

Going Public to Grow? Evidence from a Panel of Italian Firms

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ABSTRACT. This paper investigates the consequences of the decision to go public for the growth of Italian firms using US firms as a benchmark for comparison. We find Italian firms conducting IPOs are larger than US firms, but raise fewer funds from the IPO and grow more slowly afterwards. We also compare Italian IPOs across time. Firms going public in the 1990s display features that are more similar to US IPOs. We describe changes to the Italian economy and financial markets that are potentially responsible for the change. We compare firms of different size and with different governance structures, and we find that they behave differently after going public. Our results suggest that going public does not guarantee faster growth or more jobs. As such, public policies that simply increase access to equity markets may not be effective unless they provide incentives for the firms' decision-makers to use the new capital to grow.

KEY WORDS: initial public offerings, going public, firm growth, business groups and small firms, Italian stock markets.

JEL CLASSIFICATION: G30, G32, L21, O16.

1. Introduction

European policymakers have viewed the underdevelopment of the markets for risk capital with growing concern, identifying financial obstacles to growth as a potential weakness of the EU. An

explicit goal of current public policy in Europe is to promote the development of markets for risk capital to assist the expansion of existing small firms, especially in high-technology industries, and to promote entrepreneurship and the growth of employment associated with entrepreneurial firms. But what happens to a European firm that goes public remains an open question, as outside of the UK, few European firms go public.¹

Within Europe, Italy is a particularly interesting case. Publicly traded firms are not pervasive in the Italian economy. Few Italian firms go public. Until recently, Italy's public and private equity markets were among the smallest in Europe. In 2000, the market capitalization was 73% of the GDP while in the US the ratio was 114.5%. Recent Italian policy has encouraged better access and more use of equity capital, and provided firms with incentives to go public. It is important to understand how these policies have influenced the decisions of firm managers and owners.

Our research examines the behavior of more than two-thirds of the Italian non-financial firms that went public over a 23-year time period between 1977 and 1997. These firms are part of a data set that contains information for approximately 1700 Italian firms, which we use to provide a benchmark for comparison. To set the stage for our research and as an additional benchmark for comparison we examine data from the United States from several thousand newly public US firms over a similar period. Our decision to use the US as a benchmark reflects both our priors and the conventional wisdom that the Initial Public Offering (IPO) provides young firms with the financing that they need to rapidly increase scale and capture profits associated with good investment opportunities.

While we expected to find differences between the US and Italy, we were quite surprised by their extent. While many firms that go public in both

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countries are part of high-technology industries or industries with a substantial amount of intangible or specific-use capital, here the similarities appear to end. The size of firms going public in Italy tends to be much larger than US IPOs. Employment at Italian firms in our sample is more than four times that of US firms at the IPO date. The amount of equity capital raised by the typical Italian IPO is quite small relative to the size of the firm (about 30% of total assets), and also quite small relative to the typical US IPO (almost 100% of total assets). The average US firm going public grows quite rapidly (in terms of assets, capital, and sales). In contrast, Italian IPOs display much slower growth after they go public. Both absolute and relative employment growth for the typical US firm that goes public is quite rapid after the IPO. In contrast, Italian firms that go public tend to add relatively few employees. Because one of the goals of improved access to equity capital is employment growth, this last point is particularly relevant for European public policy.

The striking differences between the behavior of US and Italian firms led us to reorient our efforts to focus more intensively on the characteristics of newly public Italian firms. We compare the behavior of Italian IPOs prior to 1990 with those after 1990. There were important changes in the Italian tax system in the 1990s that provided incentives for firms to go public and institutional changes in the Italian economy as it prepared for full integration into the EMU. The 1990s were also witness to financial innovations in the Italian and European equity markets that may have increased SMEs access to equity finance. Our analysis will help gauge how better access to public equity markets has affected firm performance on several margins.

We examine how firms of different size and with different governance structures (e.g., group-affiliated or independent) behave after the IPO. Firms with different ownership structures may have different motivations to go public. For example, firms with good prospects for growth and no affiliation with pyramidal groups (and so no access to the group's internal capital markets) may be subject to binding financing constraints. For this class of firms the motivation to

conduct an IPO may be to acquire finance for rapid growth.

The nature of the firm conducting an IPO, and the behavior of the firm in the IPO's wake, appears to be changing in Italy. There were important differences in the behavior of Italian IPOs between the 1980s and the 1990s. Italian firms that went public in the 1990s are smaller than Italian firms that went public in the 1980s. The size of the IPO was larger relative to the size of the firm, and the firm retained a larger proportion of the proceeds of the IPO. However, firms going public in Italy in the 1990s grew before, not after the IPO. Importantly, employment growth of Italian IPOs in the 1990s was larger than those in the 1980s, a point that may be appreciated by European policymakers.

We find important differences in the behavior of Italian IPOs by ownership structures and by size. The initial public offering has practically no impact on the behavior of affiliated or large firms whereas it positively affects the growth and performance of independent and small firms. Independent and small firms raise more equity from the IPO and appear to use the IPO proceeds to grow. Our findings also indicate that, after going public, small firms succeed in obtaining more funds on the credit market.

Overall, the decision to go public in Italy appears to be more complex than it is in the US, where capturing opportunities for growth appears to dominate other issues. More importantly, we believe that for European policymakers to achieve their desired outcomes, policies that simply increase access to equity capital may not be effective unless they also provide incentives for the firms' managers to use the new capital to grow.

The remainder of the paper is organized as follows. Section 2 describes the institutional and regulatory environment facing firms in Italy and the US that conduct IPOs. Section 3 describes the behavior of firms in the United States and in Italy samples both prior to and in the aftermath of their IPOs, illustrating the sharp differences in their behavior and describing the changing characteristics of an Italian IPO in the 1990s. Section 4 presents the results of the regression analysis that investigates the *ex-post* and *ex-ante* behavior of Italian firms that went public over

the period 1977–1999. Section 5, which concludes the paper, describes how our results might shape these policies.

2. Equity markets in Italy

2.1. *Evolution of the Italian stock market*

The first Italian stock exchange was created in Milano in 1808. Italian exchanges were given strict and detailed admission criteria for quotation, which remained largely unchanged until 1974, when a new law created the regulatory body which governs Italian equity markets, the CONSOB (*Commissione Nazionale per le Società e la Borsa*). CONSOB regulations were tightened in 1984, and became less restrictive in 1997.

Few firms trade on Italy's stock market and the market is small. In 1980, the number of companies quoted on Italy's markets (141) was smaller than the number at the beginning of the 20th century (approximately 170). In 1980, the ratio of market capitalization to GDP in Italy was only 3.1%. During the 1980s the number of listed firms increased following the stock market boom and the economic expansion, but the value of market capitalization remained low (7.4% of GDP in 1987) and the number of new listings dropped towards the end of the decade. The development of the Italian exchanges has been slow because of the important role of the banking sector in the provision of funds to the corporate sector and state ownership of Italian firms.

In the 1990s, the Italian stock market showed signs of more vigorous development. From 1990 to 1999, 120 companies listed, most of them between 1995 and 1999, and the capitalization of the market as a percentage of GDP ratio rose from 6.6 to 73% in June 2000.² This upsurge may be related to new financial developments spurred by the European Commission's requirements to join the Single Market (1993) and later the European Monetary Union (1999).³ European integration policies required liberalized capital markets and widespread privatizations. Large privatizations in the Italian economy were one factor for the large jump in market capitalization. The Stock Exchange itself was privatized in late 1997 and new, less restrictive criteria to be admitted for quotation

were issued.⁴ A tax incentive was offered to small and medium companies that decided to go public in 1994.⁵ The Italian government also introduced a tax reform program in 1997 meant to reduce the tax burden for shareholders and a new dividend tax credit regime was introduced. Finally the *Nuovo Mercato*, the Italian counterpart of the NASDAQ, opened in 1999.

2.2. *Barriers to going public in Italy*

It is well known that the costs of going public are large. For a small to medium-sized Italian firms, the Stock Exchange Council's 1994 estimate of the direct cost of going public was slightly more than 4% of the gross proceeds of the IPO (see Appendix A). In the US, Chen and Ritter (2000) show that in the period from 1995 to 1998, more than 90% of issuers paid underwriting fees of 7% of the proceeds. They remark that spreads on IPOs in the US are much higher than in other countries.

An important component of the costs of going public is the underpricing of the IPO. There are many potential explanations for why shares in an IPO are underpriced.⁶ One explanation that is likely to be relevant for Italian companies is the adverse selection problem that arises from information asymmetries in the financial market. Cherubini and Ratti (1991) show an underpricing premium of 27.1% over the period 1985 to 1991. CONSOB estimates of the average underpricing for Italian firms over the period 1988–1994 show a premium of 26.6%. The premium for Italian firms is large when compared to US firms, and even larger when compared to other large European countries. Loughran et al. (1994) report underpricing premia of 15.8% in the US, of 4.2% in France, and of 10.9% in Germany. Jenkinson (1990) reports underpricing of 12.2% for UK firms. There has, however, been a sharp decline in the underpricing of recent Italian IPOs, which may reflect the development and increased liquidity of the Italian equity markets. CONSOB estimated the underpricing premium during the period 1995–2000 at 7.2%.

The institutional environment facing an Italian firm, although broadly representative of the environment that faces the typical

European firm, is quite different from that in the US. Venture capital flows in much of Europe, but especially Italy, tend to be quite small. US underwriters are highly experienced, and institutional investors (pension funds, insurance companies, and investment funds) provide a great deal of capital for investment, even at very early stages and are increasingly active in corporate governance. In contrast, some European countries restrict the ability of institutional investors to participate in equity markets. Compared to Europe, the market for corporate control in the US is very active and there are many laws and regulations designed to protect the interests of minority shareholders.

Up to the end of 1997 the regulatory requirements to be approved for listing on the Milano Stock Exchange were similar to those in force at the NYSE, and much more restrictive than those required by the NASDAQ. Italian firms needed to display shareholders' equity in excess of 10 billion lira, positive earnings in the three years prior to listing and at least 25% of the equity must be floated among at least 500 new shareholders. The requirement of three years of positive earnings means that small, young, Italian firms face very large barriers to equity capital relative to similar firms in the US. Until 1999, when the New Market was introduced, start up firms with R&D intensive projects in the development stage could not have listed at all under the Italian rules.

Finally, firms that go public face extensive disclosure requirements, which may force them to disclose sensitive information to potential competitors. Disclosure rules also expose companies to a closer scrutiny from tax authorities, thus reducing the scope for tax evasion. Issues regarding disclosure are not emphasized in the US literature. Indeed, a large number of US companies that go public are in the high tech sector, and they must disclose some information about their ongoing projects in their prospectus.

In addition to costs and requirements to list, a variety of barriers exist in Italy that limit both the demand for equity shares and the supply of equity finance. These factors can help to explain the small number of listed firms and the relatively small capitalization of the equity market.

The demand for equity shares in Italy was limited by a lack of participation of institutional investors, government policies that discouraged the holding of equity by individuals and limited the liquidity of shares, and a legal system that poorly protected the interests of minority shareholders. Investment (mutual) funds are a recent development in Italy and their role is not nearly as important in Italy as it is in the US.⁷ The private pension system is virtually nonexistent in Italy. Italian pension funds also face significant regulatory barriers to holding equity, although these regulations are currently being debated by the legislature and may soon be eliminated.

Several broad elements of the economy in Italy discouraged individual investors from using the equity market. Because of a need to finance a large public deficit, the Italian government gave tax preferences to increase demand for treasury obligations. Until the early 1990s the capital markets were tightly regulated, and individual investors faced thin domestic markets for equity shares. At the same time regulations made it impossible to diversify individual portfolios by holding shares of foreign firms.

Lastly, some observers have pointed to a high-degree of risk aversion, with respect to the decision to hold equity, on the part of the Italian public. This is partly due to the poor protection of minority shareholders' interests. La Porta et al. (LLSV, 1998) place Italy amongst the countries that share the French civil law tradition, which provides weak legal protection to investors and minority shareholders, a lower quality of law enforcement, and the poorest accounting standards.⁸ In contrast, the legal framework in Anglo-Saxon countries is acknowledged to provide better protection to property rights (LLSV, 1998; Modigliani and Perotti, 2000). Specifically, in the US, where securities law is codified federal law allows US shareholders the right to sue in the name of the corporation for offenses to the firm committed by any individual – including management. This source of power and protection for US minority shareholders is not available to Italian shareholders.

The supply of equity in Italy is limited because of the structure of corporate

governance. Corporate governance in Italy, like much of continental Europe, is centered upon family ownership. Some research suggests that the owner-founder of the company may be reluctant to go public because he fears that he will eventually be compelled to release control of the firm and the private benefits associated with it (Barca, 1994).⁹ Other research suggests that raising funds in public equity markets may be less attractive because valuation of corporate assets is lower in countries with poor investor protection, like Italy (Burkart et al., 2003; LLSV, 2002). Ownership concentration is typically high, and even the largest corporations are controlled by a single individual or a family, often through pyramidal business groups (Bianchi et al., 2001). Several explanations have been proposed for the existence of groups (Bebchuck et al., 2000; Brioschi et al., 1989). Affiliation with pyramidal groups can reduce the severity of financing constraints for member firms (Carpenter and Rondi, 2000; Schiantarelli and Sembenelli, 2000). Groups' controlling shareholders may conduct spin-offs in order to raise funds for the internal capital market and to maximize the proceeds from selling shares in a subsidiary (see also PPZ) without losing their control rights over the whole group structure. Finally, the group structure helps the controlling shareholder to control a large amount of assets with a minimal investment. Under poor investor protection, this exacerbates the agency problems between inside and outside shareholders.

3. Going public to grow? An initial look

A common perspective is that a firm conducting an IPO represents the successful culmination of the entrepreneurial process. Because equity finance is expensive, firms that conduct an IPO should have investment opportunities that, *ex ante*, appear highly profitable. The IPO provides young firms with needed funds to increase scale and capture profits. For the US, empirical evidence exists to support some of these arguments. Firms going public in the US tend to be young and small. Ritter (1991) examines a sample of 1526 US IPOs during the period 1975–1984 and finds that the typical issuing firm is 6 years old. The median firm in his sample has sales of

\$7.59 million. Carpenter and Petersen (2002) examine a large panel of US high-tech companies and find that firms grow rapidly after going public. They report that the median firm's assets triple five years after the IPO, and employment grows by 70% relative to the year of the IPO.¹⁰

3.1. The data

The remainder of the paper explores the consequences of the decision to go public for the growth of Italian firms.

To conduct our study, we use a large dataset of Italian manufacturing firms constructed by CERIS-CNR using data published by Mediobanca, a large investment bank (annual directory *Le principali società*). The database is an unbalanced panel of 1715 companies over the period 1977–1999. It includes only firms with at least five consecutive observations so that each firm has a time series of at least 5 and at most 21 years. The data contain information about the firms' income statement and balance sheet variables. It also provides information about the firms' age, ownership, group-affiliation and business activity.¹¹ Only a minority of the sample firms are publicly traded. Of the 137 listed manufacturing firms in the panel, 57 companies went public on the MSE during the sample period. Firms that went public after 1997 are not included in the sample to insure that there are at least three observations after the IPO for analysis.¹² For the 57 firms conducting an IPO, we examine their size, growth, leverage, and profitability around the period of the IPO. We also examine how much equity finance accrued to the firm at the time of its IPO and how firms used the proceeds of their IPO. While it is true that only a small percentage of the total number of sample firms go public, our sample contains a large proportion (about two-thirds) of the total number of non-financial companies that went public in Italy during the sample period.

Because the US is often used as a benchmark for the comparison of risk capital markets we made limited use of an unbalanced panel of 3189 US publicly traded manufacturing firms from COMPUSTAT over the period 1981–1997 for comparative purposes. We include both active

and inactive companies. All sample firms must be incorporated in the U.S.

3.2. Comparing Italian and US firms

A comparison between the two samples of IPOs shows that Italian firms are much larger than US firms in terms of employment (579 versus 130 at the median), real sales (71.4 versus 25 bn. 1980 Lira, equal to 83.5 versus 29.2 million US \$), and real total assets (73.4 versus 16.1 bn. 1980 Lira, equal to 85.8 versus 18.8 million US \$). Moreover, Italian firms going public tend to be quite old (the median age is 23).¹³

Table I highlights the differences between newly public US and Italian firms that was the genesis of our study. Panel A shows median growth rates for US firms from $t-1$, the year prior to the IPO, to $t+3$. Panel B shows median growth rates for Italian firms. US firms grow very rapidly the year they go public ($t+0$). The rapid growth is readily apparent in all four measures contained in Table I. Total assets (line 1) grow by 67% the year the firm goes public. The rapid growth of this component is to be expected; as cash proceeds from the IPO are a component of total assets. The firms' stock of fixed capital grows rapidly in the year of the IPO, increasing by almost 33%. The rapid growth of capital persists until after $t+2$ suggesting that firms use the proceeds of the IPO to dramatically increase the scale of the firm. Labor inputs also increase rapidly at and after the IPO. Employment grows by 18.5% in $t+0$,

and employment growth appears persistent.¹⁴ Sales growth rates for US firms going public are also high.¹⁵

Panel B of Table I shows the median growth rates of newly public Italian firms. Assets, capital, and sales all show positive growth rates both prior to the IPO, the year of the IPO itself, and in the three years succeeding it. However, it is important to note that they are quantitatively very small compared to those of firms in the United States. Newly public Italian firms also display growth rates that are unspectacular in an absolute sense. Somewhat ominously from the standpoint of public policy, the Italy's new public firms display very little, if any, growth in employment.

Because Italian firms are much larger than US firms when they go public, a possible explanation of the growth differences between the two samples may be the difference in the initial firm size. We therefore calculated the growth rates for a sub-sample of comparable US firms, i.e. larger firms with median employment greater than 500 employees at the date of the IPO. We found that large US firms' growth rates of total assets, sales, employment, and particularly, fixed capital are still much higher than Italian firms', in most cases twice as large (see Table A.II in Appendix A).

These large differences in behavior between Italian and US firms that go public suggest that they may very well go public for different reasons.

TABLE I
US firms (panel a) going public 1981–1997 (medians) and Italian firms (panel b) going public 1977–1997 (medians)

	$t-1$	$t+0$	$t+1$	$t+2$	$t+3$
<i>Panel a</i>					
Growth rate of total assets	0.258	0.670	0.082	0.066	0.042
Growth rate of fixed capital	0.154	0.323	0.239	0.098	0.039
Growth rate of sales	0.214	0.247	0.195	0.146	0.114
Growth rate of employment	0.094	0.185	0.149	0.092	0.056
<i>Panel b</i>					
Growth rate of total assets	0.086	0.141	0.081	0.074	0.049
Growth rate of fixed capital	0.024	0.071	0.046	0.020	0.024
Growth rate of sales	0.058	0.022	0.052	0.067	0.046
Growth rate of employment	0.009	-0.001	0.025	-0.027	-0.004

3.3. Characteristics of the Italian IPO sample

Figure 1 shows how the Italian IPOs were distributed through time. The distribution of IPOs in the sample is distinctly bimodal, with activity clustering in two periods; the mid-1980s and the late-1990s. There are demand and supply-side explanations for clusters of IPOs. Demand side explanations are based upon the idea that firms require equity capital for growth. Supply side explanations are based upon the idea that the equity markets help to absorb a large supply of funds which need to be invested. Overlaid on the table are graphs showing the time series properties of Italian GDP growth and equity prices. The data in Figure 1 do not help identify which of the explanations are more likely. On the one hand, robust economic growth in mid-1980s might help drive an increase in the demand for equity capital and help explain the cluster of IPOs. Likewise, Italian managers' anticipation that their markets would grow after Italy was admitted into the EMU might also be consistent with demand side explanations and the cluster of IPOs in the 1990s. On the other hand, the growth in equity prices in both the 1980s and 1990s might be consistent with a hot issue

market and a supply side explanation for the clusters of IPOs in both periods.

Table II provides a set of summary statistics for new public firms in the year of their IPO grouped by ownership structure, size and year of the IPO. The first column displays statistics for the full sample of IPOs. To place them into perspective, in column two we provide a second set of statistics for all firms that did not go public and were not quoted on the stock exchange during the sample period. Section I of the table provides information on the physical characteristics of the sample firms. Firms that went public were substantially larger than non-public firms, with approximately 60% larger sales, over twice as many total assets, and more than 200 more employees, at the median. Firms conducting IPOs were younger than nonpublic firms.

Section II of the table provides information about the financial characteristics of the firm. Firms conducting IPOs appear to be less indebted than the nonpublic firm sample. At the median, the ratio of total debt to total assets is 0.162 for the IPO sample versus 0.252 for the nonpublic firm sample. Section III of the table

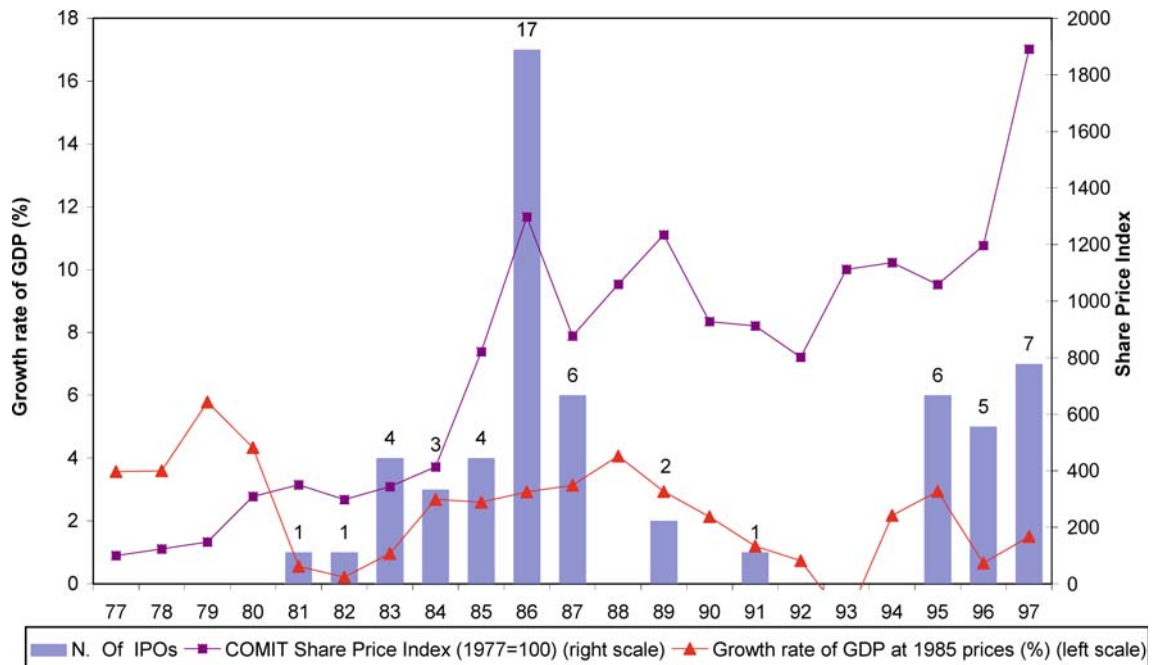


Figure 1. Italian firms going public in the 1980–1997 Period, share price index, and GDP growth.

TABLE II
 Characteristics of the Italian IPO sample, grouped by ownership, size, and the year of the IPO (median values)

N. firms	IPO sample ¹	Full sample ²	Group affiliated IPOs	Independent IPOs	Large firm IPOs	Small firm IPOs	IPO 80 (1977-1989)	IPO 90 (1991-1999)
	57	14,265 obs.	24	33	42	15	38	19
<i>I. Firm characteristics</i>								
Employees	579	373	912	404 ^a	755	283 ^a	717	353 ^b
Real sales (Mill. ITL, 1980 = 100)	71,428	44,358	87,322	53,304 ^b	91,081	32,019 ^a	76,568	58,253
Real total assets (Mill. ITL, 1980 = 100)	73,412	38,836	96,087	62,305 ^a	82,281	31,675 ^a	75,537	67,409
Age	23.0	28	22.5	24	21.5	25	20.5	25
<i>II. Financial characteristics</i>								
Leverage	0.310	0.503	0.349	0.310	0.280	0.411	0.393	0.225
Debt/assets	0.162	0.252	0.134	0.213	0.141	0.256	0.238	0.135
Long term debt/assets	0.092	0.082	0.099	0.087	0.096	0.087	0.100	0.057
<i>III. Operating characteristics</i>								
Return on assets	0.171	0.114	0.148	0.138	0.151	0.138	0.143	0.149
Return on equity	0.585	0.474	0.400	0.324	0.355	0.332	0.388	0.324
Investment rate	0.160	0.104	0.110	0.209 ^b	0.160	0.156	0.128	0.178
<i>IV. Characteristics of the IPO</i>								
Gross proceeds/total assets	0.243	—	0.147	0.263 ^a	0.255	0.197	0.171	0.353 ^a
Net proceeds/total assets	0.102	—	0.000	0.162 ^a	0.057	0.145 ^b	0.004	0.196 ^a
Net proceeds/gross proceeds	0.531	—	0.000	0.682 ^a	0.261	0.996 ^a	0.024	0.627

Notes: (a, b) means significant two-sample Wilcoxon rank-sum (Mann-Whitney) test of difference of medians at 0.01; 0.05 level.

¹Firms that went public between 1977 and 1997 as of the year of the Initial Public Offering.

²Full sample of firms in the CERIS dataset, excluding observations for the firms that went public between 1977 and 1997 and of firms already quoted in the Milan Stock Exchange.

shows some of the operating characteristics of the firm. In the year of the IPO, listed firms display substantially higher returns on assets (0.171 versus 0.114) and returns on equity (0.585 versus 0.474).¹⁶ Also, they tend to invest at a higher rate relative to the size of their capital stock (0.159 versus 0.104 for the nonpublic sample). On balance, the higher returns on assets and equity, combined with the faster rate of investment, suggest that the newly public firms perform somewhat better than the nonpublic firms do. The IPO sample's lower indebtedness also suggests somewhat superior financial performance.

The last section of the table shows the characteristics of proceeds of the IPO itself. The gross proceeds of the IPO, scaled by the firms beginning of period total assets is 0.304. Scaled by end of period total assets, the ratio is 0.243. Roughly put, if all the proceeds of the IPO were ploughed back into the firm, it would increase its scale by roughly 30 percent. The statistic for our sample of US firms, which includes the entire manufacturing sector, is 0.994.¹⁷ One reason for the distinct difference between the growth of Italian and US IPOs in Table I now becomes quite clear: relative to the size of the firm the size of the IPO conducted by an Italian firm is roughly 30% of the size of a US IPO.

Furthermore, much of the proceeds of the IPO is not retained by an Italian firm. Net proceeds, defined as gross proceeds less those retained by existing shareholders, have a median value less than half that of gross proceeds, suggesting that the owner manager uses the IPO to extract his wealth from the firm.¹⁸ A more precise measure of the proceeds of the IPO retained by the firm would match gross and net proceeds for a given firm. We therefore calculated net proceeds/gross proceeds for each firm and found that its median value is 0.531.

In Table II, columns three and four compare characteristics of group affiliated and independent companies, observed at the year of quotation.¹⁹ For each variable, we performed two-sample Wilcoxon rank-sum tests of the difference of medians. Independent firms going public are slightly older and significantly smaller than spin-offs. Independent IPOs also display a higher debt to asset ratio, but a lower propor-

tion of long term debt. Independent IPOs appear slightly less profitable than group affiliated IPOs, but also display significantly higher investment rate.

The characteristics of the funds raised at the IPO and how those funds are employed is where we find the most striking differences between the two sub-samples. Not only independent firms raise more funds than spin-offs relative to the size of the firm (0.263 versus 0.147), they also plough them back into the firm at a much higher degree (the median value of net/gross proceeds is 0.682). At the median, spin-offs retain none of the proceeds of the IPO. These findings support the mainstream hypotheses about the motivations to go public for group-affiliated and independent firms. A pyramidal business group allows the controlling shareholder to sell part of his shares and diversify his wealth while still retaining the control rights. In contrast, raising equity funds for growth appears as the dominant issue for independent firms where large amounts of retained proceeds combine with higher investment rates.

Columns five and six report separate statistics for IPO by firm size. We define "small" firms as those with real sales less than 40 bn. Lira (46.75 million US \$) at the IPO date. Small firms appear older than large firms when they go public. While it is true that many large new listings are *de facto* spin-offs from a mature business group, this finding is consistent with well-documented evidence that in Italy, firms tend to remain small for a long time. The main difference between small and large firms is the characteristics of the IPO. Small firms retain virtually all of the proceeds within the firm. At the median, the ratio between net and gross proceeds is 0.996 for small firms and 0.261 for large firms.

The last two columns of Table II split the data into the periods 1977–1989 and the period 1990–1999. Firms that went public in the 1990s were much smaller, in terms of employment, sales and assets. They also appear less indebted, and while they had similar or slightly poorer returns on assets and equity, they displayed faster rates of investment. When we turn to the initial public offerings, we find that IPOs in the 1990s were significantly bigger

relative to the firm's size, and that the firm retained a significantly larger share of the proceeds. Total proceeds doubled at the median, from 17% of assets to 35% of assets. Net proceeds in the 1980s were only 0.4% of assets, yielding the firm essentially no funds that it could use for growth, and nearly 20% of assets in the 1990s. Since the new listings were also typically independent, small-sized firms, this final piece of evidence suggests that institutional changes in the 1990s encouraged a new type of firms to tap the equity markets.

3.4. Differences between pre- and post-IPO behavior

In Table III we compare size, growth, profitability and leverage of listed firms before and after the IPO. The table reports the median values of two-year averages for the firms for which observations are available and significance tests of the difference between medians.

Looking at the entire IPO sample, we find that the number of employees is larger (638 versus 592), and that labor inputs appear to be growing somewhat faster after the IPO. However, firms do not appear to grow any faster after the IPO in terms of fixed capital investment and real sales. Both profitability and leverage are significantly lower after going public. When we split the data by governance structure, we find that independent IPOs significantly increase

firm size (measured by employees) while they decrease both profitability and leverage. In contrast, group affiliated firms do not display statistically significant differences in their behavior around the IPO date. When we compare IPOs over time we find that new listings in the 1990s report higher investment rates and sales growth before going public and faster employment growth after the IPO, while leverage significantly declines after going public.²⁰

Overall, Table III highlights the similarity of independent and recent IPOs, with similarly higher growth rates of sales and fixed capital before the IPO, and faster employment growth after the IPO.

4. Econometric results

In this section, we carry out an econometric analysis of the *ex-post* and the *ex-ante* behavior of Italian firms that went public over the period 1977–1999. We examine the behavior of Italian IPOs grouped by size, ownership structures, and timing of the IPO. The model is a simple empirical specification that tests the effects of the decision to go public on a set of variables that account for the firm's operating performance, financial characteristics and growth (see for example, PPZ, 1998).

We regress each variable on a set of dummy variables for the year of the IPO and the three subsequent years. Since only firms that meet the listing requirements can go public, their

TABLE III

Italian newly public firms: pre and post-IPO size, growth, profitability, and leverage (median values of two-year averages before and after the IPO)

N. firms	IPO sample		Group affiliated IPOs		Independent IPOs		IPO 80 (1977–1989)		IPO 90 (1991–1999)	
	36		16		20		24		12	
	Pre-IPO	Post-IPO	Pre-IPO	Post-IPO	Pre-IPO	Post-IPO	Pre-IPO	Post-IPO	Pre-IPO	Post-IPO
Employees	592	638 ^b	910	958	417	483 ^a	741	793	365	370 ^b
Employment growth	0.002	0.011	−0.008	−0.007	0.008	0.015	−0.008	0.006	0.012	0.022
Investment rate	0.109	0.110	0.103	0.099	0.137	0.135	0.104	0.110	0.126	0.118
Real sales growth	0.060	0.036	0.063	0.058	0.059	0.008	0.061	0.078	0.060	0.006
ROA	0.201	0.144 ^a	0.192	0.150	0.216	0.139 ^a	0.204	0.154 ^b	0.181	0.112 ^a
Leverage	0.498	0.364 ^b	0.507	0.425	0.498	0.334 ^b	0.506	0.417	0.498	0.318 ^a

Note: (a, b) means significant sign-rank (Wilcoxon) test of difference of medians at 0.01; 0.05 level.

performance can be different from that of the other firms in the panel. We therefore include an additional set of dummies, which at time t , $t - 1$, $t - 2$, and $t - 3$ take value 1 if firm i meets the requirements for listing on the Italian exchange (positive earnings and equity greater than 10 bn. Lira, i.e. 5.92 million 1997 US \$). We include time dummies to control for the business cycle and for other macroeconomic conditions, for example the evolution of the stock price index and interest rates. Our model takes the form:

$$y_{it} = \alpha + \sum_{j=0}^3 \beta_j \text{IPO}_{t-j} + \sum_{j=0}^3 \delta_j \text{QUO}_{t-j} + f_i + \lambda_t + \varepsilon_{it} \quad (1)$$

where i indexes firms and t time, and f_i and λ_t are firm and time dummies, respectively. y_{it} is, in turn, a financial or operating variable, or a growth rate. IPO_{t-j} is a dummy variable that returns a value of 1 if year $t-j$ was the IPO year. Therefore, when the firm goes public, $\text{IPO}_t = 1$, and $\text{IPO}_{t-1} = \text{IPO}_{t-2} = \text{IPO}_{t-3} = 0$; one year after the public offering, $\text{IPO}_{t-1} = 1$, and, and so forth. Lags of IPO then control for persistence in the effects of going public and help describe the *ex-post* behavior of the firm. Likewise, QUO_t is the dummy variable controlling for differences in the performance between firms that meet the listing requirements and those that do not. Finally, in order to account for cross-sample differences, the IPO dummies are interacted with two dummies indicating the firm's status (i.e. date of the IPO, affiliation with a group, and size).

Table IV reports the panel regressions' coefficients on the IPO and post-IPO dummy variables where standard errors are robust to heteroskedasticity.²¹ Coefficients on the IPO dummies describe the behavior of the dependent variable at the year of the IPO, and one, two, three years after the IPO. For each variable we show estimates for the three sub-samples separately.²²

To investigate the behavior of the firms before they go public, Table V reports results from a similar model where the operating or financial

variable is regressed against a set of dummies that takes value 1 for the year preceding the IPO. The specification takes the form:

$$y_{it} = \alpha + \sum_{j=0}^3 \beta_j \text{IPO}_{t+j} + \sum_{j=0}^3 \delta_j \text{QUO}_{t+j} + f_i + \lambda_t + \varepsilon_{it} \quad (2)$$

4.1. IPO-80s versus IPO-90s

The first set of results in Table IV refers to IPOs grouped by timing of the initial public offering. Firms that went public in the 1980s and firms that went public in the 1990s are referred to as IPO-80s and IPO-90s, respectively. The *ex-post* behavior of firms going public in the 1990s, i.e. in a period of favorable institutional change, appears disappointingly similar to the behavior of IPOs in the 1980s. In the 1990s Italian firms did not grow faster after going public in term of investment, total assets and employment. If any, they even grew less, in term of real sales, than firms going public in the 1980s. After going public, profitability significantly decreases for IPO-90s whereas it increases for IPO-80s. Leverage decreases for IPO-90s, and the decline is persistent and quantitatively large. For all variables, the difference between estimated coefficients across the two sub-samples is statistically significant in most years.

When we turn to *ex-ante* behavior, we find that IPO-80s do not exhibit any discernible growth pattern whereas IPO-90s grew significantly before they went public. For IPO-90s, Table V reports significantly positive coefficients on pre-IPO dummies at $t-1$ and $t-2$ in the regressions for fixed investment, total assets, sales and employment. Firms in the 1990s also display higher profitability before going public.

The *ex-ante* pattern of IPO-90s results may either indicate spending for a growth project in anticipation of going public, or reflect the manager's decision to go public to take advantage of a window of opportunity. The evidence from post-IPO regressions is rather clear. The growth process stopped right after the IPO, profitability began to decrease in $t + 1$, and

TABLE IV
Analysis of the *ex-post* behaviour of Italian firms going public

Dependent variable		Year 0	Year + 1	Year + 2	Year + 3	Adj- R^2
Investment rate	IPO-80s	0.016 (0.658)	-0.018 (-0.794)	-0.026 (-1.036)	-0.016 (-0.511)	0.101
	IPO-90s	0.052** (2.569)	0.004 (0.253)	-0.004 (-0.213)	-0.027 (-0.896)	
	IPO-large	0.013 (0.583)	-0.022 (-0.961)	-0.044* (-1.718)	(-1.420)	0.101
	IPO-small	0.079***b (3.973)	0.018 (0.914)	0.044**a (1.961)	0.060b (1.424)	
	IPO-AFF	-0.031 (-0.922)	-0.028 (-0.884)	-0.056 (-1.471)	-0.070 (-1.537)	0.101
	IPO-IND	0.073***a (4.587)	0.008 (0.527)	0.015c (0.972)	0.037b (1.408)	
Growth rate of total assets	IPO-80s	0.096*** (3.710)	0.031 (0.839)	0.050 (1.635)	-0.029 (-1.174)	0.063
	IPO-90s	0.205***c (3.577)	-0.049 (-1.363)	-0.016 (-0.478)	0.005 (0.116)	
	IPO-large	0.114*** (3.843)	0.014 (0.382)	0.031 (1.039)	-0.021 (-0.786)	0.063
	IPO-small	0.202*** (3.529)	-0.003 (-0.077)	0.047 (1.072)	-0.012 (-0.310)	
	IPO-AFF	0.073** (2.190)	0.021 (0.433)	-0.017 (-0.451)	-0.023 (-0.672)	0.063
	IPO-IND	0.180***b (4.777)	0.003 (0.087)	0.077***c (2.462)	-0.011 (-0.366)	
Growth rate of sales	IPO-80s	-0.005 (-0.243)	0.024 (1.092)	-0.003 (-0.122)	-0.010 (-0.446)	0.070
	IPO-90s	-0.041 (-1.149)	-0.095**b (-2.357)	-0.087***a (-3.327)	-0.016 (-0.430)	
	IPO-large	-0.005 (-0.239)	-0.018 (-0.768)	-0.051** (-2.272)	0.006 (0.255)	0.070
	IPO-small	-0.045* (-1.724)	0.018 (0.445)	0.058**a (2.067)	-0.045 (-1.363)	
	IPO-AFF	-0.019 (-0.780)	-0.018 (-0.505)	-0.026 (-0.917)	-0.013 (-0.433)	0.069
	IPO-IND	-0.011 (-0.451)	0.002 (0.101)	-0.017 (-0.650)	-0.002 (-0.062)	
Growth rate of employment	IPO-80s	0.012 (0.754)	0.021* (1.852)	-0.000 (-0.021)	0.007 (1.072)	0.206
	IPO-90s	0.046 (1.102)	0.010 (0.437)	-0.003 (-0.103)	0.068 (0.901)	
	IPO-large	0.010 (0.687)	0.003 (0.259)	-0.015 (-1.176)	0.014 (0.855)	0.206
	IPO-small	0.072 (1.251)	0.051**c (2.226)	0.033b (1.564)	0.024 (1.248)	
	IPO-AFF	-0.004 (-0.370)	0.005 (0.356)	-0.024* (-1.802)	-0.000 (-0.045)	0.206
	IPO-IND	0.045c (1.565)	0.027* (1.722)	0.018b (1.120)	0.034* (1.679)	

TABLE IV
(Continued)

Dependent variable		Year 0	Year + 1	Year + 2	Year + 3	Adj- R^2
Leverage (debt/debt + equity)	IPO-80s	-0.017 (-0.669)	-0.004 (-0.166)	0.007 (0.249)	-0.000 (-0.012)	0.612
	IPO-90s	-0.196*** _a (-5.397)	-0.214*** _a (-8.062)	-0.189*** _a (-5.725)	-0.178*** _a (-3.751)	
	IPO-large	-0.070*** (-2.596)	-0.058** (-2.151)	-0.058* (-1.829)	-0.045 (-1.487)	0.612
	IPO-small	-0.079** (-1.961)	-0.038 (-1.121)	0.024 _c (0.720)	0.050 _b (1.445)	
	IPO-AFF	-0.031 (-0.965)	-0.017 (-0.482)	-0.007 (-0.177)	-0.005 (-0.131)	0.612
	IPO-IND	-0.106*** (-3.492)	-0.086*** (-3.011)	-0.058** (-1.970)	-0.037 (-1.094)	
Long term debt/assets	IPO-80s	0.006 (0.407)	0.019 (1.274)	0.056*** (3.002)	0.038** (2.378)	0.574
	IPO-90s	-0.018 (-1.043)	-0.034*** _a (-3.395)	-0.023* _a (-1.880)	-0.011 (-0.364)	
	IPO-large	-0.005 (-0.398)	0.003 (0.210)	0.032* (1.836)	0.018 (1.141)	0.574
	IPO-small	0.010 (0.364)	0.021 (0.873)	0.058** (2.137)	0.077*** _b (2.996)	
	IPO-AFF	0.012 (0.599)	0.019 (1.002)	0.066** (2.475)	0.038* (1.869)	0.574
	IPO-IND	-0.012 (-0.908)	-0.004 (-0.287)	0.017 (1.024)	0.027 (1.351)	
Return on assets	IPO-80s	0.032*** (2.904)	0.026*** (2.720)	0.022** (2.541)	-0.005 (-0.532)	0.609
	IPO-90s	0.016 (1.189)	-0.023* _a (-1.748)	-0.028** _a (-2.404)	-0.006 (-0.327)	
	IPO-large	0.025** (2.530)	0.011 (1.267)	0.004 (0.596)	-0.005 (-0.523)	0.609
	IPO-small	0.040** (2.070)	0.020 (1.188)	0.028 (1.551)	0.001 (0.083)	
	IPO-AFF	0.024** (1.954)	0.011 (0.958)	0.004 (0.490)	-0.001 -0.057)	0.609
	IPO-IND	0.031*** (2.548)	0.016 (1.406)	0.016 (1.386)	-0.005 (-0.475)	
Return on sales	IPO-80s	0.033*** (3.951)	0.035*** (4.149)	0.035*** (4.449)	0.019*** (2.549)	0.670
	IPO-90s	0.017** (2.203)	0.009 _b (1.050)	-0.001 _a (-0.116)	0.006 (0.478)	
	IPO-large	0.019*** (2.918)	0.021*** (2.893)	0.017*** (2.566)	0.011 (1.579)	0.670
	IPO-small	0.056*** _b (4.042)	0.052*** _b (4.044)	0.056*** _a (4.143)	0.041*** _c (2.599)	
	IPO-AFF	0.025** (2.459)	0.022** (2.232)	0.022** (2.108)	0.024** (2.335)	0.670
	IPO-IND	0.031*** (3.894)	0.034*** (3.922)	0.031*** (3.796)	0.015* (1.680)	

Notes: The table reports the coefficients on the IPO and post-IPO dummies.

t -statistics in round brackets. Standard errors are robust to heteroskedasticity.

(***), (**), (*) Coefficient significantly different from 0 at the (1), (5), (10) percent level or less, respectively.

a, b, c, denote significance of differences between coefficients of sub-samples, at the 1%, 5% and 10% level, respectively.

TABLE V
Analysis of the *ex-ante* behaviour of Italian firms going public

Dependent variable		Year -3	Year -2	Year -1	Year 0	Adj- R^2
Investment rate	IPO-80s	0.116 (0.959)	0.013 (0.604)	-0.004 (-0.107)	0.033* (1.757)	0.101
	IPO-90s	-0.023 - (1.045)	0.021 (0.790)	0.084** (1.827)	0.069*** (3.658)	
	IPO-large	0.082 (0.883)	0.021 (1.073)	0.041 (1.162)	0.037** (2.193)	0.100
	IPO-small	-0.028 (-0.754)	-0.027 (-1.121)	-0.026 (-1.019)	0.058*** (2.997)	
	IPO-AFF	0.171 (1.070)	0.005 (0.209)	-0.026 (-0.830)	-0.006 (-0.284)	0.101
	IPO-IND	-0.032* (1.611)	0.018 (0.790)	0.070*c (1.637)	0.078***a (5.156)	
Growth rate of total assets	IPO-80s	-0.041 (-1.207)	-0.013 (-0.437)	-0.004 (-0.169)	0.086*** (3.262)	0.063
	IPO-90s	-0.005 (-0.151)	0.037 (1.230)	0.101***a (2.757)	0.242***a (4.287)	
	IPO-large	-0.041 (-1.509)	-0.001 (-0.022)	0.020 (0.882)	0.111*** (3.795)	0.063
	IPO-small	0.010 (0.153)	-0.022 (-0.535)	0.052 (1.420)	0.204*** (3.606)	
	IPO-AFF	-0.015 (-0.400)	-0.000 (-0.007)	-0.009 (-0.356)	0.072** (2.097)	0.063
	IPO-IND	-0.050 (-1.539)	-0.008 (-0.229)	0.051**c (2.119)	0.176***b (4.796)	
Growth rate of sales	IPO-80s	-0.026 (-0.814)	-0.026 (-0.897)	0.012 (0.654)	-0.008 (-0.423)	0.067
	IPO-90s	0.052c (1.581)	0.125***a (3.588)	0.102***b (2.644)	0.022 (0.599)	
	IPO-large	-0.004 (-0.140)	0.037 (1.467)	0.043** (2.095)	0.011 (0.528)	0.066
	IPO-small	0.013 (0.180)	-0.049 (-0.819)	0.022 (0.585)	-0.057**b (-2.099)	
	IPO-AFF	-0.003 (-0.087)	-0.031 (-1.041)	0.036 (1.361)	-0.010 (-0.416)	0.066
	IPO-IND	0.001 (0.025)	0.079**a (2.307)	0.044* (1.750)	0.002 (0.093)	
Growth rate of employment	IPO-80s	-0.000 (-0.011)	-0.016 (-1.438)	0.017 (1.443)	0.010 (0.646)	0.206
	IPO-90s	0.050 (1.468)	0.073**a (2.080)	0.080**c (2.282)	0.077* (1.827)	
	IPO-large	0.011 (0.745)	0.008 (0.509)	0.029** (2.083)	0.016 (1.038)	0.205
	IPO-small	0.031 (0.841)	0.028 (0.976)	0.057 (1.332)	0.070 (1.313)	
	IPO-AFF	-0.004 (-0.262)	-0.001 (-0.133)	0.032* (1.613)	0.003 (0.256)	0.205
	IPO-IND	0.033 (1.331)	0.025 (0.921)	0.038* (1.745)	0.048* (1.668)	

TABLE V
(Continued)

Dependent variable		Year -3	Year -2	Year -1	Year 0	Adj- R^2
Leverage (debt/debt + equity)	IPO-80s	0.049 (1.497)	0.023 (0.968)	0.028 (1.192)	-0.010 (-0.408)	0.613
	IPO-90s	-0.018 (-0.536)	-0.049*c (-1.639)	-0.033 (-1.068)	-0.175***a (-4.344)	
	IPO-large	0.044 (1.532)	0.020 (0.959)	0.032 (1.545)	-0.046* (-1.724)	0.612
	IPO-small	-0.023c (-1.027)	-0.049c (-1.415)	-0.044c (-1.140)	-0.093** (-2.320)	
	IPO-AFF	0.045 (1.133)	0.029 (1.024)	0.026 (0.890)	-0.020 (-0.625)	0.612
	IPO-IND	0.019 (0.682)	-0.014 (-0.584)	0.006 (0.228)	-0.086*** (-2.835)	
Return on assets	IPO-80s	0.017 (1.280)	0.025** (2.062)	0.049*** (4.151)	0.037*** (3.370)	0.613
	IPO-90s	-0.006 (-0.457)	0.043*** (2.620)	0.044*** (3.280)	0.033** (2.247)	
	IPO-large	-0.004 (-0.418)	0.023** (2.094)	0.035*** (3.887)	0.030*** (3.128)	0.613
	IPO-small	.084***a (2.724)	0.078***a (4.719)	0.092***a (4.970)	0.056*** (3.083)	
	IPO-AFF	0.018 (1.206)	0.020 (1.451)	0.030*** (2.521)	0.032*** (2.547)	0.613
	IPO-IND	0.001 (0.100)	0.044*** (3.139)	0.063***b (3.221)	0.039*** (3.221)	

Notes: The table reports the coefficients on the pre-IPO and IPO dummies.

t -statistics in round brackets. Standard errors are robust to heteroskedasticity.

(***), (**), (*) coefficient significantly different from 0 at the (1), (5), (10) percent level or less, respectively.

a, b, c, denote significance of differences between coefficients of sub-samples, at the 1%, 5% and 10% level, respectively.

leverage persistently declined throughout the period. This suggests that managers in the 1990s took their companies public at the peak of a successful period of growth, when floatation would allow them to maximize the IPO proceeds, and then used the equity funds to rebalance the companies' books.

4.2. Independent versus affiliated IPOs

In Table V we find that, similarly to IPO-90s, independent firms tend to grow faster immediately before the IPO. At $t-1$, they display positive and significant coefficients indicating faster growth of fixed and total assets, real sales and employment. Table IV, however, shows that independent firms continue to grow after going public. The evidence is more pronounced when we examine growth of total assets (at t and

$t+2$) and employment (at $t+1$ and $t+3$). Because they also appear to be reducing leverage quite substantially for two years after the IPO, their behavior prior to the IPO may reflect spending in anticipation of going public and subsequent use of IPO proceeds to increase the scale of the firm and rebalance the company's books.

Independent firms also tend to grow significantly faster than group-affiliated firms both before and after the IPO. Indeed, very few of the estimated coefficients for spin-offs are statistically significant, indicating that the decision to go public is not a turning point in the affiliated firms' life cycle. This evidence confirms that other issues appear to dominate the motivation to list a subsidiary, such as to allow the group's controlling shareholder to divest partly from the company, or to separate control rights from

cash flow rights, or to maximize the IPO proceeds when the issue market is hot.

4.3. *Small firms versus large firms*

Our analysis reveals that small firms' growth is highly affected by the decision to go public. The descriptive analysis in Section 3 highlighted that small firms were found to retain almost all of the proceeds from the IPO. Regression results in Table IV show what they used them for. The investment equation shows that small firms grew significantly more than large firms in term of fixed assets at t , $t + 2$, and $t + 3$. This result holds when the small firms' sub-sample is limited to those going public in the 1990s and the growth rate of small firms appears to be quantitatively larger (not reported in the table). More importantly from the perspective of public policy, post-IPO employment tends to be growing faster in small firms. Small firms also increase profitability after the IPO, particularly if measured by Return on Sales, suggesting that highly profitable growth opportunities led small firms to tap the equity markets. In this respect, the *ex-post* behavior of small firms is more similar to that of newly public US firms than any other sub-sample we examined.

Lastly, the pattern of small firms' indebtedness after the IPO suggests that access to the equity market may facilitate borrowing in the credit market. We find that small firm increase their leverage significantly more than large firms two and three years after the IPO. The evidence is more pronounced if we use the ratio of Long Term Debt to Assets, with positive and highly significant coefficients at $t + 2$ and $t + 3$. This may indicate that newly public small firms succeed in obtaining further external funds as their public visibility increases and information-related problems decrease in the years subsequent the IPO (Anderson, 1994; Roell, 1996).

5. Conclusions

This paper sets the stage for its analysis by comparing the behavior of firms that go public in Italy and in the US. We find that firms that

go public in Italy and the US behave in startlingly different ways. US firms tend to grow rapidly, in terms of assets, capital, and employment. The proceeds raised as a result of the IPO are large relative to the size of the firm. In contrast, Italian firms do not grow rapidly after their IPOs and the IPO itself does not appear to generate a substantial amount of financial capital for the firm. Firms going public in Italy are typically older and larger than firms going public in the US. The managers of a US firm going public appear to do so primarily to obtain funds to rapidly increase the scale of the firm. In contrast, the owner/managers of Italian firms appear less motivated by growth projects.

The challenge for research and policy is to determine why the typical Italian firm that goes public behaves differently from its US counterpart. We exploit features of the Italian institutional context and of the corporate and governance structures to derive further insights from cross-sectional differences in the effects of the decision to list. We also exploit features of our data to investigate listed firms' growth, profitability and leverage before they go public.

Our statistical and econometric analysis highlights the existence of a dual class of IPOs in Italy with different motivations to go public. We label them "Old-style" and "New-style" firms.

"Old-style" firms have controlling shareholders that use the IPO as a way to diversify their wealth, to maximize the IPO proceeds in a "window of opportunity", to separate ownership and control along a chain of subsidiaries. Their motivation to go public may have little to do with growth. Large firms, particularly those affiliated to pyramidal business groups appear to be members of this class. "Old-style" firms are more likely to go public within poorly developed financial markets, and flourish under legal systems providing weak protections to minority investors.

"New-style" firms use the equity capital to finance either an undergoing or a prospective growth project, and then use the IPO proceeds to de-leverage and re-balance their capital structure. Small firms and independent companies

appear to be members of this class. With undeveloped capital markets, the costs of going public can be prohibitively large for these firms, but the absence of a pyramidal structure may signal lower risks of expropriation to minority shareholders, thus increasing the demand for equity from investors.

Our findings suggest that institutional and regulatory changes as well as tax reforms in the 1990s encouraged more “New-style” firms to go public. We noticed that the IPO characteristics of Italian firms going public in the 1990s did change, with larger amounts of equity finance raised, and a larger proportion of proceeds reinvested in the firm. We also found that “New-style” firms appear to be pursuing a growth strategy, either just before going public, as independent firms do, or after the IPO, as small firms do. In spite of this evidence, the differences between Italian and US newly public firms’ growth rates remain large in an absolute sense and raise important questions about the effectiveness of European policies to generate employment through easier access to equity finance.

We have found that recent policy reforms have facilitated the access to public equity markets for a new type of firms that would have not gone public under the old *regime*. However, our research also suggests that going public does not guarantee either faster growth or more jobs. Public policies must provide shareholders with incentives to use new capital to grow. The cross-sectional differences we found between independent and affiliated firms clearly argue in favor of reforms aimed at dismantling pyramidal business groups. The discipline of existing instruments of separation of ownership and control is a matter that requires to create countervailing monitoring devices for minority shareholders, to tighten corporate governance rules and to strengthen investors’ legal protections.

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Notes

¹ One of the few studies to examine European firms’ performance after their IPO is the paper by Pagano et al. (1998, hereinafter PPZ), who examine the general question of why firms go public. The features of the Italian data helped to answer the general questions posed by their research. In particular, unlike US firms, data for Italian firms were available for many years prior to the IPO, and there were a large number of sample firms that did not go public during the sample period, which gave PPZ with a “control” group they could exploit in their empirical analysis.

² Notably, however, in this period, 123 companies were retired from quotation, mostly because they were taken private, not because they went bankrupt. Therefore, at the end of 1999, only 264 firms were listed at the Italian Stock Exchange (in contrast 2619 US firms were listed at NYSE, at the end of 1999).

³ Amongst the legal and institutional reforms that reshaped the financial markets in Italy in the early 1990s, was the new discipline for securities markets, financial intermediaries, and brokerage firms, the introduction of the trading-on-line system (the Italian “big-bang”), the regulation of take-over bids, the widening of the operational span for investment funds, common funds, as well as a growing attention toward disclosure rules and transparency.

⁴ A detailed discussion of listing requirements and costs to go public in Italy and in the US can be found in Appendix A.

⁵ In 1995 and 1996, sixteen companies went public exploiting this tax incentive, according to the CONSOB annual report.

⁶ The extent of and the motivations for the underpricing phenomenon have received much attention (see Ritter and Welch, 2002, for a recent survey). See also Ritter (1987), Jenkinson (1990), and Ross et al. (1999) for international comparisons of its size.

⁷ Mutual funds were introduced in Italy in 1983. They did not hold an economically meaningful share of equity until the end of the 1980s. In the 1990s, institutional investment as a proportion of households’ total financial investment in Italy has been steadily increasing (from 9.8% in 1990, to 16.7% in 1995 and 33% in 1999), but is still much lower than in the US. At the end of the 1990s, the proportion of households’ total financial assets held by institutional investors in Italy and US was 37.0% and 70.5%, respectively (Bank of Italy, Annual Reports, 2000 and 2001).

⁸ The inferior level of protection of Italian minority investors, in international comparisons, is acknowledged by the CONSOB itself (Annual Report, 2000), with the provision, however, that the recently introduced reforms “pave the way to strengthen the protection of shareholders”. Johnson et al. (2000) document that legal tunneling (a term originally coined to define the expropriation of minority shareholders in the Czech Republic) has occurred in developed civil-law countries such as Italy, France and Belgium.

⁹ Zingales (1994) documents what appear to be enormous private benefits of control rights. He shows that the premium attributed to voting shares (as compared to nonvoting shares) on the Milan Stock Exchange from 1987 to 1990 is as large as 82% of the value of the share. See also, for more recent evidence, Dyck and Zingales (2004).

¹⁰ It is important to note, however, that the *ex-post* performance of the share price of US IPOs typically underperform a sample of matching firms in the long run (Ritter, 1991).

¹¹ For a comprehensive description of the database, see Benfratello et al. (2001).

¹² To identify quoted companies we used the annual directory *Indici e Dati* published by Mediobanca, and “Il Taccuino dell’Azionista”. We used Table X of *Indici e Dati* (1998) to find the date when a firm was listed (began trading publicly) on the Milano Stock Exchange (MSE). To identify the date when the proceeds from going public *accrued* to the firm we used Table XIV of *Indici e Dati* (1998) which reports the period and the terms of the public offering. We found that for several firms the year they first became listed did not match with the year of the IPO. In some cases this occurred because the firm was previously listed in one of the minor Italian exchanges or the *Mercato Ristretto*. In some cases the firm received the proceeds from its IPO in the year prior to its listing on an exchange. Our results are based on the exact year when the firm received funds from the sale of common stock through its IPO. PPZ noted a similar problem when they constructed the sample for their study. They noted that their results were robust to the choice of dates for the IPO.

¹³ Our evidence is consistent with other research that also shows that firms going public in Italy, and other EU member states as well, tend to be old and large. PPZ report, for the IPOs in their study, an average of 33 and a median of 26. Rydqvist and Hoegholm (1995) report an average age of 40 for new public firms in Europe.

¹⁴ Although not shown in the table, we found that median employment increased from 130 employees in the year of the IPO to 215 – 3 years after. This result helps to illustrate why European policymakers have displayed such interest in reducing potential obstacles to going public.

¹⁵ The growth of newly public US firms proceeds at such high rates that it is quite unlikely that they are driven by industry level or macroeconomic growth. Nonetheless, to partially control for this possibility, we “matched” firms by calculating the median growth rates, by year, for all variables in Table I using firms in the same three-digit industry. We standardized the growth rate by subtracting the newly

public firm’s growth rate for each year $t - 1$ to $t + 3$ from the industry median for the corresponding calendar year. The results appear in Table A.I in Appendix A. They show that even when we match new public firms to this control group, the extraordinarily high growth rates during the period surrounding the IPO remain.

¹⁶ For listed firms, we computed ROA and ROE by using beginning of period equity and assets to account for the influence of the IPO. However, this results in the loss of a few observations, as some firms enter the panel in the year that they go public.

¹⁷ Carpenter and Petersen (2002) calculated a similar statistic for a sample of newly public US high technology firms. They found the ratio of new equity funds to total assets in the year of the IPO had a median value of 1.76.

¹⁸ We used the information in *Indici e Dati* to distinguish between shares offered for sale by old shareholders and new shares offered for sale. The firm would receive the proceeds only of the latter kind of sale. We defined total proceeds as the sum of the sale of shares from existing shareholders and the sale of new shares. We defined net proceeds (proceeds that accrue to the firm) as the sale of new shares.

¹⁹ As explained in Section 2, many listed firms in Italy belong to large pyramidal groups, or are technically spin-offs (i.e., firms belonging to a group where at least one company is quoted). Of the 137 quoted firms in the CERIS panel, 61 are affiliated to a large pyramidal group. Of the 57 newly public firms, 23 are group-affiliated. Interestingly, floatation of subsidiaries or spin-offs is more typical of the 1980s (21 out of 38 new listings are group affiliates), than of the 1990s, when none of the firms taken public belongs to a major group.

²⁰ We do not report statistics for the large and small firms’ sub-samples because the data requirement to construct the two-year averages leaves us with only nine small firms.

²¹ When we split the sample of IPO firms across time, the number of post-IPO observations for firms going public in the 1990s becomes very small, which may reduce the precision of the estimates, especially for $t + 3$.

²² We omit reporting the coefficients on the control variables/dummies (QUO_t etc.) and of the time dummies for brevity. Although not reported in the tables, the estimated coefficients for the set of QUO dummy variables are always statistically significant.

Appendix A: Listing requirements and costs of going public in Italy and in the US

CONSOB (*Commissione Nazionale per le Società e la Borsa*) is the Authority supervising the Stock Exchange. CONSOB specified the listing requirements up to 1997, when the stock exchange was privatized and new rules and listing fees were issued.

Up to 1997 the main requirements to take a company public were the following:

- (1) book value of shareholders' equity in excess of 10 billion Lira;
- (2) positive earnings in each of the three years before the IPO, where profitability measures had to be obtained irrespective of intragroup operations and extraordinary items;
- (3) latest balance sheet submitted to certified auditor;
- (4) at least 25% of the equity had to be floated amongst at least 500 new shareholders.

An estimate of the time schedule to obtain the final approval by the Stock Exchange Council set the timing of the floatation process at an average of about six months.

To provide an overview of the direct costs of going public in Italy throughout our sample period (1977–1997) we use, as our main sources, a Special Insert of *Il Sole 24 Ore*, the most widespread financial newspaper in Italy ("Guide to floatation", July 1994) and CONSOB Annual Reports. *Il Sole 24 Ore* reports both the official cost estimates by the Stock Exchange Council (*Consiglio Nazionale di Borsa*) and its own estimates for the variable costs.

Listing costs have a variable and fixed cost component:

- (1) Variable costs include underwriting fees to the sponsor and the underwriters, selling and management fees to the main underwriter and co-lead managers. For a company with a turnover of 110 billion Lire (US \$70 millions), total assets of 144 billion Lire (US \$90 millions) and gross proceeds of the IPO of 170 billions (US \$43 millions), the estimated total fees may amount to 2,450 million Lire (US \$ 1.5 million). Variable costs can be roughly estimated at 3–4% of the gross proceeds of the IPO for a medium sized company.
- (2) Fixed costs include administrative costs, such as registration statements, costs for writing the prospectus, certification, auditing, printing of prospectuses and of shares, advertising

on newspapers, etc. They amount to ca. 380–400 million lira (US \$248,000) for a medium sized company (see above). Finally, the stock exchange "fees", calculated as a percentage of the value of the company's common stock range from a minimum of 10 millions lira (\$6,200), for companies with up to 50 billions lira (\$31 millions) of common stock to 10 billions for companies which exceed 1,000 billion.

The total cost of going public as estimated by the Stock Exchange Council for a medium sized Italian company is ca. 3 billions lira (US\$ 1.9 million), slightly more than 4% of the gross proceeds of the IPO. This figure still does not include the annual costs of remaining listed after quotation (yearly stock exchange fees were 20 million Lire, ca. 12,500 US dollars) as well as the annual fees for certified auditing.

In September 1997, the newly privatized exchange, BORSA ITALIANA s.p.a., modified both the listing requirements and the listing fees (<http://www.borsaitalia.it/en/markets/home-page/>). Compared to the past, the main difference is that mandatory positive earnings for three consecutive years are no longer required. The new rules include:

- (1) ability to generate revenues in conditions of management autonomy;
- (2) publication and filing of the latest 3 annual reports;
- (3) latest balance sheet audited;
- (4) the issuer's assets or revenues must not preponderantly consist of an investment in a listed company;
- (5) market capitalization in excess of € 20 millions;
- (6) free float of at least 25%.

The new rules ask the companies to fulfill two corporate governance requirements: the adoption of a code of conduct regulating the disclosure of internal dealing transactions; and voluntary acceptance of the Corporate Governance Code, with compulsory annual update about the status of its implementation.

The floatation process is shorter than under the previous regime, with an average of four months.

The cost of going public did not change with the exchange privatization, remaining at 4–5% of the value of the global offer for a medium sized company. Listing fees include:

- (1) fees to the Italian Exchange: € 75 for every € 500.000 of market capitalization, calculated on the basis of the offer price and the company's share capital after the offering (with a floor of € 10.000 and a cap of € 500.000);
- (2) commissions to the global coordinator and other syndicate members;
- (3) fees to the legal advisers. Public relations and auditors; marketing and road show costs, printing and distribution of the prospectus, CONSOB fees, etc.

To remain on the exchange after quotation, the company has to pay 11 € for every 500.000 € of market capitalization every six months, calculated on the basis of the average for the six preceding months (with a floor of € 6.500 and a cap of € 250.000).

For comparison, we provide listing requirements for two very large US equity Markets, the Nasdaq and the NYSE for a time period that roughly compares to the Italian firms used in the sample. For this discussion of archival listing

requirements, we rely upon "New Nasdaq Listing Requirements," Louis Corrigan, February 7, 1997. (www.fool.com/Rogue/1997/Rogue970207.htm)

Nasdaq listing standards were updated in both 1989 and 1991. In early 1998 Nasdaq accepted proposals from the National Association of Securities Dealers that increased minimum net tangible assets (for listing) from US\$ 4 to US\$ 6 million. Minimum shares held by the public increased from a minimum of 500,000 to 1.1 million at the time of listing. After listing, free float of a minimum of 750,000 shares with capitalization in excess of US\$ 5 million, would be required to maintain listing, a sharp increase of both the size of float and its capitalization relative to earlier requirements. Minimum market capitalization increased from US\$ 8 million from US\$ 3 million. Nasdaq also increased listing requirements for its SmallCap market. SmallCap firms did not exhibit need to exhibit positive pre-tax earnings as long as it satisfied a minimum market capitalization requirement of US\$ 50 million (an increase from a previous requirement of US\$ 35 million). Nasdaq clearly segmented the market for listing firms, with young, unproven firms facing rules pushing them towards the SmallCap market and more established firms listing with Nasdaq proper (or the "National Market").

Contemporaneous listing requirements for NYSE firms were more stringent than those for

TABLE A.1
Standardized difference in medians for US firms

	$t - 1$	$t + 0$	$t + 1$	$t + 2$	$t + 3$
Growth rate of Total Assets	0.239	0.639	0.049	0.041	0.010
Growth rate of Fixed Capital	0.171	0.314	0.231	0.081	0.019
Growth rate of Sales	0.169	0.200	0.149	0.095	0.053
Growth rate of Employment	0.098	0.163	0.125	0.068	0.029

TABLE A.2
Large US firms going Public 1981–1997 (Median of employment @ IPO gt. than 500)

	$t - 1$	$t + 0$	$t + 1$	$t + 2$	$t + 3$
Growth rate of Total Assets	0.096	0.255	0.132	0.106	0.085
Growth rate of Fixed Capital	0.062	0.162	0.170	0.112	0.078
Growth rate of Sales	0.149	0.169	0.129	0.098	0.084
Number of employees	1.134	1.27	1.438	1.623	1.738

the Nasdaq. To list on the NYSE, companies needed minimum pre-tax earnings of US\$ 2.5 million for the past year, and a minimum of US\$ 2 million for the two years preceding it. An alternate rule requiring positive profits in each of the three years prior to listing and using an aggregate pre-tax earning requirement could also be used to establish the minimum listing requirements. NYSE companies were required to have much larger minimum net tangible assets for listing; US\$ 40 million, or roughly 10 times that required for listing on the Nasdaq. Float requirements were also more stringent on the NYSE. To qualify for listing, firms must have had US\$ 40 million in market capitalization, with free float of 1.1 million shares. To maintain its listing, firms must have free float of 600,000 shares of common stock, with minimum market capitalization of US\$ 2.5 million.

Both the NYSE and Nasdaq had extensive rules for firms to meet minimum corporate governance standards that required, for example, outside directors, an audit committee whose majority was comprised of outside directors, and shareholder meetings and votes. Lastly, all listed companies were required to meet extensive regulations put into place by the US Securities and Exchange Commission.

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