of the puzzle can be simultaneously solved by considering vested interests' efforts in sheltering local markets from outside competition, in the presence of an institutional setting that, up to the early 1880s, safeguarded the privileges of professional bodies over and above market efficiency.

Given the signs of the coefficients in Table 2, it is likely, if not statistically proven, that monetary unification and the diffusion of the telegraph were somehow associated with financial market integration.[36] As mentioned above, monetary unification was a fairly slow process, Gresham's law notwithstanding. By the mid-1870s, anyway, the monetary unification of Italy was for all practical purposes completed. Yet, it took about another

[35] See Stigler (1961): 214.

decade for the financial market to achieve its own unification. The single currency was possibly a necessary, but certainly not a sufficient condition for the creation of a 'single market' in the Peninsula. The new state, on the other hand, was remarkably good at swiftly covering its territory with a thick net of telegraph stations.[37] For the reasons discussed below, however, the diffusion of information and communication technology (ICT) could not proceed beyond the Bourse's doorstep.

Whatever the reasons, ICT developments and monetary unification do not explain satisfactorily the pattern of financial market integration described in Figure 1. In searching for an alternative, or complementary, explanation, institutional failure to check rent-seeking behavior is an obvious candidate. Revolutionary events, such as the creation of a new large sovereign state out of a host of smaller ones, generate the potential both for enormous gains and losses of income, wealth and social status. Like most other individuals, those who made a living out of the Stock Exchanges believed that competition was good for every trade but their own. They had carved for themselves comfortable niches in the protected economies of the pre-unification states and were not prepared to give them up. As no leading Exchange existed capable of exploiting economies of scale in order to acquire business at the expense of the smaller exchanges, no countervailing lobby emerged to contrast that of local protectionist interest. Italy's financial market remained segmented until 1886, i.e. as long as an institutional environment persisted that favored local rent seeking. The structural break in Figure 1 can be observed exactly at the time when a new legal framework came into existence that considerably reduced the scope for the self -protection by local vested interests.

A Commercial Code for the Kingdom of Italy came into being in 1865.[38] It was entirely modeled on the Sardinian Code of 1842,[39] which in its turn derived almost *verbatim* from

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[36] See also Baia Curioni (1991, 1995).
[37] At the time of political unification, Italy possessed 12,000 kilometers of telegraph lines; there were almost 50,000 a decade later. In 1878 it became mandatory for every municipal-center town to possess a telegraph station. Shortly before the unification, sending a 20-word telegram cost the colossal sum of 20 lira (about 20 times the daily wage for an unskilled male worker). In 1871 the cost of the same telegram was down to 1 lira.
[38] Approved by Parliament in 1865, it came into effect on January 1, 1866.

Napoleon's Commercial Code of 1808.[40] The latter also closely inspired the business laws of most other Italian states prior to 1861.[41] In the mid-1860s, therefore, the legislation regulating the main aspects of the economic life in the new Kingdom was already half a century old. It thus embodied, alongside novelties introduced by the French Revolution, a number of the *Ancien Règime* –flavored provisions, which Napoleon's legislators had been either unable or unwilling to subvert. In particular, on both sides of the Alps, the principles of individual freedom, including those concerning the choice and exercise of trades and professions, enshrined in the *Code Civil*, were somehow mitigated in the *Code de Commerce* by special norms restricting the entry to a large number of business activities. Professional guilds, as regulated by the *Code Savary* of 1637, had been legally dissolved, but in the first half of the 19th century, they were still dying hard. The Italian Commercial Code was, therefore, more about traders than it was about trade.

As far as the Stock Exchanges were concerned, the 1865 Commercial Code stated that anybody could exercise the profession of financial 'middleman'. It however divided the profession into two groups: 'public middlemen' (*pubblici mediatori*) and 'simple middlemen' (*semplici sensali*). While access to the latter status was open to anyone, entry to the profession of 'public middleman' was restricted. Certification was required, obtainable on meeting specific personal conditions[42] and on passing an examination. The law also stipulated that only 'public middlemen' – stock brokers (*agenti di borsa*) as they were commonly called – were authorized to enter the Stock Exchange floor and conduct business there. Furthermore, only 'public middlemen' were officially allowed to deal in State bonds and to sit in the Bourses' price-fixing committees. The juicy part of the business was thus reserved to a 'closed shop' profession.

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[39] Substantial changes were only made in the norms regulating bankruptcies, to take into account a Sardinian law of 1838.

[40] The French Commercial Code was approved in 1807 and came into effect on January 1, 1808

[41] The Commercial Code of the (Napoleonic) Kingdom of Italy, introduced in July 1808, was just a translation of the French Commercial Code, which was also applied to the Kingdom of Naples in 1809. At the time of the Restoration, the Kingdom of Sardinia was the only Italian state to reinstate the old business statutes, whereas Napoleon's Code de Commerce was maintained almost intact not only in the Kingdom of Naples and in the Pope's possessions but (until 1850) in Lombardy and the Venetiae as well, which were under direct Austrian rule.

[42] The most important one being the payment of a solvency-guarantee deposit.

While entry-restriction practices by professional bodies alter relative prices in favor of their members, they may do so in a fairly uniform way. Whenever such practices are consistently applied nation-wide, they may not hinder the creation of a 'single market' for the services of the profession itself. This was not the case in Italy during the quarter-century following political unification. Within the wide limits set by the law, individual Stock Exchanges, once chartered by the government, were allowed large degrees of freedom in drafting their own statutes and in conducting their own affaires. In doing so, they drew from the local (pre-unification) business practices. Moreover, the supervision of the Stock Exchanges was to a large degree entrusted to the local Chambers of Commerce. Needless to say, the stockbrokers were well represented in the governing bodies of such institutions. Training requirements and examinations for the 'public-middleman' profession were also regulated locally and the profession itself could only be exercised within the Bourse for which certification was granted.

Given this institutional context, it is hardly surprising that, in the early 1870s, an official inquiry found a wide variety of business practices across the Italian Stock Exchanges. The huge discrepancies in price listing have already been mentioned. Disparities across markets were also observed in business (opening) hours, in contract settlements, and in price-fixing processes. Whether local norms simply reflected time-honored traditions or were also intended as devices for the protection of local markets, the end result was the same: an increase in the investor's transaction costs of conducting financial dealings outside the local market. However evidence suggests that the latitude of self-governing powers was purposely used to shelter local financial markets from outside competition. The most obvious case relates to the diffusion of ICT. For a long period of time the governing bodies of most Chambers of Commerce refused to grant permission for the installation of a telegraph station in the Bourses' premises. In the early 1880s only the Stock Exchanges of Genoa and Turin had a telegraph station installed in their premises, the Milan Stock Exchange did not get a station until 1898.[43]

[43] Volpi 2002:16

Italy's Commercial Code of 1866 and the norms regulating its application were ill-suited to check rent seeking by stockbrokers who, at best, did nothing to introduce changes in local regulations that would favor market transparency and the exchange of information. The institutional context seems thus to provide a good, if hardly quantifiable, explanation for the slow convergence of Italy's financial markets between 1863 and 1886. The plausibility of this explanation is enhanced by statistical evidence of a trend break, taking place precisely at the time when the scope for local rent seeking was reduced considerably by the introduction of new legislation.

In 1882 the Parliament approved a new Commercial Code, based upon a more up-to-date liberal approach, in that its provisions applied to the acts of trade itself rather than traders (the trade professions)[44]. As far as financial markets were concerned, investor protection was no longer entrusted to the 'public' (official) status of the middleman but only to the contract's clauses, as in accordance with the general norms of the civil law.[45] This considerably reduced the stockbrokers' oligopoly. The parliamentary commission in charge of drafting the Code declared the middleman's profession to be 'free and of private nature'.[46] The new Commercial Code reduced the scope for local market protection also by legalizing cable contracts and by setting an upper limit to the solvency-guarantee deposits required of middlemen.

The new Commercial Code came into effect on January 1, 1883; its impact on the creation of a single financial market was however delayed by four years. The law stipulated that the old statutes of Bourses would remain valid until the Chambers of Commerce had approved the new statutes, to be drafted in compliance with the new Code. Unsurprisingly, the Chambers of Commerce took their time in completing a set of local rules that complied with the new Code. It was not until 1887 that Genoa and Turin, among the Stock Exchanges covered in our sample, finally approved the new by-laws.

[44] Casanova (1984); Padoa Schioppa (1984).
[45] Articles 26 and 27.
[46] The Chambers of Commerce were still allowed to certify middlemen and stockbrokers, on condition that certification did not "imply a privilege in the exercise of such professions" (Codice di Commercio*, Lavori preparatori* (1882: vol. I, 146).

Only when the whole process of institutional overhaul was completed, was the creation of a single market for the *Rendita Italiana 5%* achieved.[47]

This institutional interpretation of Italy's financial market unification will not be complete without accounting for two episodes of market de-integration (the upward blips in the coefficient of variation observed in 1866 and 1873-76). The 1866 phenomenon was short-lived and is likely attributable to wartime circumstances. Taking into account that the war of 1866 put the very existence of the new Kingdom in jeopardy, it is easy to see how 'news' may have impacted the various Bourses differently, through the already segmented financial market, thus increasing price dispersion.[48]

Market de-integration in 1873-76 can be explained by institutional factors. It is likely that initially, the asset price bubble and bust of 1873 increased price dispersion due to differences in short-term risk assessment by agents in different localities within a segmented market. But, in the absence of other circumstances, the episode was bound to be as short-lived as that of 1866. Other circumstances, however, materialized. They took the form of a long dispute between the government and the stockbrokers. In 1874, the government announced a stamp tax on financial transactions[49] that stockbrokers deemed discriminatory. Their highly specious argument was that the tax would not fall on the shoulders of 'simple middlemen' who were conducting off-market transactions, since the middlemen would simply fail to report or underreport their own business. The stockbrokers argued that such an opportunity was not open to them because of their official status and the fact that their business took place under the lime light of the *corbeille.* They therefore stood to lose customers (on whom the tax would ultimately fall) in favor of 'simple middlemen'. To protest the stamp-tax, stockbrokers increasingly resorted to off-market transactions themselves, to the point that on certain days and markets, price-fixing for the *Rendita Italiana* turned out to be, in the best cases, based

[47] It is likely that a single market for other securities, traded in lower volumes and less frequently, took much longer to emerge.
[48] E.g. one can assume that the defeat of the Italians by the Austrians in the north-east appeared to be more threatening to the inhabitants of nearby regions than to those of distant Naples.
[49] The tax became effective on January 1st, 1875.

upon a very limited number of transactions, in the worst impossible to calculate[50]. The Chamber of Commerce of Genoa[51] in asking the government to repeal the new tax, bluntly said that the latter would, for all practical purposes, lead to the closure of the Bourse, and to the proliferation of 'illegal transactions'. The protest continued until late in the summer of 1876, taking on various forms and according to different local patterns, with an obvious impact on across-markets asset price dispersion. The repeal of the stamp tax, in September of that year,[52] and the ensuing end of the stockbrokers' protest, is underlined in Figure 1 by a sharp decline in asset price dispersion.

6. A transparent metaphor

In the early 1860s the Italian Peninsula, Metternich's mere 'geographical expression', became one of Europe's largest sovereign states. It soon created a customs' and monetary union and promoted market unification by investing in up-to-date networking technology (telegraph and railways). Yet we have shown that it took about a quarter of a century for the law of one price to be realized in the market for state bonds, arguably the one for which the unification process was the easiest and simplest of all, monetary unification and ICT diffusion notwithstanding. We have shown that financial market unification was delayed by an institutional setting that provided ample opportunities for rent seeking by the vested interests entrenched in the local Stock Exchanges and that only the creation of a unified legal framework for security dealings would finally allow for prices of the Rent to convergence across the main Italian Bourses.

If history does not impart lessons, it is certainly rich in metaphors. Italy's tale provides a transparent analogy to today's Europe. The slow integration of Europe's financial markets, in spite of faster monetary unification and more advanced ICT than was the case

[50] In January 1875, the Chamber of Commerce of Genoa informed the government that price fixing for the Rendita Italiana had been impossible for 15 days as the stockbrokers, by law in charge of the operation, did not show up to perform the function.
[51] See: Memoriale 1874
[52] Effective January 1, 1877.

for Italy 140 years before, is most likely due to 'national champions' being allowed to survive and prosper in a context of "regulatory balkanization".[53]

[53] The quote is from a speech by Luigi Spaventa, head of Consob (Italy's SEC)

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APPENDIX A – Data sources

Table A1 – *Rendita italiana* yearly median prices, 1862-1905

Year	Rome	Florence	Genoa	Naples	Turin	Milan
1862	.	.	71.225	71.165	.	71.200
1863	.	72.000	71.825	71.775	.	71.900
1864	.	68.050	67.900	67.675	.	68.120
1865	.	65.200	65.100	65.150	.	65.350
1866	.	58.950	58.650	58.850	.	58.860
1867	.	52.755	52.750	52.875	.	52.800
1868	.	56.300	56.350	56.050	.	56.300
1869	.	57.260	57.225	57.165	57.265	57.775
1870	.	57.610	57.450	57.375	57.470	57.435
1871	.	60.610	60.350	60.425	60.415	60.485
1872	73.800	73.925	73.800	73.750	73.900	73.935
1873	71.825	72.150	71.925	71.800	71.920	71.975
1874	71.450	71.650	71.075	71.450	71.135	71.450
1875	75.500	75.850	75.350	75.520	75.370	75.225
1876	75.275	75.300	75.050	75.400	75.105	75.085
1877	75.425	75.650	75.080	75.350	75.115	75.000
1878	81.210	80.860	80.800	80.850	80.875	80.860
1879	88.160	87.880	88.050	87.875	87.765	88.010
1880	90.090	89.700	90.055	89.865	89.725	90.530
1881	89.500	89.350	89.505	89.460	89.200	89.530
1882	88.330	88.050	88.230	88.310	87.950	88.330
1883	88.480	88.380	88.480	88.520	88.200	88.560
1884	93.180	93.530	93.480	93.490	93.230	93.530
1885	93.690	93.850	93.875	93.970	93.590	93.955
1886	98.100	98.350	99.550	99.360	99.200	99.650
1887	99.000	98.880	99.000	98.950	99.050	98.950
1888	97.450	97.485	97.450	97.500	97.350	97.400
1889	96.270	96.000	96.200	96.200	96.270	96.250
1890	95.510	95.510	95.400	95.600	95.500	95.450
1891	93.750	93.805	93.800	93.660	93.770	93.800
1892	94.675	94.700	94.700	94.570	94.570	94.335
1893	94.800	94.850	94.770	94.625	94.700	94.685
1894	87.600	87.550	87.550	87.570	87.450	87.450
1895	93.380	93.385	93.320	93.200	93.320	93.300
1896	93.415	93.400	93.450	93.385	93.400	93.380
1897	98.060	98.060	98.050	98.045	98.035	98.045
1898	99.370	99.300	99.320	99.315	99.320	99.350
1899	100.400	100.280	100.350	100.360	100.350	100.350
1900	100.360	100.320	100.335	100.260	100.320	100.370
1901	101.700	101.670	101.770	101.550	101.750	101.700
1902	103.175	103.235	103.180	103.120	103.175	103.140
1903	102.920	102.910	102.910	102.900	102.900	102.900
1904	103.525	103.490	103.470	103.465	103.500	103.460
1905	105.365	105.370	105.365	105.250	105.385	105.400

The database for weekly prices of the *Rendita Italiana* are derived from the following sources.

ROME	1872-1886 *L'Economista d'Italia*, Roma 1887-1892 *Bollettino del Ministero delle Finanze*, Roma 1893-1905 *L'Economista d'Italia*, Roma.
FLORENCE	1862-1868 *La Nazione* 1869-1871 *L'Economista d'Italia*, Firenze 1872-1886 *L'Economista d'Italia*, Roma 1887-1892 *Bollettino del Ministero delle Finanze*, Roma 1893-1905 *L'Economista d'Italia*, Roma
GENOA	1862- 1868 *Corriere mercantile* 1869- 1871 *L'Economista d'Italia*, Firenze 1872- 1886 *L'economista d'Italia*, Roma 1887- 1892 *Bollettino del Ministero delle Finanze*, Roma 1893- 1905 *L'Economista d'Italia*, Roma.
NAPLES	1862-1868 *Rassegna Nazionale* 1869-1871 *L'Economista d'Italia*, Firenze 1872-1886 *L'Economista d'Italia*, Roma 1887-1892 *Bollettino del Ministero delle Finanze*, Roma 1893-1905 *L'Economista d'Italia*, Roma.
TURIN	1862-1868 *Gazzetta Piemontese* 1869-1871 *L'Economista d'Italia*, Firenze 1872-1886 *L'Economista d'Italia*, Roma 1887-1892 *Bollettino del Ministero delle Finanze*, Roma 1893-1905 L'Economista d'Italia, Roma.
MILAN	1862-1868 *La Perseveranza* 1869-1871 *L'Economista d'Italia*, Firenze 1872-1886 *L'Economista d'Italia*, Roma 1887-1892 *Bollettino del Ministero delle Finanze*. 1893-1905 *L'Economista d'Italia*, Roma.

APPENDIX B – Sensitivity Analysis

Figure B1 -

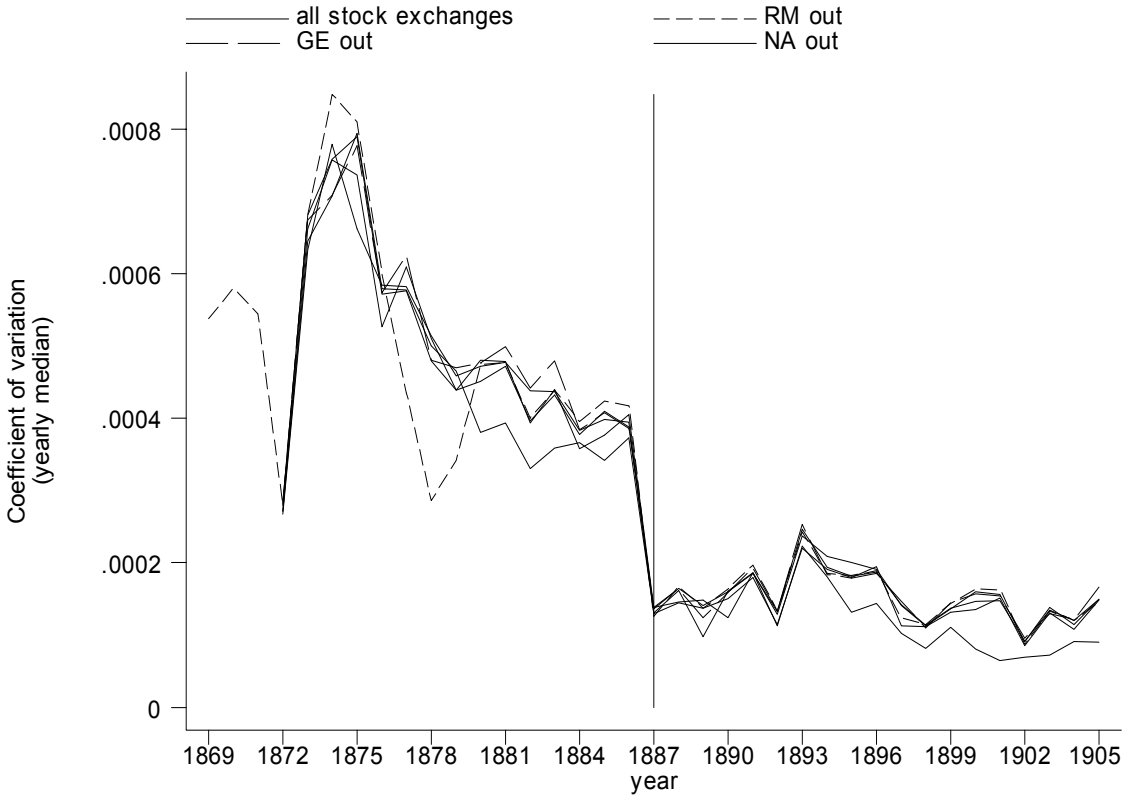


Figure B1 shows that the overall time profile of the coefficient of variation is quite insensitive to the behavior of any single specific market.