



BANCA D'ITALIA
EUROSISTEMA

Temi di discussione

(Working papers)

Family succession and firm performance:
Evidence from Italian family firms

by Marco Cucculelli and Giacinto Micucci

June 2008

Number

680

The purpose of the Temi di discussione series is to promote the circulation of working papers prepared within the Bank of Italy or presented in Bank seminars by outside economists with the aim of stimulating comments and suggestions.

The views expressed in the articles are those of the authors and do not involve the responsibility of the Bank.

Editorial Board: DOMENICO J. MARCHETTI, PATRIZIO PAGANO, UGO ALBERTAZZI, MICHELE CAIVANO, STEFANO IEZZI, PAOLO PINOTTI, ALESSANDRO SECCHI, ENRICO SETTE, MARCO TABOGA, PIETRO TOMMASINO.

Editorial Assistants: ROBERTO MARANO, NICOLETTA OLIVANTI.

FAMILY SUCCESSION AND FIRM PERFORMANCE: EVIDENCE FROM ITALIAN FAMILY FIRMS

by Marco Cucculelli * and Giacinto Micucci**

Abstract

This article contributes to the growing empirical literature on family firms by studying the impact of the founder–chief executive officer (CEO) succession in a sample of Italian firms. We contrast firms that continue to be managed within the family by the heirs to the founders with firms in which the management is passed on to outsiders. Family successions, that is, successions by the founder’s heirs, are further analyzed by assessing the impact of the sectoral intensity of competition on the post-succession performance. This analysis also addresses the endogeneity in the timing of the CEO succession by controlling for a pure mean-reversion effect in the firm’s performance. We find that the maintenance of management within the family has a negative impact on the firm’s performance, and this effect is largely borne by the good performers, especially in the more competitive sectors. These results indicate that there is no inherent superiority of the family-firm structure and emphasize the importance of conducting an analysis of governance in a variety of institutional settings.

JEL Classification: G3, G32.

Keywords: family successions, family firms, founder-run firms.

Contents

1. Introduction.....	3
2. The data and preliminary empirical evidence.....	6
2.1 Sample size and survey data.....	6
2.1 Statistics on the firm's performance.....	9
3. Post-succession performance for the whole sample set.....	11
4. Family successions	13
4.1 Does inherited management really hurt the family-firm performance?	13
4.2 Family successions and the sectoral level of competition.....	17
4.3 Sales and profitability of the firms after family successions.....	19
5. Concluding remarks.....	21
Tables	23
References	31

* Department of Management and Industrial Organization, Faculty of Economics ‘Giorgio Fuà’, Marche Polytechnic University, Piazzale Martelli, 8, 60100 Ancona, Italy.

E-mail: m.cucculelli@univpm.it

** Bank of Italy, Ancona Branch, Economic Research Unit, Piazza Kennedy 9, 60100 Ancona, Italy.

E-mail: giacinto.micucci@bancaditalia.it

1. Introduction¹

Research on family firms has blossomed in recent years (Bertrand and Schoar, 2006). Much of the empirical analysis has been devoted to relatively large firms in the United States (Anderson and Reeb, 2003; Pérez-González, 2006; Villalonga and Amit, 2006) and has yielded mixed evidence on the relationship between family involvement and firm performance.

This literature, on the whole, has two major drawbacks: the ambiguity in the definition of a family firm and the weak applicability of the research results to other countries.

On the definition, performance is sensitive to the way firms are classified. When the “lone-founder” effect is removed from the family category, evidence of superior performance of family-ownership disappears (Miller et al., 2007). The contribution of family characteristics that are typically indicated as being beneficial to the performance—such as stewardship, reduction in agency costs, long-term focus, and firm-specific investments (Davis et al., 1997; Maury, 2006; Miller and LeBreton Miller, 2005)—seems to vanish when a business is owned or managed by many family members. The inference is that a large part of the superior performance of a family business comes from the founder’s efforts.

A similar argument applies to the literature on succession when the founder, as departing chief executive officer (CEO), is not distinguished from other, less involved family members and shareholders. The founder’s superior talent may be responsible for the

¹ The authors wish to thank Giuseppe Canullo, Maria Letizia Cingoli, Giuliano Conti, Guido De Blasio, Andrew Ellul, Michele Fratianni, Rick Harbaugh, Chang Hoon Ho, Isabelle Le Breton-Miller, Francesca Lotti, Pasqualino Montanaro, John W. Maxwell, Danny Miller, Harold Mulherin, Michael Rauh, Pramodita Sharma, and two anonymous referees of the “Journal of Corporate Finance” and the “Temi di Discussione” for helpful comments. Feedback and recommendations from seminar participants at Bank of Italy, Indiana University, Marche Polytechnic University, Bocconi University, the 2006 EARIE Conference in Amsterdam, the II Family Firm EIASM workshop in Nice are also appreciated. Marco Cucculelli is particularly grateful to Michele Fratianni and to the Kelley School of Business, Indiana University for their hospitality during the preparation of this paper. All mistakes and errors are the responsibility of the authors alone. The views expressed in this paper are ours alone and do not necessarily reflect those of the Bank of Italy.

decrease in post-succession performance, and the inefficient selection of the successors (Burkart et al., 2003; Caselli and Gennaioli, 2003) or their scarce education (Pérez-González, 2006) and management experience (Smith and Amoako-Adu, 1999) may further worsen the damaging effect of the change in leadership. Thus far, except for some anecdotic evidence that lacks direct extendibility, the literature on succession has basically ignored the very first succession in the firm, i.e. when the founder steps down, whereas it has largely studied later-stage successions.

With regard to the second drawback, the emphasis on the performance of relatively large public firms in the United States raises questions about the applicability of the results to economic settings other than the United States. A variety of institutional settings and the greater occurrence of small firms are bound to complicate the underlying model and therefore weaken the inference obtained from studies based on samples of primarily large firms. The conclusion is that it is risky to generalize from the extant literature (Miller et al., 2007).

With this premise, our article intends to study one aspect of family-run business, namely, the impact of the founders' succession on firms' performance. For this purpose, we use a large dataset drawn from Italian family firms in the manufacturing sector. Greater occurrence of small firms and frequent ownership and management transfer of family-owned business from one generation to another make the dataset drawn from Italian firms unique and different from the typical US dataset. These data may also provide more general insights for those countries where the firm's ownership and management are typically inherited, and cultural values encourage the maintenance of firms within the family (Bennedsen et al., 2007; Bertrand and Schoar, 2006; La Porta et al., 1999).

Using a transactional event (founder–CEO turnover), as suggested by Gillan (2006), we evaluate founder's successions that occurred during the period 1996-2000 and compare

pre-succession performance with post-succession performance over a three-year window before and after the founder steps down. Within-firm variations in accounting measures of performance allow to control for time-invariant characteristics that might jointly affect a firm's performance and its decision to appoint a family CEO, but which cannot be controlled for in a cross-sectional setting. We also include a number of controls that have been found to affect the CEO turnover decisions. In particular, by controlling for a pure mean-reversion effect in the firm's performance (Adams et al., 2005), we address the endogeneity in the timing of the CEO succession, attributable to the founder's desire to retire when the firm is in good shape.

We first contrast firms that continue to be managed within the family by heirs to the founders with firms in which the management has passed on to outsiders. The decrease in the post-succession performance is larger for the heir-managed firms than for the companies managed by unrelated CEOs, due to the greater tendency of the unrelated managers to reorganize the poor-performing firms after succession. Because the promotion of unrelated CEOs usually occurs when there are no suitable family successors or when inadequate firm profitability forces the founder to sell the company, we restrict our more detailed analysis to family successions.

The main finding of our study is that the inherited management within a family firm negatively affects the firm's performance, even if this decrease in performance is concentrated among the good-performing companies, that is, founder-run companies which outperform sectoral average profitability before succession. The reduction in profitability is significant, although a part of the decreased performance is due to a pure mean-reversion effect, and it is larger in more competitive sectors, where the talent of the founder is likely to be more valuable. In general, the loss of the founder has a negative impact on performance.

The findings of this study suggest that family firms are not necessarily more profitable than others, at least after the founder steps down, and therefore, they underscore the importance of conducting an analysis of the ownership and governance of firms in a variety of institutional settings.

The rest of the article is organized as follows: Section 2 describes the data; Section 3 presents the preliminary evidence of the impact of succession on the firm's performance. Section 4 deals with family succession and tackles the endogeneity issue. Evidence for the effect of the sectoral competition intensity is also presented and discussed, together with further explanations of the post-succession profitability decline. Section 5 offers some conclusions.

2. Data and preliminary empirical evidence

2.1 Sample size and survey data

The presence of small firms in Italy is pervasive: according to the Census data, 98% of Italian manufacturing companies in 2001 had fewer than 50 employees and accounted for more than 55% of the total manufacturing workforce. The percentages rise to 99% and 77% for firms and employment, respectively, for the class with fewer than 250 employees. A large portion of these companies is run as a family business, or has some key family shareholders able to exert a great influence on the company affairs (Fabbrini and Micucci, 2004; Lotti and Santarelli, 2005).

Nearly all the past studies on the succession process have focused on large, public companies listed in the official market. Listed companies usually have large records of data—from the balance sheets and stock-market transactions—that enable measurement of the stock market's response to the major changes in the firm ownership or management composition.

Company annual reports and the specialized press are also excellent sources of information for use in the analysis of the succession process.

Data are, however, lacking for most firms in the small-business sector. Except for company accounts, publicly available data sources do not usually report the major factors affecting the succession, such as the firm's start-up date, the year of the founder's exit, or the characteristics of the management staff after the founder has stepped down. Most data can only be gathered by direct interviews. For this reason, a dataset has been constructed by matching two complementary sources: a cross-sectional survey dataset collected directly from the companies using questionnaire-based phone interviews, and a dataset from Cerved consisting of company accounts.² The survey has been restricted to a large set of nonfarm, nonservice companies in the manufacturing industry, located in four Italian regions (Veneto, Emilia Romagna, Marche, and Abruzzo) with some common features in the organization of their industry (the relevance of the 'Made in Italy' industries and the extensive presence of industrial districts). Important specializations in the industrial sector include fashion (clothing and footwear), wood and wooden furniture, mechanical industry, and plastic products. Because of this sample selection, the results are only representative of the reported firms.

The initial sample size for the survey consisted of 7,500 companies satisfying these criteria with usable accounts for the period 1994-2004. A telephone survey of all these companies, conducted in the period March-July 2005, collected 3,548 answered questionnaires. The interview was conducted as follows. After asking for the company's

² Cerved is an authoritative and reliable source of information on Italian companies. Information is drawn from official data recorded at the Italian Registry of Companies and from financial statements filed at the Italian Chambers of Commerce. Cerved provides information on more than 600,000 joint stock, public and private limited share companies and limited liability Italian companies (Spa & Srl). Companies furnish data on a compulsory basis. The information provided includes credit reports, company profiles and summary financial statements (balance sheet, profit & loss accounts and ratios). Each company's financial statement is updated annually.

start-up year, and the details of the person currently managing the company, the questions took two different directions. If the founder was still managing the company, the questions asked were *i)* whether or not a few of the heirs were working in the company, *ii)* the founder's age and *iii)* whether a succession was expected to occur in the next two years. If the founder was no longer managing the company, the questions asked were about *i)* the type of current management (heirs, an acquiring company, other external managers) and *ii)* the date when the succession took place.

As the impact of the founder-CEO change on firm profitability was the main concern, the changes in the management, regardless of the status of company ownership and control, were focused on. Two main distinctive features of Italian family businesses support this assumption: an almost complete overlap exists between ownership and management, and management changes normally trigger subsequent changes in company control (from the founder to his heirs), rather than the reverse.

Summary statistics for the complete sample, broken down by industry, size-class, and starting year, are set out in Table 1. The sample distribution of companies by their decade of birth shows that a large share (approximately 70%) of existing companies was born in the period between the early 1960s and the 1980s. Only a one-third fraction of these companies has already completed a succession process, whereas the remaining two-thirds is rapidly approaching a change of management.

Founder-managed companies make up 64.6% of the total sample, with a share that constantly increases as the company start-up year approaches the present time period. The share of founder-managed companies also decreases with the firm size: 67.1% of companies in the 10-49 employee class are still founder-managed, whereas only 46.3% of these are in the 200+ class. The succession rate, defined as the ratio between the transferred (both heir-run and unrelated-run) and total companies, increases with the size of the firm (larger firms

are likely to be older and thus to have already undergone a succession event), and it varies considerably among the various sectors. With respect to the choice between an internal (family) versus external (unrelated) succession, low and medium-low technology firms – grouped by the Organization for Economic Co-operation and Development’s (OECD) four-group classification based on their Research & Development (R&D) intensity: foods, clothing, footwear, wood, and furniture – are more likely to remain within the family, whereas other firms (mechanical industry, machinery, electronics, and domestic appliances) exhibit a higher incidence of unrelated succession. Similarly, larger companies are managed more frequently by unrelated successors than by heirs.

2.2 Statistics on the firm’s performance

Accounting data for the subsamples of heir-managed and unrelated-managed companies provides information on the company characteristics and its performance before and after the succession. Table 2 summarizes the company size at the moment of succession. Size is measured by the sales and total assets of the company. The total sample of 229 firms (177 heir-managed companies, where the new CEO is related to the founder by blood or marriage, and 52 unrelated-managed firms) comprises only those companies that experienced a succession in the time interval of 1996-2000 and for which financial data were available for the three-year window before and after the transition. Table 3 presents the descriptive statistics of profitability measured by the Returns on Assets (ROA) and Returns on Sales (ROS). Data are the simple averages of the three-year window before and after each transition. Extreme performance observations have been excluded by removing the largest and smallest 5% values for ROS and ROA; all the estimates reported in the remainder of the study are robust to the change of this outlier threshold. Profitability data are the simple averages for each group. Family successions are almost entirely transfers from the first to the

second generation, whereas only 14 transfers out of 177 are to the third generation or further. The group averages reported in Table 3 have been calculated after including all family successions (177).³

Post-succession performance shows a clear decline in the profitability for both indicators in the heir-managed and unrelated-managed companies: for the total sample, ROA reduces from 9.89 to 7.49, whereas ROS decreases from 7.61 to 5.90. The decline appears to be larger for the heir-managed companies than for the unrelated-managed ones, and it is statistically significant only for the former (for both profitability indicators).

The group-adjusted profitability ratios in Table 3 provide further information on post-succession company behaviour. The group-adjusted ROA and ROS of firm *i* were calculated by subtracting the group's mean value from the three-year average performance of each company. The group mean value was calculated for the entire Cerved dataset by grouping companies within the same sector (three-digit SIC code), size-class (where the size-classes were 10- 49, 50-199, and 200+ employees), and area (region). Therefore, each of the two groups was compared against a control group with similar characteristics but which had not experienced a succession event.

Heir-managed firms experience rather similar decreases in the post-succession performance for both ROA and ROS (-0.35 and -0.32, respectively; Table 3), which suggests a post-succession turnaround not significantly different from that observed in non-transferred companies. By contrast, unrelated-managed firms exhibit a considerable post-succession improvement in the adjusted ROA (from -1.48 to 0.35), whereas the effect on ROS appears to be smaller. In this case, even if the observed changes in profitability do not

³ The regression analysis reported in section 4 was based on the entire sample of family successions (177), without excluding the transfers to the third generation or further. The empirical results did not change if we restricted the analysis only to transfers from the first to the second generation.

appear statistically significant, the presence of a post-succession restructuring process in these companies can be presumed.

3. Post-succession performance for the whole sample set

For evaluating the impact of succession on the performance of the two groups of companies (heir-managed and unrelated-managed firms), we estimated the fixed-effect equation (1). Analysis of within-firm variation in the performance around a CEO transition provides a control for the time-invariant firm characteristics, observable or unobservable, that might influence the performance but cannot be controlled for in a cross-sectional setting.

$$(1) \quad \pi_{it} = \alpha_0 + \alpha_1 After + \alpha_2 After * Family + \alpha_3 \bar{\pi}_{it} + \alpha_4 Age + controls + \varepsilon_{it}.$$

A three-year window, before and after each transition, was considered in this study.⁴ The dependent variables, π_{it} , were, respectively, ROA and ROS. The null hypothesis was that negligible changes in profitability would ensue from the succession; if, in contrast, the succession improved or deteriorated the firm's performance, positive or negative changes should be observed, respectively, in the post-succession ROA and ROS. Independent variables included a dummy variable *After*, which was equal to one if the transfer of the management had already occurred, and it was equal to zero otherwise. The specification also included an interaction term *After*Family*, which captured the effect of succession within the family compared to that in unrelated succession. $\bar{\pi}$ was the sector average profitability index calculated on the basis of the three-digit SIC, location, and size-class mean value. The variable $\bar{\pi}$ was introduced to examine the changes in the firm's performance after

⁴ That is, if a succession occurred in the year 2000, the three-year window before succession was 1997, 1998, 1999, and the three-year window after succession was 2001, 2002, 2003.

controlling for the effect of industry type, area, and size. Controls for the age of the firm and years effects were also added.

The estimated results, as reported in Table 4 (column 1 for ROA and 4 for ROS), show that succession causes a reduction in the profitability, both in heir-managed and unrelated-managed companies, and they signal the existence of a succession cost in both the groups of firms.⁵ However, though only a minor difference in the ROS between the heir-managed and unrelated-managed companies is observed, the intensity of the impact is not the same when the profitability is measured by the ROA: in this case, the heir-managed firms clearly underperform with respect to the unrelated-managed companies. Distinct behaviours around the succession for the two groups of firms might be responsible for the differences observed: if poor-performing companies are more likely to be transferred outside the family than the good-performing ones, the new (unrelated) owners of the thus-acquired companies should be expected to restructure the company more extensively, thus improving the relative ROA. This preference to transfer a company outside the family when it has performed poorly (or when there is no suitable family successor) might affect the post-succession comparison between the heir-managed and unrelated managed companies.⁶

Subsequently, equation (1) was reestimated by including only those companies that performed poorly before the succession to control for the above-mentioned potential bias. Poor performers were those firms with a profitability level below the median score of the distribution. The estimated results, reported in columns 2 and 5 of Table 4, confirm the

⁵ In particular, for the 177 firms that experienced a family succession, we estimated a significant decline in both ROA (-1.96 p.p.) and ROS (-1.76 p.p) (see columns 3 and 6 of Table 4).

⁶ In our sample, a lower adjusted pre-succession profitability is positively associated with the probability of the company's transfer outside the family: firms passing to an unrelated manager have a pre-succession performance lower than that of heir-managed firms, in terms of both adjusted ROA (-0.73 p.p.) and adjusted ROS (-1.12 p.p.; Table 3). Giacomelli and Trento (2005) also found a similar tendency in a different sample of Italian manufacturing companies.

previous findings, i.e. a similar decrease in the ROS for the two groups but a larger decline in relative ROA in the heir-managed firms.

Summing up, a clear evidence for a decrease in the profitability consequent to the succession from a founder to an heir has been confirmed, whereas the results are mixed when the heir and unrelated successions are compared. Furthermore, poor-performing companies passing to unrelated managers appear to undertake an intense post-succession reorganization of the company, whereas the heir-managed firms do not necessarily undergo reorganization.

4. Family successions

Very divergent firm-specific and country-specific features underlying the succession process might produce different strategic choices around the transition, which affect the post-succession performance in both family and unrelated successions. If unrelated involvement occurs when inadequate firm profitability forces the founder to sell the company, the comparison of post-succession performance between the two groups may become an extremely difficult issue to deal with. This may be even worse in situations where the social habits and inheritance norms strongly affect the CEO/successor choice in the transfer of business (Bertrand and Schoar, 2006) and the family-run business is pervasive in the economy.

Therefore, a more detailed analysis is restricted to the discussion of family successions.

4.1 Does inherited management really hurt the family-firm performance?

The first step was to analyze the extent to which the decrease in profitability after a family succession was related to the company's pre-succession performance. The main expectation was a larger decrease in the good-performing companies if the talent tended to

regress to the population average (Becker and Tomes, 1986). The empirical equation was derived from equation (1) with a performance dummy added, as follows:

$$(2) \quad \pi_{it} = \alpha_0 + \alpha_1 \textit{After} + \alpha_2 \textit{After} * \textit{Good_Performers} \\ + \alpha_3 \bar{\pi}_{it} + \alpha_4 \textit{Age} + \textit{controls} + \varepsilon_{it}$$

where *Good_Performers* is a dummy variable indicating well performing companies. The dummy is equal to one if the firm-adjusted profitability is above the sample median score, and zero otherwise. The estimated results in Table 5 show that well performing companies are greatly harmed by the transfer of management to an heir: that is, the positive difference in the pre-succession performance, as shown in Table 3, strongly reduces after the family successors have been promoted to the CEO position. Although the coefficient of the term *After* is now not significantly different from zero, the entire decrease in performance is captured by the interaction variable *After*Good_Performers*, suggesting a very large decline in the profitability when the family successor takes over the family business. The estimated decrease falls within an interval of 4.70–4.00 percentage points for the ROA and ROS, respectively (Table 5), which is a very large reduction with respect to the pre-succession performance.⁷

A potential drawback to this approach concerns the issue of endogeneity: if the firm's characteristics, like its recent performance, are expected to affect the decision on both whether and when to select a CEO from within the family, then the post-succession performance may reflect different features at the time of the firm's transition (Demsetz and Villalonga, 2001; Pérez-González, 2006).

The suggestion that some of a firm's characteristics (its current performance and future perspective) might affect the timing of the transfer and the type of CEO is not new in the literature on the transfer of assets and business. Focusing on the optimal timing of

⁷ Poor-performing companies show a weak and not statistically significant increase in post-succession performance.

succession, Kimhi (1994) and Miljkovic (1999) show that the optimal transfer time varies systematically with family and firm characteristics, as well as with other variables defining the critical level of the founder's utility from the firm transfer to a succeeding child. Similarly, the hypothesis that an optimal selection of the CEO may emerge endogenously from the founder's characteristics and the firm's performance has recently received significant empirical support. Adams et al. (2005) show that a founder may deliberately choose to delay the transfer until the firm's performance has reached a level high enough for the heir to have a better chance of improving its future operations. They explore this issue by assessing the extent to which the firm's past performance, whether bad or good, helps in predicting a future change of command in which a founder steps down. They find evidence that a past good performance increases the likelihood that a founder will leave the firm in the near future, and that this result is consistent with two potential factors: 1) founder-CEOs may value control over their succession more than nonfounders, and 2) founder-CEOs may want to leave their companies 'in good shape'. They conclude that this result has a direct implication for the evaluation of a firm's performance after the founder's exit: if performance is mean-reverting and the founders leave at its peak, performance is likely to decline after the succession even when the inherited control is not bad for performance.

The significant decline in well performing companies that has been observed in these data might be not only due to the heir's lower talent (managerial quality) with respect to the founder, but also due to 'pure luck' that pushes the performance towards the industry mean (Barber and Lyon, 1996). The pure effect of the mean-reverting trend of performance changes following succession had to be removed so as to isolate the management quality shift that is truly due to succession. As a control for this potential bias, a performance-based control group-matching method was applied as follows (Barber and Lyon, 1996; Huson et al., 2004): Each sample firm (run by heirs after a family succession) was matched to each

comparison firm (run by founders) in the Cerved database with the same three-digit SIC code, size-class, and location in the same region. The firm to be used as a comparative term was selected from among those firms whose performances in the year before the family succession were within ± 10 per cent of the sample firm's performance. If there were no matched firms, the procedure was repeated using all the firms with the same three-digit SIC code and the same size-class, regardless of where they were located. Finally, the last step included all the firms with the same three-digit-SIC code, regardless of size-class and location area. The matching procedure enabled us to identify 561 founder-managed companies, which were used in the matched control group for 177 heir-controlled companies. The regression (3) includes both the 177 heir-controlled firms and the 561 control firms⁸. The empirical evidence set out in Tables 6.a, 6.b, and 7 arises from this matching method.⁹

$$(3) \quad \pi_{it} = \alpha_0 + \alpha_1 \textit{After} + \alpha_2 \textit{After} * \textit{Family} + \alpha_3 \textit{After} * \textit{Good_Performers} + \alpha_4 \textit{After} * \textit{Family} * \textit{Good_Performers} + \alpha_5 \bar{\pi}_{it} + \alpha_6 \textit{Age} + \textit{controls} + \varepsilon_{it}$$

The estimated results for equation (3), reported in Tables 6.a and 6.b for the ROA and ROS, respectively, suggest that even if a marked mean-reversion effect is detected, the evidence for a substantial decrease in the company's performance following succession is significant. After controlling for the mean-reversion effect (captured by the interaction between variables *After* and *Good_Performers*), the estimates found a decline of more than 1.5 points in the post-succession ROA and ROS for well performing companies (measured by the interaction term *After*Family*Good_Performers*) (column 4 in Tables 6.a and 6.b). Heir-managed companies achieved a post-succession performance significantly lower than

⁸ For each control firm, the variable *After* is set equal to 1 in the three-year window after the year of succession observed in the sample firm matched to that control firm, and 0 otherwise.

⁹ We obtained a similar result also by using a one to one matching procedure that compared 177 heir-managed companies to 177 comparable founder-managed companies.

the founder-managed ones, thus confirming the difficulty encountered by good performers in finding a suitable successor within the restricted group of family members.

4.2 Family successions and the sectoral level of competition

If a company's performance depends on the entrepreneur's talent, profitability may be more heavily affected by succession in those industries where talent is more valuable, i.e. where the intensity of competition is substantial, as suggested by recent contributions by Lazear (2002 and 2005). Thus, the next step in the analysis concerns the effect of the sectoral competition intensity on the company's performance after succession. The empirical equation that was used to test the impact of succession was similar to the equation (3), with the addition of a dummy relative to some industry characteristics as follows:

$$(4) \quad \begin{aligned} \pi_{it} = & \alpha_0 + \alpha_1 \textit{After} + \alpha_2 \textit{After} * \textit{Family} + \alpha_3 \textit{After} * \textit{Good_Performers} + \\ & + \alpha_4 \textit{After} * \textit{Family} * \textit{Good_Performers} + \\ & + \alpha_5 \textit{After} * \textit{Family} * \textit{Good_Performers} * \textit{Industry_characteristics} + \\ & + \alpha_6 \bar{\pi}_{it} + \alpha_7 \textit{Age} + \textit{controls} + \varepsilon_{it} \end{aligned}$$

where the interaction variable *Industry_characteristics* referred to three different criteria (the firm-size distribution, the technology, and the intensity of competition in the industry in which the firm competes) for which specific variables were selected as follows: The '*Small size*' variable reported in Table 7 was a dummy variable equal to one if the firm size (number of employees) was below the sample median score. Small firms should be more common in traditional industries with low entry barriers and little need for managerial and financial resources. For this reason, the negative post-succession effect was expected to be lower in those companies than in large firms. However, in most small-sized and medium-sized companies, replacement of the founder may also be extremely challenging because of his/her unique style of management and personal ties with stakeholders. As a consequence, the expected sign of the relationship was indeterminate. The '*Medium-High tech sector*'

variable was a dummy variable equal to one if the company belonged to the high and medium-high technology sectors, and zero if it was in the medium-low and low technology group. Sectors were grouped according to the OECD classification of three-digit SIC sectors based on their R&D intensity. The expected relationship with post-succession performance was negative: medium-technology and high-technology companies require entrepreneurs with substantial technical and managerial skills, and this may cause a large decrease in profitability if the management is inherited by an unsuitable successor. The '*Strong competition sector*' variable was the three-digit SIC industry Lerner index of competition, which is $(1 - \text{profits}/\text{sales})$, calculated as the average across the entire firm-level database for the period 1998-2002 (Aghion et al., 2005; Bloom and Van Reenen, 2006). For the variable summarizing technological intensity, it was expected that the higher the competitive pressure in the industry, the larger the decrease in post-succession performance following the founder's exit.

The estimated results (Table 7) show that succession negatively affects the performance in sectors where the intensity of competition is high, that is, where the managerial quality of the successor is likely to play a key role in defining the company's performance. If the competition is intense, successors are likely to need a longer time, or a better initial talent, than in other sectors for developing the ability required to manage the company successfully. Therefore, for a given distribution of the talent of successors, companies in the competitive sectors experience a larger decline in the post-succession profitability than do the firms working in the low competition industries.¹⁰

As a further robustness check, the variable *After*Good_performers* Strong competition sector* was added in equation (4). This would enable the effect of family succession to be distinguished from that of variation in the levels of competition across

¹⁰ With regard to the size and technology dummies, the sign was negative for smaller firms and medium-high tech sectors, but without statistical significance.

various industry subsectors. The estimated coefficient of the variable *After*Family succession*Good_performers* Strong competition sector* remained negative and statistically significant, suggesting that the profitability decline observed was a consequence of the firm's succession and did not arise from a widespread negative pattern of profitability affecting only the competitive sectors.

4.3 Sales and profitability of the firm after family successions

A final question concerns the potential role of factors other than the skills of the successors that might generate financial outflows and increase the firms' operating costs after the succession, particularly, specific provisions such as pension plans in favour of the predecessor, 'vendor take-back financing', operating expenses due to the financing of the buyout. Even if the evidence for Italian family firms shows a very limited use of these techniques, it is necessary to exclude the possibility that the decrease in performance might depend on some costs generated by the succession. This issue is addressed by testing the impact of succession on the firm's sales. If the succession significantly affects the sales, it could be reasonably concluded that the above-mentioned factors do not affect the profitability by increasing the succession costs, and that post-succession decline in profitability is mainly due to lower sales for given fixed costs.

The impact of succession on sales was measured using two related variables: *i*) the annual growth rate of (deflated) sales and *ii*) the change in the sales turnover, i.e. the ratio between sales and total assets.

The following equation *à la* Gibrat was estimated initially:

$$(5) \Delta \log S_{i,t} = \alpha + \beta_1 \log S_{i,t-1} + \beta_2 \text{After} + \beta_3 \text{After*Family} + \text{Area dummies} + \text{Year dummies} + \text{Sector dummies} + \mu_{i,t},$$

where $\Delta \log S_{i,t} = \log S_{i,t} - \log S_{i,t-1}$ is the annual growth rate in the sales of the firm “i”, and *After*Family* indicates the family successions. The estimated results are

$$\Delta \log S_{i,t} = 0,140 - 0,020 \log S_{i,t-1} + 0,002 \textit{After} - 0,015 \textit{After*Family} + \textit{Area dummies} + \textit{Year dummies} + \textit{Sector dummies} + \mu_{i,t} \quad (R^2 = 0,09)$$

The negative coefficient of *After*Family* (statistically significant at 5%) shows that the transfer of the company produces a decline in the company sales in real terms. On adding the usual dummies for the good performers, a significant difference among the two groups was not obtained; i.e. both the groups experienced similar declines in their post-succession sales performances. Given the decline in the growth of sales after succession, the sales turnover of the groups was investigated subsequently: if this ratio did not increase significantly after succession to outweigh the negative pattern of sales, it could be argued that a substantial part of the post-succession decline in the profitability might have occurred because of a lower level of sales. Hence, differences in the sales turnover ratio between the heir-managed firms and the control sample, i.e. firms that did not undergo a succession, were investigated. The sales turnover ratio in the heir-managed firms decreased from 1.36 to 1.27, a decline that was not statistically larger than that of the control group. Again, significant differences emerged only for the good performers, with a decrease of 0.15 p.p. in the ratio, which was significant at 5% level.

Summing up, family firms that undergo a succession achieve a lower growth of real sales compared to the control sample with no significant improvement in the sales turnover after succession. We therefore maintain that a hypothesis of a decrease in profitability caused by lower sales should not be rejected, and that expenses associated with residual payments to the founder might have played a minor role in explaining the post-succession decline in profitability in familial transferred companies.

A further warning concerns the long-term perspective of heir-managed companies: because family firms are strongly committed to long-term growth and stability, a larger investment expenditure around the succession in heir-managed firms cannot be excluded, which in turn would negatively affect the sales turnover. A regression analysis similar to equation (5) was carried out for the growth in total assets. The resultant findings show that the asset growth is slightly higher in the control sample, thus excluding more intense investment activity by the heir-managed firms.

5. Concluding remarks

A very large number of firms around the world is of small size, and these are run by families. Despite this evidence, so far the literature on family firms has focused on large, publicly traded companies, mainly because of the difficulty of obtaining reliable data on smaller firms. With the aim to shed light on this important sector of the economy, a unique dataset containing information on the family successions for a large sample of Italian firms was assembled. The significant presence of small-sized and medium-sized family-run businesses in the Italian manufacturing industry makes the country well suited for an empirical analysis of the impact of family successions. This study may provide more general insights for those countries where the firms' ownership and management are typically inherited, and cultural values encourage the maintenance of firms inside the founder's family.

The main finding of this study is that inherited management within a family negatively affects the firms' performance, and this decrease is concentrated among the good-performing companies, that is, founder-run companies that outperform sectoral average profitability before the succession. The reduction in profitability is significant, although part of the decrease is due to a pure mean-reversion effect, and it is larger in more competitive

sectors, where the talent of the founder is likely to play a key role in defining the company's performance. This evidence supports the recent results from Miller et al. (2007) showing that the superior performance of family firms might be primarily driven by the subsample of founder-run companies and suggests that there is no inherent superiority of the family-firm structure.

We also find that the decrease in post-succession performance is larger for the heir-managed firms than for the companies managed by unrelated CEOs because of a greater tendency for the unrelated managers to reorganize poor-performing firms after succession. This result indicates that a well functioning market for corporate control might provide a viable way out when the inheritance of a business may endanger the firms' performance and survival. However, social norms may interfere with this mechanism because, as noted by Bertrand and Schoar (2006), family ties might make it difficult for a founder to dissociate the family from the business, despite the costs of preserving the family control in terms of the company's performance. Therefore, it is hard to believe that, at least in the short run, the contestability of the firms' management may substitute uncontested elections of family CEOs.

Further research can investigate the impact of those factors that help the success of the family transition. In particular, the role of some managerial practices, such as the planning of succession, the criteria for selecting the successor inside the family members, the involvement of external consultants, or the adoption of appropriate financial tools, should be accurately analyzed as they might contribute significantly to the successful inheritance of business within the family.

Tables

Table 1
Description of the sample

Variable	Firm's CEO						Succession rate (b+c)/(a+b+c)	Family succession rate (b)/(a+b+c)	
	Founder (a)		Heir (b)		Unrelated (c)				Total
	n.	%	n.	%	n.	%			n.
Total sample	2,292	64.6	834	23.5	422	11.9	3,548	35.4	23.5
A. Sectors									
Foods	110	48.5	89	39.2	28	12.3	227	51.5	39.2
Textile & Clothing	171	70.7	50	20.7	21	8.7	242	29.3	20.7
Footwear	177	65.3	81	29.9	13	4.8	271	34.7	29.9
Wood & Paper	184	63.0	76	26.0	32	11.0	292	37.0	26.0
Chemical, Rubber, Plastic	171	58.8	79	27.1	41	14.1	291	41.2	27.1
Minerals (no Metals)	135	55.8	70	28.9	37	15.3	242	44.2	28.9
Metalworking	472	70.8	131	19.6	64	9.6	667	29.2	19.6
Mechanical Industry	394	64.5	124	20.3	93	15.2	611	35.5	20.3
Machinery, Appliances, Vehicles	238	65.9	64	17.7	59	16.3	361	34.1	17.7
Furniture, Toys, Jewels	240	69.8	70	20.3	34	9.9	344	30.2	20.3
B. Size-classes (employees)									
10 – 49	1,759	67.1	596	22.7	267	10.2	2,622	32.9	22.7
50 – 199	470	59.5	198	25.1	122	15.4	790	40.5	25.1
200 +	63	46.3	40	29.4	33	24.3	136	53.7	29.4
C. Starting year									
Before 1929	0	0.0	82	82.8	17	17.2	99	100.0	82.8
1930-1939	1	2.4	31	73.8	10	23.8	42	97.6	73.8
1940-1949	19	22.6	54	64.3	11	13.1	84	77.4	64.3
1950-1959	66	33.2	112	56.3	21	10.6	199	66.8	56.3
1960-1969	283	49.6	216	37.8	72	12.6	571	50.4	37.8
1970-1979	645	67.5	188	19.7	122	12.8	955	32.5	19.7
1980-1989	727	76.1	112	11.7	116	12.1	955	23.9	11.7
1990-2005	450	84.3	35	6.6	49	9.2	534	15.7	6.6

The table reports size, sector, and starting year characteristics for the sample. The sample includes 3,584 manufacturing companies within the 10-1,000 employee range (in 2004) with usable accounts for the period 1994-2004. The sample of firms originated using the Survey by Marche Polytechnic University and Cerved database. Firms are located in four Italian regions with common features in the organization of industry (Veneto, Emilia Romagna, Marche, Abruzzo). The survey has been conducted in the period March-July 2005 by a group of four specially trained graduate interviewers. The telephone interview has been conducted as follows: After asking for the company's start-up year, and the person who was currently managing the company, the questions took two different directions. If the founder was still managing the company, we asked if some heirs were working in the company, the founder's age, and if a succession (in the management) was expected to occur in the next two years. If the founder was no longer managing the company, we asked about the type of current management (heirs, an acquiring company, other external managers) and the date when the succession (in the management) took place. As we were mainly concerned with the impact of CEO change on firm profitability, the sample is split according to the nature of the CEO who actually manages the company, regardless of the status of the company ownership and control. Founder, heir, and unrelated imply that the actual CEO of the firm is: the founder, an heir (related to the founder by blood or marriage), and a nonfamily manager, respectively. The succession rate is defined as the ratio between the transferred (both heir-run and unrelated-run) companies and total companies. Family successions include those management changes where the new CEO was related (by blood or marriage) to a departing CEO or to the founder. The information on the starting year is missing for 109 firms.

Table 2
Sample statistics in the year of succession

Variable	Number of observations	Mean	Median
A. SALES			
Total sample	229	12,230	5,829
Unrelated	52	11,201	5,394
Heirs	177	12,533	5,953
good performers	88	13,076	7,539
poor performers	89	11,971	5,401
B. TOTAL ASSETS			
Total sample	229	9,483	4,159
Unrelated	52	8,441	3,506
Heirs	177	9,789	4,362
good performers	88	9,637	5,339
poor performers	89	9,947	3,810

The table reports sales and total assets for the sample of 229 companies (177 heir-managed companies and 52 unrelated-managed companies) that experienced a succession in the interval 1996-2000, and for which financial data were available for the three-year window before and after the transition. The sample of firms originated using the Survey by Marche Polytechnic University and Cerved database. *Mean* (median) is the simple average for each group. *Sales and Total Assets* are expressed in thousands of Euros (revaluated; base=2005). Conversion rate: 1 Euro = 1.314 US dollar (February 2007). Both variables are calculated in the year of succession for each firm in the sample. *Heir* indicates a family succession where the new CEO is related to a departing family CEO or to the founder. *Unrelated* indicates the transfer of management to a nonfamily CEO. *Good performers* indicates good-performing companies, i.e. companies with group-adjusted profitability above the median score of the distribution. *Poor performers* are companies with adjusted profitability below the median score of the distribution. Group-adjusted profitability (ROA and ROS) of firm *i* has been calculated by subtracting the group mean value from the 3-year average performance of the single company. The group mean value has been calculated on the whole Cerved dataset by grouping companies with the same 3-digit SIC code (sector), size-class, and area. Group-adjusted profitability levels are reported in Panel B of Table 3.

Table 3
Pre-succession and post-succession firm profitability: ROA and ROS

A-Absolute profitability levels							
Variable	Number of observations	ROA (%)			ROS (%)		
		Pre-succession	Post-succession	Difference	Pre-succession	Post-succession	Difference
I. Total sample	229	9.89	7.49	-2.40 **	7.61	5.90	-1.72 *
Unrelated	52	9.82	8.95	-0.87	7.26	5.88	-1.38
Heir	177	9.91	7.06	-2.84 **	7.72	5.90	-1.82 *
Heir-Unrelated		0.08	-1.89 *	-1.97 *	0.46	0.02	-0.44
II. Heir	177						
Good performers	88	13.72	8.78	-4.94 **	10.46	7.45	-3.01 **
Poor performers	89	5.96	5.29	-0.68	4.88	4.30	-0.58
Diff.		7.75 **	3.49 **	-4.27 **	5.58 **	3.15 **	-2.43 **
B – Group-adjusted profitability levels							
Variable	Number of observations	ROA (%)			ROS (%)		
		Pre-succession	Post-succession	Difference	Pre-succession	Post-succession	Difference
I. Total sample	229	-0.91	-0.76	0.15	-0.08	-0.28	-0.21
Unrelated	52	-1.48	0.35	1.82	-0.95	-0.75	0.19
Heir	177	-0.74	-1.09	-0.35	0.17	-0.14	-0.32
Heir-Unrelated		0.73	-1.43 *	-2.17 *	1.12 *	0.61	-0.52
I. Total sample	177						
Unrelated	88	3.85	1.17	-2.68 *	3.30	1.68	-1.62 *
Heir	89	-5.49	-3.43	2.06 *	-3.06	-2.03	1.04 **
Heir-Unrelated		9.34 **	4.60 **	-4.74 **	6.36 **	3.71 **	-2.65 **

This table reports the absolute and group-adjusted profitability levels for the total sample (229 companies) and for various subsamples (Unrelated, Heir, Good, and Poor performers). The sample of firms originated using the Survey by Marche Polytechnic University and Cerved database. ROA (Return on Assets) and ROS (Return on Sales) are simple averages for each group. *Pre-succession* indicates the simple average profitability for the (-3,-1) window, where 0 is the year of succession. *Post-succession* indicates the simple average profitability for the (+1,+3) window (0 is the year of succession). *Heir* indicates a family succession where the new CEO is related to a departing family CEO or to the founder. *Unrelated* indicates the transfer of management to a nonfamily CEO. *Good performers* indicates good-performing companies, i.e. companies with group-adjusted profitability above the median score of the distribution. *Poor performers* are companies with adjusted profitability below the median score of the distribution. *Group-adjusted ROA and ROS* of firm *i* have been calculated by subtracting the group mean value from the 3-year average performance of the single company. The group mean value has been calculated on the whole Cerved dataset by grouping companies with the same 3-digit SIC code (sector), size-class, and area. ** Significant at 1% - * Significant at 10%.

Table 4
Inherited management and firm's performance (ROA and ROS for family and unrelated successions)

Variable	ROA			ROS		
	All Successions	Poor Performers	Family Successions	All Successions	Poor Performers	Family Successions
After	-1.05	-0.52		-1.97**	-1.63*	
After * Family	-1.29*	-1.28*	-1.96*	0.06	0.07	-1.76**
Mean ROA or ROS	0.84**	0.56**	0.64**	0.87**	0.54**	0.68**
Age	11.35**	2.71*	5.49**	7.15**	2.80*	4.06**
Year effects	yes	yes	yes	yes	yes	yes
Firm fixed-effects	yes	yes	yes	yes	yes	yes
Number of successions	229	115	177	229	115	177
of which: family successions	177	88	177	177	88	177
Number of observations	1,374	690	1,062	1,374	690	1,062
Adjusted R-Square	0.14	0.08	0.14	0.14	0.06	0.13

The table presents the results of firm fixed-effect regressions for the whole sample (229 companies), for poor performers, and for family successions. The sample of firms originated using the Survey by Marche Polytechnic University and Cerved database. All successions in columns 1 and 3 include all (family and unrelated) successions (229). *Poor performers* in columns 2 and 4 indicate a regression restricted to the sample of poor-performing companies, i.e. companies with group-adjusted profitability below the median score of the distribution. *Family successions* in columns 3 and 6 indicate the regression restricted to the sample of successions within the family (177). The dependent variable is a profitability measure (ROA and ROS) that refers to a three-year window before (-3,-1) and after (+1,+3) each transition (year 0). Results for ROA are reported in columns 1-3, and for ROS in columns 4-6. Independent variables are (or are calculated as, in the case of interaction): *After*, a dummy variable equal to one for each of the three years after the change of management (in favour of both heirs and unrelated), and zero otherwise; *Family*, a dummy variable equal to one for firms in which family succession occurs; *Mean ROA or ROS*, computed at the level of 3-digit SIC code (sector), area, and size-class (using a three-classes breakdown as: 10-49, 50-199, 200+ employees); *Age*, the natural logarithm of the firm's age. Year and firm fixed-effects are included. ** = significant at 1% level. * = significant at 10% level (based on T-statistics from heteroskedasticity-consistent standard errors).

Table 5
Family succession and firm's performance in good-performing companies

Variable	ROA	ROS
After	0.39	0.12
After * Good performers	-4.60**	-3.78**
Mean ROA or ROS	0.72**	0.73**
Age	4.73**	4.00**
Year effects	yes	yes
Firm fixed-effects	yes	yes
Number of successions	177	177
Number of observations	1,062	1,062
Adjusted R-Square	0.20	0.19

The table presents the results of firm fixed-effect regressions for the sample of family successions. The sample of firms originated using the Survey by Marche Polytechnic University and Cerved database. Family successions include those management changes (177) where the new CEO was related (by blood or marriage) to a departing CEO or to the founder. The dependent variable is a profitability measure (ROA and ROS) that refers to a three-year window before (-3,-1) and after (+1,+3) each transition (year 0). Results for ROA are reported in column 1 and for ROS in column 2. The independent variables are (or are calculated as, in the case of interaction): *After*, a dummy variable equal to one for each of the three years after the change of management, and zero otherwise; *Good performers*, a dummy variable equal to one for firms whose performance (relative to the mean at the level of 3-digit SIC, area, and size-class) is above the median value of the sample; *Mean ROA or ROS*, computed at level of 3-digit SIC (sector), area, and size-class (using a three classes breakdown as: 10-49, 50-199, 200+ employees); *Age*, the natural logarithm of firm's age. Year and firm fixed-effects are included. ** = significant at 1% level. * = significant at 10% level (based on T-statistics from heteroskedasticity-consistent standard errors).

Table 6a
Family succession and firm's performance using matched firms: ROA.

Variable	ROA				
	Family Successions		Family Successions (only Good Performers)		
After	0.37	0.38	2.31**	2.05**	0.48
After * Family	-1.00**	1.29**	-1.27**	-0.36	-2.09**
After * Family * Good performers		-4.51**		-1.72**	
After * Good performers			-3.26**	-2.82**	
Mean ROA	0.43**	0.46**	0.51**	0.51**	0.60**
Age	0.81	0.71	0.92	0.87	1.03
Year effects	yes	yes	yes	yes	yes
Firm fixed-effects	yes	yes	yes	yes	yes
Control firms	yes	yes	yes	yes	yes
Number of successions	177	177	177	177	87
Number of observations	1,062	1,062	1,062	1,062	522
Adjusted R-Square	0.08	0.09	0.11	0.11	0.15

The table presents the results of matched firm fixed-effect regressions for the sample of family successions (177). The sample of firms originated using the Survey by Marche Polytechnic University and Cerved database. Family successions include those management changes where the new CEO was related (by blood or marriage) to a departing CEO or to the founder. The dependent variable is a profitability measure (ROA) that refers to a three-year window before (-3,-1) and after (+1,+3) each transition (year 0). The independent variables are (or are calculated as, in the case of interactions): *After*, a dummy variable equal to one for each of the three years after the change of management, and zero otherwise; *Family*, a dummy variable equal to one for firms in which family succession occurs; *Good performers*, a dummy variable equal to one for firms whose performance (relative to the mean computed at the level of 3-digit SIC, area, and size-class) is above the median value of the sample; *Mean ROA*, computed at level of 3-digit SIC, area, and size-class (using a three classes breakdown as: 10-49, 50-199, 200+ employees); *Age*, the natural logarithm of firm's age. Year and firm fixed-effect are included. Performance-based control group-matching method: each sample firm (run by heirs after a family succession) is matched to each comparison firm (run by founders) with the same 3-digit SIC code, size-class, and located in the same area. The firm to be used as a comparative term is selected from only those firms whose performances in the year before the family succession are within ± 10 per cent of the sample firm's performance. If there are no matched firms, the procedure is repeated using all the firms with the same 3-digit SIC code and the same size-class, regardless of where they are located. Finally, a last step includes all firms with the same 3-digit SIC code, regardless of size-class and area. This procedure returned 561 control firms, for a total of 3,366 observations (561 firms for 6 years). The regressions include both the 177 sample firms and the 561 control firms. ** = significant at 1% level. * = significant at 10% level (based on T-statistics from heteroskedasticity-consistent standard errors).

Table 6b
Family succession and firm's performance using matched firms: ROS.

Variable	ROS				
	Family Successions		Family Successions (only Good Performers)		
After	-0.31	-0.33	1.03**	0.81*	-0.68
After * Family	-0.77**	1.19**	-0.79**	0.02	-1.56**
After * Family * Good Performers		-3.72**		-1.55**	
After * Good performers			-2.57**	-2.18**	
Mean ROS	0.44**	0.45**	0.48**	0.48**	0.65**
Age	0.60	0.59	0.41	0.34	0.60
Year effects	yes	yes	yes	yes	yes
Firm fixed-effects	yes	yes	yes	yes	yes
Control firms	yes	yes	yes	yes	yes
Number of successions	177	177	177	177	87
Number of observations	1,062	1,062	1,062	1,062	522
Adjusted R-Square	0.06	0.08	0.10	0.10	0.15

The table presents the results of matched firm fixed-effect regressions for the sample of family successions (177). The sample of firms originated using the Survey by Marche Polytechnic University and Cerved database. Family successions include those management changes where the new CEO was related (by blood or marriage) to a departing CEO or to the founder. The dependent variable is a profitability measure (ROS) that refers to a three-year window before (-3,-1) and after (+1,+3) each transition (year 0). The independent variables are (or are calculated as, in the case of interactions): *After*, a dummy variable equal to one for each of the three years after the change of control, and zero otherwise; *Family*, a dummy variable equal to one for firms in which family succession occurs; *Good performers*, a dummy variable equal to one for firms whose performance (relative to the mean computed at the level of 3-digit SIC, area, and size-class) is above the median value of the sample; *Mean ROS*, computed at level of 3-digit SIC, area, and size-class (using a three classes breakdown as: 10-49, 50-199, 200+ employees); *Age*, the natural logarithm of firm age. Year and firm fixed-effect are included. Performance-based control group-matching method: each sample firm (run by heirs after a family succession) is matched to each comparison firm (run by founders) with the same 3-digit SIC code, size-class and located in the same area. The selection of the firm to be used as a comparative term is carried out by selecting only those firms whose performance in the year before the family succession are within ± 10 per cent of the sample firm's performance. If there are no matched firms, the procedure is repeated using all firms with the same 3-digit SIC code and the same size-class, regardless of where they are located. Finally, a last step includes all firms with the same 3-digit SIC code, regardless of size-class and area. This procedure returned 561 control firms, for a total of 3,366 observations (561 firms for 6 years). The regressions include both the 177 sample firms and the 561 control firms. ** significant at 1% level. * significant at 10% level (based on T-statistics from heteroskedasticity-consistent standard errors)

Table 7
Family succession and firm's performance by industry characteristics: ROA and ROS

Variable	ROA				ROS			
After	2.05**	2.05**	2.00**	2.02**	0.81*	0.81*	0.80*	0.80*
After * Family	0.09	0.08	-0.16	-0.20	0.23	0.18	-0.02	-0.02
After * Family * Good performers	-1.78**	-1.78**	-0.89	-0.97	-1.56**	-1.55**	-1.31*	-1.43*
After * Good performers	-2.82**	-2.81**	-2.81**	-2.53**	-2.18**	-2.18**	-2.18**	-2.05**
After * Family * Good performers * Small size	-0.59				-0.28			
After * Family * Good performers * Medium-High tech sector		-0.80				-0.30		
After * Family * Good performers * Strong competition sector			-2.33**	-1.96**			-0.36	-0.26
After * Good performers * Strong competition sector				-0.61				-0.10
Mean ROA or ROS	0.51**	0.51**	0.51**	0.51**	0.48**	0.48**	0.48**	0.48**
Age	0.91	0.86	0.92	0.80	0.45	0.43	0.45	0.41
Year effects	yes	yes	yes	yes	yes	yes	yes	yes
Firm fixed-effects	yes	yes	yes	yes	yes	yes	yes	yes
Control firms	yes	yes	yes	yes	yes	yes	yes	yes
Number of successions	177	177	177	177	177	177	177	177
Number of observations	1,062	1,062	1,062	1,062	1,062	1,062	1,062	1,062
Adjusted R-Square	0.11	0.11	0.11	0.12	0.10	0.10	0.10	0.10

The table presents the results of matched firm fixed-effect regressions for the sample of family successions. The sample of firms originated using the Survey by Marche Polytechnic University and Cerved database. Family successions include those management changes (177) where the new CEO was related (by blood or marriage) to a departing CEO or to the founder. The dependent variable is a profitability measure (ROA and ROS) that refers to a three-year window before (-3,-1) and after (+1,+3) each transition (year 0). Results for ROA are reported in columns 1-4, and for ROS in columns 5-8. The independent variables are (or is calculated as, in case of interactions): *After*, a dummy variable that is equal to one for each of the three years after the change of control, and zero otherwise; *Family succession*, a dummy variable that is equal to one for firms in which family succession occurs; *Good performers*, a dummy variable that is equal to one for firms whose performance (relative to the mean computed at the level of 3-digit SIC, area, and size-class) is above the median value of the sample; *Mean ROA or ROS*, computed at level of 3-digit SIC, area, and size-class (using a three classes breakdown as: 10-49, 50-199, 200+ employees); *Age*, the natural logarithm of firm's age. Year and firm fixed-effect are included. The *Small size* variable is a dummy that is equal to one if the firm size (number of employees) is below the sample median value. The *Medium-High tech sector* variable is a dummy that is equal to one if the company belongs to high and medium-high technology sectors, and zero if it is in the medium-low or low technology group. Sectors are grouped according to the OECD four-groups classification of 3-digit SIC sectors according to their R&D intensity (high, medium high, medium low, low). The *Strong competition sector* variable is the 3-digit SIC industry Lerner index of competition developed by Aghion et al. (2005). The index is calculated as the average across the entire firm-level database for the period 1998-2002. Performance-based control group-matching method: each sample firm (run by heirs after a family succession) is matched to each comparison firm (run by founders) with the same 3-digit SIC code, size-class, and located in the same area. The selection of the firm to be used as a comparative term is carried out by selecting only those firms whose performance in the year before the family succession are within ± 10 per cent of the sample firm's performance. If there are no matched firms, the procedure is repeated using all firms with the same 3-digit SIC code and the same size-class, regardless of where they are located. Finally, a last step includes all firms with the same 3-digit SIC code and area. This procedure returned 561 control firms, for a total of 3,366 observations (561 firms for 6 years). The regressions include both the 177 sample firms and the 561 control firms. ** significant at 1% level. * significant at 10% level (based on T-statistics from heteroskedasticity-consistent standard errors).

References

- Adams R., Almeida H., Ferreira D. (2005), *Understanding the relationship between founder-CEOs and firm performance*, Available at SSRN: <http://ssrn.com/abstract=470145>.
- Aghion P., Bloom N., Blundell R., Griffith R., Howitt P. (2005), "Competition and innovation: an inverted U relationship", *Quarterly Journal of Economics*, Vol. 120, No. 2, 701-28.
- Anderson R.C., Reeb D.M. (2003), "Founding-family ownership and firm performance: evidence from the S&P 500", *Journal of Finance*, Vol. 58, 1301-28.
- Barber B.M., Lyon J.D. (1996), "Detecting abnormal operating performance: the empirical power and specification of test statistics", *Journal of Financial Economics*, Vol. 41, 359-99.
- Becker G.S., Tomes N. (1986), "Human capital and the rise and fall of families", *Journal of Labor Economics*, Vol. 4, 1-39.
- Bennedsen M., Nielsen K., Pérez-González F., Wolfenson D. (2007), "Inside the family firm: the role of families in succession decisions and performance", *Quarterly Journal of Economics*, Vol. 122, No. 2, 647-91.
- Bertrand M., Schoar A. (2006), "The role of family in family firms", *Journal of Economic Perspectives*, Vol. 20, No. 2, 73-96.
- Bloom N., Van Reenen J. (2006), *Measuring and explaining management practices across firms and countries*, CEP Discussion Paper No. 716, LSE.
- Burkart M., Panunzi F., Shleifer A. (2003), "Family firms", *Journal of Finance*, Vol. 58, No. 5, 2167-201.
- Caselli F., Gennaioli N. (2003), *Dynastic management*, NBER Working paper No. 9442.
- Davis J.H., Schoorman D.F., Donaldson, L. (1997), "Towards a stewardship theory of management", *Academy of Management Review*, Vol. 22, 20-47.
- Demsetz H., Villalonga B., (2001), "Ownership structure and corporate performance", *Journal of Corporate Finance*, Vol. 7, No. 3, 209-33.
- Fabbrini A., Micucci G. (2004), "Controllo familiare, struttura finanziaria e crescita delle imprese", *Rivista di Politica Economica*, Vol. 94, No. 9-10, 167-202.
- Giacomelli S., Trento S. (2005), *Proprietà, controllo e trasferimenti nelle imprese italiane. Cosa è cambiato nel decennio 1993-2003*, Temi di discussione, Banca d'Italia, No. 550.
- Gillan S. (2006), "Recent Developments in Corporate Governance: An Overview", *Journal of Corporate Finance*, Vol. 12, 381-402.
- Huson M.R., Malatesta P.H., Parrino R. (2004), "Managerial succession and firm performance", *Journal of Financial Economics*, Vol. 74, 237-75.
- Kimhi A. (1994), "Optimal timing of farm transferal from parent to child", *American Journal of Agricultural Economics*, Vol. 76, 228-36.
- La Porta R., Lopez de Silanes F., Shleifer A., Vishny R. (1999), "Corporate ownership around the world", *Journal of Finance*, Vol. 54, 471-517.

- Lazear E.P. (2002), *Leaders and Entrepreneurs: where they produce most value*, Working paper Hoover Institution and Graduate School of Business, Stanford University.
- Lazear E.P. (2005), *Entrepreneurship*, NBER Working paper, No. 9109.
- Lotti F., Santarelli E. (2005) “The Survival of Family Firms: The Importance of Control and Family Ties”, *International Journal of the Economics of Business*, Vol. 12, No. 2, 183-92.
- Maury B. (2006), “Family ownership and firm performance: Empirical evidence from Western European corporations”, *Journal of Corporate Finance*, Vol. 12, No. 2, 321-41.
- Miller D., LeBreton-Miller I. (2005), *Managing for the long run. Lessons in competitive advantage from great family business*, Harvard Business School, Boston MA.
- Miller D., Le Breton-Miller I., Lester R.H., Cannella A.A. (2007), “Are family firms really superior performers?”, *Journal of Corporate Finance*, Vol. 13, No. 5, 829-58.
- Miljkovic D. (1999), “Optimal timing in the problem of family farm transfer from parent to child: an option value approach”, *Journal of Development Economics*, Vol. 61, 543-52.
- Pérez-González F. (2006), “Inherited control and firm performance”, *American Economic Review*, Vol. 96, No. 5, 1559-88.
- Smith B., Amoako-Adu B. (1999), “Management succession and financial performance of family controlled firms”, *Journal of Corporate Finance*, Vol. 5, No. 4, 341-68.
- Villalonga B., Amit R. (2006), “How do family ownership, control and management affect firm value?”, *Journal of Financial Economics*, Vol. 80, 385-417.

RECENTLY PUBLISHED “TEMI” (*)

- N. 643 – *The producer service sector in Italy: Long-term growth and its local determinants*, by Valter Di Giacinto and Giacinto Micucci (September 2007).
- N. 644 – *Aggregazioni bancarie e specializzazione nel credito alle PMI: peculiarità per area geografica*, by Enrico Beretta and Silvia Del Prete (November 2007).
- N. 645 – *Costs and benefits of creditor concentration: An empirical approach*, by Amanda Carmignani and Massimo Omiccioli (November 2007).
- N. 646 – *Does the underground economy hold back financial deepening? Evidence from the Italian credit market*, by Giorgio Gobbi and Roberta Zizza (November 2007).
- N. 647 – *Optimal monetary policy under low trend inflation*, by Guido Ascari and Tiziano Ropele (November 2007).
- N. 648 – *Indici di bilancio e rendimenti di borsa: un’analisi per le banche italiane*, by Angela Romagnoli (November 2007).
- N. 649 – *Bank profitability and taxation*, by Ugo Albertazzi and Leonardo Gambacorta (November 2007).
- N. 650 – *Modelling bank lending in the euro area: A non-linear approach*, by Leonardo Gambacorta and Carlotta Rossi (November 2007).
- N. 651 – *Revisiting poverty and welfare dominance*, by Gian Maria Tomat (November 2007).
- N. 652 – *The general equilibrium effects of fiscal policy: Estimates for the euro area*, by Lorenzo Forni, Libero Monteforte and Luca Sessa (November 2007).
- N. 653 – *Securitisation and the bank lending channel*, by Yener Altunbas, Leonardo Gambacorta and David Marqués (November 2007).
- N. 654 – *The cyclical response of fiscal policies in the euro area. Why do results of empirical research differ so strongly?*, by Roberto Golinelli and Sandro Momigliano (January 2008).
- N. 655 – *What’s behind “inflation perceptions”? A survey-based analysis of Italian consumers*, by Paolo Del Giovane, Silvia Fabiani and Roberto Sabbatini (January 2008).
- N. 656 – *The effects of fiscal policy in Italy: Evidence from a VAR model*, by Raffaella Giordano, Sandro Momigliano, Stefano Neri and Roberto Perotti (January 2008).
- N. 657 – *Excess money growth and inflation dynamics*, by Barbara Roffia and Andrea Zaghini (January 2008).
- N. 658 – *R&D and market structure in a horizontal differentiation framework*, by Davide Fantino (January 2008).
- N. 659 – *Housing market spillovers: Evidence from an estimated DSGE model*, by Matteo Iacoviello and Stefano Neri (January 2008).
- N. 660 – *Real exchange rate volatility and disconnect: An empirical investigation*, by Riccardo Cristadoro, Andrea Gerali, Stefano Neri and Massimiliano Pisani (April 2008).
- N. 661 – *The effect of investment tax credit: Evidence from an atypical programme in Italy*, by Raffaello Bronzini, Guido de Blasio, Guido Pellegrini and Alessandro Scognamiglio (April 2008).
- N. 662 – *Accounting for sampling design in the SHIW*, by Ivan Faiella (April 2008).
- N. 663 – *Delayed privatization*, by Bernardo Bortolotti and Paolo Pinotti (April 2008).
- N. 664 – *Portfolio selection with monotone mean-variance preferences*, by Fabio Maccheroni, Massimo Marinacci, Aldo Rustichini and Marco Taboga (April 2008).
- N. 665 – *Directed matching with endogenous Markov probability: Clients or competitors?*, by Emanuela Ciapanna (April 2008).
- N. 666 – *What are borders made of? An analysis of barriers to European banking integration*, by Massimiliano Affinito and Matteo Piazza (April 2008).
- N. 667 – *Innovation driven sectoral shocks and aggregate city cycles*, by Andrea R. Lamorgese (April 2008).
- N. 668 – *On applying synthetic indices of multidimensional well-being: Health and income inequalities in selected EU countries*, by Andrea Brandolini (April 2008).
- N. 669 – *Values, inequality and happiness*, by Claudia Biancotti and Giovanni D’Alessio (April 2008).

(*) Requests for copies should be sent to:
 Banca d’Italia – Servizio Studi di struttura economica e finanziaria – Divisione Biblioteca e Archivio storico – Via Nazionale, 91 – 00184 Rome – (fax 0039 06 47922059). They are available on the Internet www.bancaditalia.it.

2005

- L. DEDOLA and F. LIPPI, *The monetary transmission mechanism: Evidence from the industries of 5 OECD countries*, European Economic Review, 2005, Vol. 49, 6, pp. 1543-1569, **TD No. 389 (December 2000)**.
- D. Jr. MARCHETTI and F. NUCCI, *Price stickiness and the contractionary effects of technology shocks*. European Economic Review, Vol. 49, 5, pp. 1137-1164, **TD No. 392 (February 2001)**.
- G. CORSETTI, M. PERICOLI and M. SBRACIA, *Some contagion, some interdependence: More pitfalls in tests of financial contagion*, Journal of International Money and Finance, Vol. 24, 8, pp. 1177-1199, **TD No. 408 (June 2001)**.
- GUISSO L., L. PISTAFERRI and F. SCHIVARDI, *Insurance within the firm*. Journal of Political Economy, Vol. 113, 5, pp. 1054-1087, **TD No. 414 (August 2001)**
- R. CRISTADORO, M. FORNI, L. REICHLIN and G. VERONESE, *A core inflation indicator for the euro area*, Journal of Money, Credit, and Banking, Vol. 37, 3, pp. 539-560, **TD No. 435 (December 2001)**.
- F. ALTISSIMO, E. GAIOTTI and A. LOCARNO, *Is money informative? Evidence from a large model used for policy analysis*, Economic & Financial Modelling, Vol. 22, 2, pp. 285-304, **TD No. 445 (July 2002)**.
- G. DE BLASIO and S. DI ADDARIO, *Do workers benefit from industrial agglomeration?* Journal of regional Science, Vol. 45, (4), pp. 797-827, **TD No. 453 (October 2002)**.
- G. DE BLASIO and S. DI ADDARIO, *Salari, imprenditorialità e mobilità nei distretti industriali italiani*, in L. F. Signorini, M. Omiccioli (eds.), *Economie locali e competizione globale: il localismo industriale italiano di fronte a nuove sfide*, Bologna, il Mulino, **TD No. 453 (October 2002)**.
- R. TORRINI, *Cross-country differences in self-employment rates: The role of institutions*, Labour Economics, Vol. 12, 5, pp. 661-683, **TD No. 459 (December 2002)**.
- A. CUKIERMAN and F. LIPPI, *Endogenous monetary policy with unobserved potential output*, Journal of Economic Dynamics and Control, Vol. 29, 11, pp. 1951-1983, **TD No. 493 (June 2004)**.
- M. OMICCIOLI, *Il credito commerciale: problemi e teorie*, in L. Cannari, S. Chiri e M. Omiccioli (eds.), *Imprese o intermediari? Aspetti finanziari e commerciali del credito tra imprese in Italia*, Bologna, Il Mulino, **TD No. 494 (June 2004)**.
- L. CANNARI, S. CHIRI and M. OMICCIOLI, *Condizioni di pagamento e differenziazione della clientela*, in L. Cannari, S. Chiri e M. Omiccioli (eds.), *Imprese o intermediari? Aspetti finanziari e commerciali del credito tra imprese in Italia*, Bologna, Il Mulino, **TD No. 495 (June 2004)**.
- P. FINALDI RUSSO and L. LEVA, *Il debito commerciale in Italia: quanto contano le motivazioni finanziarie?*, in L. Cannari, S. Chiri e M. Omiccioli (eds.), *Imprese o intermediari? Aspetti finanziari e commerciali del credito tra imprese in Italia*, Bologna, Il Mulino, **TD No. 496 (June 2004)**.
- A. CARMIGNANI, *Funzionamento della giustizia civile e struttura finanziaria delle imprese: il ruolo del credito commerciale*, in L. Cannari, S. Chiri e M. Omiccioli (eds.), *Imprese o intermediari? Aspetti finanziari e commerciali del credito tra imprese in Italia*, Bologna, Il Mulino, **TD No. 497 (June 2004)**.
- G. DE BLASIO, *Credito commerciale e politica monetaria: una verifica basata sull'investimento in scorte*, in L. Cannari, S. Chiri e M. Omiccioli (eds.), *Imprese o intermediari? Aspetti finanziari e commerciali del credito tra imprese in Italia*, Bologna, Il Mulino, **TD No. 498 (June 2004)**.
- G. DE BLASIO, *Does trade credit substitute bank credit? Evidence from firm-level data*. Economic notes, Vol. 34, 1, pp. 85-112, **TD No. 498 (June 2004)**.
- A. DI CESARE, *Estimating expectations of shocks using option prices*, The ICAFI Journal of Derivatives Markets, Vol. 2, 1, pp. 42-53, **TD No. 506 (July 2004)**.
- M. BENVENUTI and M. GALLO, *Il ricorso al "factoring" da parte delle imprese italiane*, in L. Cannari, S. Chiri e M. Omiccioli (eds.), *Imprese o intermediari? Aspetti finanziari e commerciali del credito tra imprese in Italia*, Bologna, Il Mulino, **TD No. 518 (October 2004)**.
- L. CASOLARO and L. GAMBACORTA, *Redditività bancaria e ciclo economico*, Bancaria, Vol. 61, 3, pp. 19-27, **TD No. 519 (October 2004)**.
- F. PANETTA, F. SCHIVARDI and M. SHUM, *Do mergers improve information? Evidence from the loan market*, CEPR Discussion Paper, 4961, **TD No. 521 (October 2004)**.

- P. DEL GIOVANE and R. SABBATINI, *La divergenza tra inflazione rilevata e percepita in Italia*, in P. Del Giovane, F. Lippi e R. Sabbatini (eds.), *L'euro e l'inflazione: percezioni, fatti e analisi*, Bologna, Il Mulino, **TD No. 532 (December 2004)**.
- R. TORRINI, *Quota dei profitti e redditività del capitale in Italia: un tentativo di interpretazione*, *Politica economica*, Vol. 21, 1, pp. 7-41, **TD No. 551 (June 2005)**.
- M. OMICCIOLI, *Il credito commerciale come "collateral"*, in L. Cannari, S. Chiri, M. Omiccioli (eds.), *Imprese o intermediari? Aspetti finanziari e commerciali del credito tra imprese in Italia*, Bologna, il Mulino, **TD No. 553 (June 2005)**.
- L. CASOLARO, L. GAMBACORTA and L. GUIISO, *Regulation, formal and informal enforcement and the development of the household loan market. Lessons from Italy*, in Bertola G., Grant C. and Disney R. (eds.) *The Economics of Consumer Credit: European Experience and Lessons from the US*, Boston, MIT Press, **TD No. 560 (September 2005)**.
- S. DI ADDARIO and E. PATACCHINI, *Lavorare in una grande città paga, ma poco*, in Brucchi Luchino (ed.), *Per un'analisi critica del mercato del lavoro*, Bologna, Il Mulino, **TD No. 570 (January 2006)**.
- P. ANGELINI and F. LIPPI, *Did inflation really soar after the euro changeover? Indirect evidence from ATM withdrawals*, CEPR Discussion Paper, 4950, **TD No. 581 (March 2006)**.
- S. FEDERICO, *Internazionalizzazione produttiva, distretti industriali e investimenti diretti all'estero*, in L. F. Signorini, M. Omiccioli (eds.), *Economie locali e competizione globale: il localismo industriale italiano di fronte a nuove sfide*, Bologna, il Mulino, **TD No. 592 (October 2002)**.
- S. DI ADDARIO, *Job search in thick markets: Evidence from Italy*, Oxford Discussion Paper 235, Department of Economics Series, **TD No. 605 (December 2006)**.

2006

- F. Buseti, *Tests of seasonal integration and cointegration in multivariate unobserved component models*, *Journal of Applied Econometrics*, Vol. 21, 4, pp. 419-438, **TD No. 476 (June 2003)**.
- C. BIANCOTTI, *A polarization of inequality? The distribution of national Gini coefficients 1970-1996*, *Journal of Economic Inequality*, Vol. 4, 1, pp. 1-32, **TD No. 487 (March 2004)**.
- L. CANNARI and S. CHIRI, *La bilancia dei pagamenti di parte corrente Nord-Sud (1998-2000)*, in L. Cannari, F. Panetta (a cura di), *Il sistema finanziario e il Mezzogiorno: squilibri strutturali e divari finanziari*, Bari, Cacucci, **TD No. 490 (March 2004)**.
- M. BOFONDI and G. GOBBI, *Information barriers to entry into credit markets*, *Review of Finance*, Vol. 10, 1, pp. 39-67, **TD No. 509 (July 2004)**.
- FUCHS W. and LIPPI F., *Monetary union with voluntary participation*, *Review of Economic Studies*, Vol. 73, pp. 437-457 **TD No. 512 (July 2004)**.
- GAIOTTI E. and A. SECCHI, *Is there a cost channel of monetary transmission? An investigation into the pricing behaviour of 2000 firms*, *Journal of Money, Credit and Banking*, Vol. 38, 8, pp. 2013-2038 **TD No. 525 (December 2004)**.
- A. BRANDOLINI, P. CIPOLLONE and E. VIVIANO, *Does the ILO definition capture all unemployment?*, *Journal of the European Economic Association*, Vol. 4, 1, pp. 153-179, **TD No. 529 (December 2004)**.
- A. BRANDOLINI, L. CANNARI, G. D'ALESSIO and I. FAIELLA, *Household wealth distribution in Italy in the 1990s*, in E. N. Wolff (ed.) *International Perspectives on Household Wealth*, Cheltenham, Edward Elgar, **TD No. 530 (December 2004)**.
- P. DEL GIOVANE and R. SABBATINI, *Perceived and measured inflation after the launch of the Euro: Explaining the gap in Italy*, *Giornale degli economisti e annali di economia*, Vol. 65, 2, pp. 155-192, **TD No. 532 (December 2004)**.
- M. CARUSO, *Monetary policy impulses, local output and the transmission mechanism*, *Giornale degli economisti e annali di economia*, Vol. 65, 1, pp. 1-30, **TD No. 537 (December 2004)**.
- A. NOBILI, *Assessing the predictive power of financial spreads in the euro area: does parameters instability matter?*, *Empirical Economics*, Vol. 31, 1, pp. 177-195, **TD No. 544 (February 2005)**.
- L. GUIISO and M. PAIELLA, *The role of risk aversion in predicting individual behavior*, in P. A. Chiappori e C. Gollier (eds.) *Competitive Failures in Insurance Markets: Theory and Policy Implications*, Monaco, CESifo, **TD No. 546 (February 2005)**.

- G. M. TOMAT, *Prices product differentiation and quality measurement: A comparison between hedonic and matched model methods*, Research in Economics, Vol. 60, 1, pp. 54-68, **TD No. 547 (February 2005)**.
- F. LOTTI, E. SANTARELLI and M. VIVARELLI, *Gibrat's law in a medium-technology industry: Empirical evidence for Italy*, in E. Santarelli (ed.), Entrepreneurship, Growth, and Innovation: the Dynamics of Firms and Industries, New York, Springer, **TD No. 555 (June 2005)**.
- F. Busetti, S. Fabiani and A. Harvey, *Convergence of prices and rates of inflation*, Oxford Bulletin of Economics and Statistics, Vol. 68, 1, pp. 863-878, **TD No. 575 (February 2006)**.
- M. CARUSO, *Stock market fluctuations and money demand in Italy, 1913 - 2003*, Economic Notes, Vol. 35, 1, pp. 1-47, **TD No. 576 (February 2006)**.
- S. IRANZO, F. SCHIVARDI and E. TOSETTI, *Skill dispersion and productivity: An analysis with matched data*, CEPR Discussion Paper, 5539, **TD No. 577 (February 2006)**.
- R. BRONZINI and G. DE BLASIO, *Evaluating the impact of investment incentives: The case of Italy's Law 488/92*. Journal of Urban Economics, Vol. 60, 2, pp. 327-349, **TD No. 582 (March 2006)**.
- R. BRONZINI and G. DE BLASIO, *Una valutazione degli incentivi pubblici agli investimenti*, Rivista Italiana degli Economisti, Vol. 11, 3, pp. 331-362, **TD No. 582 (March 2006)**.
- A. DI CESARE, *Do market-based indicators anticipate rating agencies? Evidence for international banks*, Economic Notes, Vol. 35, pp. 121-150, **TD No. 593 (May 2006)**.
- L. DEDOLA and S. NERI, *What does a technology shock do? A VAR analysis with model-based sign restrictions*, Journal of Monetary Economics, Vol. 54, 2, pp. 512-549, **TD No. 607 (December 2006)**.
- R. GOLINELLI and S. MOMIGLIANO, *Real-time determinants of fiscal policies in the euro area*, Journal of Policy Modeling, Vol. 28, 9, pp. 943-964, **TD No. 609 (December 2006)**.
- P. ANGELINI, S. GERLACH, G. GRANDE, A. LEVY, F. PANETTA, R. PERLI, S. RAMASWAMY, M. SCATIGNA and P. YESIN, *The recent behaviour of financial market volatility*, BIS Papers, 29, **QEF No. 2 (August 2006)**.

2007

- L. CASOLARO and G. GOBBI, *Information technology and productivity changes in the banking industry*, Economic Notes, Vol. 36, 1, pp. 43-76, **TD No. 489 (March 2004)**.
- M. PAIELLA, *Does wealth affect consumption? Evidence for Italy*, Journal of Macroeconomics, Vol. 29, 1, pp. 189-205, **TD No. 510 (July 2004)**.
- F. LIPPI and S. NERI, *Information variables for monetary policy in a small structural model of the euro area*, Journal of Monetary Economics, Vol. 54, 4, pp. 1256-1270, **TD No. 511 (July 2004)**.
- A. ANZUINI and A. LEVY, *Monetary policy shocks in the new EU members: A VAR approach*, Applied Economics, Vol. 39, 9, pp. 1147-1161, **TD No. 514 (July 2004)**.
- R. BRONZINI, *FDI Inflows, agglomeration and host country firms' size: Evidence from Italy*, Regional Studies, Vol. 41, 7, pp. 963-978, **TD No. 526 (December 2004)**.
- L. MONTEFORTE, *Aggregation bias in macro models: Does it matter for the euro area?*, Economic Modelling, 24, pp. 236-261, **TD No. 534 (December 2004)**.
- A. DALMAZZO and G. DE BLASIO, *Production and consumption externalities of human capital: An empirical study for Italy*, Journal of Population Economics, Vol. 20, 2, pp. 359-382, **TD No. 554 (June 2005)**.
- M. BUGAMELLI and R. TEDESCHI, *Le strategie di prezzo delle imprese esportatrici italiane*, Politica Economica, v. 3, pp. 321-350, **TD No. 563 (November 2005)**.
- L. GAMBACORTA and S. IANNOTTI, *Are there asymmetries in the response of bank interest rates to monetary shocks?*, Applied Economics, v. 39, 19, pp. 2503-2517, **TD No. 566 (November 2005)**.
- S. DI ADDARIO and E. PATACCHINI, *Wages and the city. Evidence from Italy*, Development Studies Working Papers 231, Centro Studi Luca d'Agliano, **TD No. 570 (January 2006)**.
- P. ANGELINI and F. LIPPI, *Did prices really soar after the euro cash changeover? Evidence from ATM withdrawals*, International Journal of Central Banking, Vol. 3, 4, pp. 1-22, **TD No. 581 (March 2006)**.
- A. LOCARNO, *Imperfect knowledge, adaptive learning and the bias against activist monetary policies*, International Journal of Central Banking, v. 3, 3, pp. 47-85, **TD No. 590 (May 2006)**.

- F. LOTTI and J. MARCUCCI, *Revisiting the empirical evidence on firms' money demand*, Journal of Economics and Business, Vol. 59, 1, pp. 51-73, **TD No. 595 (May 2006)**.
- P. CIPOLLONE and A. ROSOLIA, *Social interactions in high school: Lessons from an earthquake*, American Economic Review, Vol. 97, 3, pp. 948-965, **TD No. 596 (September 2006)**.
- A. BRANDOLINI, *Measurement of income distribution in supranational entities: The case of the European Union*, in S. P. Jenkins e J. Micklewright (eds.), *Inequality and Poverty Re-examined*, Oxford, Oxford University Press, **TD No. 623 (April 2007)**.
- M. PAIELLA, *The foregone gains of incomplete portfolios*, Review of Financial Studies, Vol. 20, 5, pp. 1623-1646, **TD No. 625 (April 2007)**.
- K. BEHRENS, A. R. LAMORGESE, G.I.P. OTTAVIANO and T. TABUCHI, *Changes in transport and non transport costs: local vs. global impacts in a spatial network*, Regional Science and Urban Economics, Vol. 37, 6, pp. 625-648, **TD No. 628 (April 2007)**.
- G. ASCARI and T. ROPELE, *Optimal monetary policy under low trend inflation*, Journal of Monetary Economics, v. 54, 8, pp. 2568-2583, **TD No. 647 (November 2007)**.
- R. GIORDANO, S. MOMIGLIANO, S. NERI and R. PEROTTI, *The Effects of Fiscal Policy in Italy: Evidence from a VAR Model*, European Journal of Political Economy, Vol. 23, 3, pp. 707-733, **TD No. 656 (December 2007)**.

2008

- S. MOMIGLIANO, J. Henry and P. Hernández de Cos, *The impact of government budget on prices: Evidence from macroeconomic models*, Journal of Policy Modelling, v. 30, 1, pp. 123-143 **TD No. 523 (October 2004)**.
- P. ANGELINI and A. Generale, *On the evolution of firm size distributions*, American Economic Review, v. 98, 1, pp. 426-438, **TD No. 549 (June 2005)**.
- P. DEL GIOVANE, S. FABIANI and R. SABATINI, *What's behind "inflation perceptions"? A survey-based analysis of Italian consumers*, in P. Del Giovane e R. Sabbatini (eds.), *The Euro Inflation and Consumers' Perceptions. Lessons from Italy*, Berlin-Heidelberg, Springer, **TD No. 655 (January 2008)**.

FORTHCOMING

- S. SIVIERO and D. TERLIZZESE, *Macroeconomic forecasting: Debunking a few old wives' tales*, Journal of Business Cycle Measurement and Analysis, **TD No. 395 (February 2001)**.
- P. ANGELINI, *Liquidity and announcement effects in the euro area*, Giornale degli economisti e annali di economia, **TD No. 451 (October 2002)**.
- S. MAGRI, *Italian households' debt: The participation to the debt market and the size of the loan*, Empirical Economics, **TD No. 454 (October 2002)**.
- P. ANGELINI, P. DEL GIOVANE, S. SIVIERO and D. TERLIZZESE, *Monetary policy in a monetary union: What role for regional information?*, International Journal of Central Banking, **TD No. 457 (December 2002)**.
- L. MONTEFORTE and S. SIVIERO, *The Economic Consequences of Euro Area Modelling Shortcuts*, Applied Economics, **TD No. 458 (December 2002)**.
- L. GUISO and M. PAIELLA., *Risk aversion, wealth and background risk*, Journal of the European Economic Association, **TD No. 483 (September 2003)**.
- G. FERRERO, *Monetary policy, learning and the speed of convergence*, Journal of Economic Dynamics and Control, **TD No. 499 (June 2004)**.
- F. SCHIVARDI e R. TORRINI, *Identifying the effects of firing restrictions through size-contingent Differences in regulation*, Labour Economics, **TD No. 504 (giugno 2004)**.
- C. BIANCOTTI, G. D'ALESSIO and A. NERI, *Measurement errors in the Bank of Italy's survey of household income and wealth*, Review of Income and Wealth, **TD No. 520 (October 2004)**.
- D. Jr. MARCHETTI and F. Nucci, *Pricing behavior and the response of hours to productivity shocks*, Journal of Money Credit and Banking, **TD No. 524 (December 2004)**.
- L. GAMBACORTA, *How do banks set interest rates?*, European Economic Review, **TD No. 542 (February 2005)**.

- R. FELICI and M. PAGNINI, *Distance, bank heterogeneity and entry in local banking markets*, The Journal of Industrial Economics, **TD No. 557 (June 2005)**.
- M. BUGAMELLI and R. TEDESCHI, *Le strategie di prezzo delle imprese esportatrici italiane*, Politica Economica, **TD No. 563 (November 2005)**.
- S. DI ADDARIO and E. PATACCHINI, *Wages and the city. Evidence from Italy*, Labour Economics, **TD No. 570 (January 2006)**.
- M. BUGAMELLI and A. ROSOLIA, *Produttività e concorrenza estera*, Rivista di politica economica, **TD No. 578 (February 2006)**.
- PERICOLI M. and M. TABOGA, *Canonical term-structure models with observable factors and the dynamics of bond risk premia*, **TD No. 580 (February 2006)**.
- E. VIVIANO, *Entry regulations and labour market outcomes. Evidence from the Italian retail trade sector*, Labour Economics, **TD No. 594 (May 2006)**.
- S. FEDERICO and G. A. MINERVA, *Outward FDI and local employment growth in Italy*, Review of World Economics, Journal of Money, Credit and Banking, **TD No. 613 (February 2007)**.
- F. BUSETTI and A. HARVEY, *Testing for trend*, Econometric Theory **TD No. 614 (February 2007)**.
- V. CESTARI, P. DEL GIOVANE and C. ROSSI-ARNAUD, *Memory for Prices and the Euro Cash Changeover: An Analysis for Cinema Prices in Italy*, In P. Del Giovane e R. Sabbatini (eds.), The Euro Inflation and Consumers' Perceptions. Lessons from Italy, Berlin-Heidelberg, Springer, **TD No. 619 (February 2007)**.
- B. ROFFIA and A. ZAGHINI, *Excess money growth and inflation dynamics*, International Finance, **TD No. 629 (June 2007)**.
- M. DEL GATTO, GIANMARCO I. P. OTTAVIANO and M. PAGNINI, *Openness to trade and industry cost dispersion: Evidence from a panel of Italian firms*, Journal of Regional Science, **TD No. 635 (June 2007)**.
- A. CIARLONE, P. PISELLI and G. TREBESCHI, *Emerging Markets' Spreads and Global Financial Conditions*, Journal of International Financial Markets, Institutions & Money, **TD No. 637 (June 2007)**.
- S. MAGRI, *The financing of small innovative firms: The Italian case*, Economics of Innovation and New Technology, **TD No. 640 (September 2007)**.