PERFORMANCE AND BEHAVIOR OF FAMILY FIRMS: EVIDENCE FROM THE FRENCH STOCK MARKET

David Sraer
INSEE-CREST-LEI and GREMAQ

David Thesmar
HEC School of Management

Abstract
This paper empirically documents the performance and behavior of family firms listed on the French stock exchange between 1994 and 2000. On the French stock market, approximately one third of the firms are widely held, whereas the remaining two thirds are family firms. We find that, in the cross-section, family firms largely outperform widely held corporations. This result holds for founder-controlled firms, professionally managed family firms, but more surprisingly also for firms run by descendants of the founder. We offer explanations for the good performance of family firms. First, we present evidence of a more efficient use of labor in heir-managed firms. These firms pay lower wages, even allowing for skill and age structure. We also find that descendants smooth out industry shocks and manage to honor implicit labor contracts. Second, we present evidence consistent with outside CEOs in family firms making a more parsimonious use of capital. They employ more unskilled, cheap labor, use less capital, pay lower interest rates on debt and initiate more profitable acquisitions. (JEL: G32, L25, J31)

1. Introduction

Although, since Berle and Means, financial economists have devoted a lot of attention to large, listed and widely held corporations, it turns out that most firms around the world have a dominant owner, in many instances the founding family.[1] In addition, founding families are often involved in the actual management of the

1. For example, La Porta, Lopez de Silanes, and Shleifer (1999) track ultimate ownership of a sample of firms listed in 27 rich countries with more than $500m market capitalization. They find that 50% of all firms in their global sample are family-controlled, and only 40% of them are widely held or controlled by widely held entities. In fact, widely held corporations are prevalent in the US, the UK, and Japan, whereas families predominate in most continental European countries. Focusing on these countries, Faccio and Lang (2002) find that more than 60% of all listed firms in France, Italy, and Germany are family firms.

firm. In our own sample, which comprises the set of all listed French firms, more than 60% of the firms are still managed by their founding family. Even among the largest US firms, Anderson and Reeb (2003) report that some 16% of their sample of S&P500 firms are still managed by their founders or descendants. Therefore, the premises of the Berle and Means model of the corporation where (1) the CEO is not an owner and (2) ownership is dispersed, do not apply to most firms around the world.

The relevant view on world capitalism is thus that the typical large listed firm is owned, and frequently managed, by a family. This new perspective calls forth a research agenda on the specific features of dynastic management and ownership. Do family firms maximize profit? Are they more prone to building family empire at the expense of minority shareholders? Are they too prudent, slow reacting? On the contrary, are they more cool-headed and better at avoiding fads? More generally, do they behave any differently from the widely held corporations that academics know so well?

To bridge this gap, this paper provides evidence on the performance and behavior of family firms in France. We believe the French example is of interest for two reasons. First, France is a continental European country, and as a consequence its financial institutions and history differ markedly from English-speaking countries, where most systematic studies on family firms have been conducted so far.[2] In particular, family firms are much more prevalent even among the largest firms and therefore much more representative of the economy than in the US. The second reason is that, in contrast to many continental European countries, France also has many widely held firms, which tend to be very much US-like managerial firms—no dominant owner and an entrenched management. This gives us access to a large enough control group to compare family firms with.

We collected data on some 1,000 corporations listed on the French stock market over the 1994–2000 period. Our panel has information on the firm (employment, corporate accounts, acquisitions, stock returns) and on the founding family (ownership, management). This data set is supplemented with information on acquisitions, stock returns, and detailed information on the wage bill and skill structure.

First, we provide cross-sectional evidence on the relative performance of family firms. Looking at accounting profitability, we find that family firms significantly outperform non-family firms. Consistently with the existing literature on "founder effects,"[3] we find evidence that founder-managed firms are very profitable. Also consistent with available evidence from the US (Anderson and Reeb 2003; Amit and Villalonga 2006), family firms run by an outside CEO outperform

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2.   For two recent exceptions, see Barontini and Caprio (2005) on Italy and Bennedsen, Nielsen, Pérez-González, and Wolfenzon (2007) on Denmark.

3.   See, for example, Adams, Almeida, and Ferreira (2005) and Fahlenbrach (2005).

widely held corporations. It thus seems that in France as in the US, families as large shareholders are, on average, good for performance. Much more surprisingly, we find that managers who are descendants of the firm's founder also tend to do better than non-family firms, and even marginally better than professional managers in our sample. Therefore, even if we set founders aside, family firms (whether or not run by a descendant) consistently outperform non-family firms in France. A causal interpretation of such cross-sectional evidence is difficult because only the best performing firms may be transmitted to heirs. A potential solution involves looking at transmissions of control in our data (as in Pérez-González 2006). Although we may have too few transitions in our sample to do statistically powerful tests, we nevertheless observe that (1) descendants typically do not inherit the management of the best firms and (2) descendants whose firms leave the stock market (de-list) do not systematically underperform. Endogeneity biases are thus not likely to be large in our sample.

We then try to understand these differences in performance by considering the various determinants of corporate performance. Higher labor productivity seems to be the most significant explanation for the higher performance of founder-managed corporations. Turning to the difference in performance between professionally managed and heir-managed family firms, we look separately at the management of labor and capital inputs.

First, family firms run by both professionals and descendants are paying, on average, lower wages. Nevertheless, this result could simply stem from a different workforce composition in these family firms, for example, a larger fraction of unskilled workers. To account for such a possibility, we match our firm-level data with employee-level social security records, which allows us to control for the labor force composition in experience, seniority, and occupations. We find that professional CEOs in family firms pay lower wages because they indeed employ less-skilled employees. On the contrary, even after controlling for their firm's skill structure, descendants still pay low wages. We also find that labor demand in heir-managed family firms responds significantly less to industry sales shocks, that is, that heir managers seem to be smoothing out employment across the business cycle. Overall, these results are consistent with a view of heir-managed family firms as providing their workers with long-term implicit insurance contracts. Such contracts allow them to pay lower wages for better skills. And indeed, heir-managed family firms exhibit, compared to professionally managed corporations, a higher level of labor productivity.

We then investigate differences in the management of capital. Professional CEOs pay lower interest rates on their debt and tend to operate at lower capital to labor ratios. Compared to heir-managed family firms, or even widely held corporations, large acquisitions made by outside CEOs destroy less shareholder value in the long run. Although astructural and thus to be interpreted with caution, the broad picture emerging from these results indicates that (1) outside CEOs bring

financial expertise to family ownership and are keener on avoiding the waste of capital, whereas (2) descendants have the managerial horizon necessary to commit to a protective employment policy and are rewarded by a larger labor productivity. We indeed report that, in our data, descendants tend to survive longer as CEOs than professional managers.

Our paper is thus a contribution to the emerging economics literature on family business. Most of this infant literature has, so far, focused on North-American firms and profitability comparisons. Among the various contributions (Anderson and Reeb (2003), Amit and Villalonga (2006), and Pérez-González (2006) for the US; Morck, Stangeland, and Yeung (2000) for Canada), the consensus is that founder-managed firms, as well as family firms run by an outside CEO outperform non-family firms. This is usually interpreted as evidence that the benefits of a large, long-term shareholder outweigh the costs of potential minority shareholders expropriation. The managerial quality of descendants is, however, a much more debated issue. Two cross-sectional studies on large US corporations in the 1990s (Anderson and Reeb 2003; Amit and Villalonga 2006) find opposite results. The difference in difference approach taken by Pérez-González (2006) suggests, however, that heirs may be worse managers than outside CEOs. Such an insight is confirmed by a recent paper by Bennedsen et al. (2007), which takes advantage of the richness of Danish data to carefully study causality. Our paper has the advantage to supplement these studies for a large country of continental Europe: we find that descendants do not do worse—even slightly better—than professional managers of family or widely held firms. As already emphasized, apart from the causal effect of family management, many selection, endogeneity, and simultaneity biases could yet be explaining this cross-sectional correlation.

More interestingly, our paper also complements the existing family firms literature by looking at effects of family ownership/management on other dimensions of firm behavior. Our robust finding that family firms pay lower wages is, to our knowledge, new to this literature. It is reminiscent of existing evidence on the relationship between wage levels and the separation of ownership and control in corporations. A decade-old literature recently surveyed by Bertrand and Mullainathan (1999), along with their own findings, indeed finds that managerial slack in organizations partly takes the form of higher wages among employees. The other novelty of our paper is the analysis on the difference in management styles between hired CEOs and descendants of the founders: the data are consistent, with outside CEOs bringing financial expertise and reducing the waste of capital and heirs being able to commit to long-term employment and therefore obtaining lower wages from their employees. Such results can be related to Bertrand and Schoar's (2003) analysis of American CEOs' management styles: they find strong differences between individuals in terms of investment policy, acquisition policy, and financing policy. In particular, MBA graduates tend to be more aggressive in terms of leverage and acquisition policy. Our own results

suggest that family management/ownership might be yet another dimension to explain such heterogeneity in management styles.[4]

This paper is structured as follows. Section 2 presents the data construction and describes its content. Section 3 provides more systematic evidence on corporate performance. Section 4 looks at differences in corporate behavior between family and non-family firms and between descendants and professional managers within family firms. Section 5 concludes.

2. Data Description

Our dataset is a panel of French listed firms over the 1994–2000 period. We restrict ourselves to non-financial, non–real estate firms. The construction of this data set uses five different sources. First, annual corporate accounts are retrieved from the DAFSA yearbooks. These books cover the set of all listed firms in France. These books also provide us with the identity of the management team, and the stakes held by the main shareholders. Second, we hand-collect information on family management and ownership for most of these firms using various sources (newspapers, firm Web sites, annual report, etc.). Third, we use social security records to retrieve firm level information on wages, occupational structure, age and seniority structure, and gender composition. Fourth, we collect information on the major corporate acquisitions realized by these firms over the 1994–2000 period. To do this, we use the French extract of SDC platinium, a worldwide database on corporate transactions. Fifth, we obtain stock prices for these listed firms from Euronext for the 1991–2002 period.

2.1. Family Business on the French Stock Market

Our definition of a family firm is very close to the one used by Amit and Villalonga (2006). We report a firm as a family firm when the founder or a member of the founder's family is a blockholder of the company. We also impose as an additional condition that this block represents more than 20% of the voting rights.[5] We refer to Appendix A.2 for more detailed explanations on the construction of our family firm variable.

Following Anderson and Reeb (2003), we then break down our sample of firms into four categories. All firms that are not family firms are called *widely held firms*. The listed firms that are controlled by widely held firms also belong to

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4.   In a similar vein, Bertrand et al. (2005) identify on Thai data a relationship between the nature and complexity of the family owning the firm and its performance.

5.   As it turns out, this additional condition is not very important as we had very few cases where family shareholders held less than 20% of the voting rights.

this category.[6] When a family firm is still managed by its founder, we refer to it as a *founder-managed family firm*. As is detailed in Appendix A, this category also entails firms owned and managed by a successful raider.[7] *Heir-managed family firms* are family firms where the current CEO is a descendant of the company's founder. Finally, when a family firm is run by an outside, professional CEO, we refer to it as a *professionally managed family firm*.

To be able to compute accounting profitability measures properly, we restrict our study to non financial, non–real estate companies. There are 2,973 observations in our panel (some 420 firms each year), for which we were able to retrieve the firm's family status.[8] Table 1 reports the fractions of the various types of firms in our panel. These fractions are computed without weight (line 1), weighted with book value of assets (line 2) and weighted using total employment, as reported in the accounting data (line 3).

As is apparent from Table 1, 70% of all firms present in the sample are family firms. This is a very large number, compared to what previous studies found for English-speaking countries. Looking at US-listed firms from the S&P500, Anderson and Reeb (2003) find 35% to be family-controlled companies, although they use a slightly different definition of family ownership. Looking at the largest 500 listed Canadian firms, Morck, Stangeland, and Yeung (2000) find a share of 50% of family firms. Our sample is more consistent with the investigations of

TABLE 1. Presence of family firms.

	All firms	Widely held firms	Family firms, managed by		
			Founder	Heir	Professional CEO
Fraction (non weighted)	1.00	0.29	0.31	0.24	0.16
Fraction (asset weighted)	1.00	0.65	0.08	0.11	0.16
Fraction (empl. weighted)	1.00	0.55	0.10	0.16	0.19
Observations	2,973	864	922	721	466

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details and sources.
Note: Line 1 gives the unweighted fraction of the different family status in our sample; line 2 gives the same fraction, but weights each observation by the book value of asset; line 3 weights the observations by total employment, as reported in the accounting data.

6.   As the results in Holderness and Sheehan (1988) suggest, firms controlled by a widely held firm and widely held firms themselves are not different in terms of both Tobin's Q and accounting rate of returns.

7.   This is where our classification differs somewhat from Anderson and Reeb's (2003), who focus on founding families. Hence, a successful raider would not count as a founder, and its firm would count as a widely held firm according to their categorization. Casual evidence indicates that in France, these raiders tend to have dynastic concerns, which explains our choice.

8.   Out of a total of 3,522: this means that in 16% of the cases, we were unable to categorize the firm's ownership or management.

Faccio and Lang (2002), who look at the ultimate ownership of listed firms in continental European countries: using various data sources, they find in 1997, for France, 64% of family firms. Thus, family ownership appears much more pervasive in France than in English-speaking countries, even Canada. The surprising fact is, however, that the bulk of these family firms is still founder-controlled, because these account for 31% of the total. In contrast, only 18% of all firms investigated by Morck, Strangland and Yeung in Canada are still managed by the initial entrepreneur. It seems that the French stock market may display more mobility than the sheer fraction of family firms might suggest. But the family status is also very persistent: heir-managed firms account for a large share of the total (24%) in the same proportion as widely held firms. Last, less than a fourth of all family firms are managed by a professional CEO: hence, even after the founder retires, the norm seems to be that an heir takes over control. Of course, the real importance of family firms is overstated by these figures. Lines 2 and 3 of Table 1 highlight the relative small size of family firms. In weighted terms, widely held firms account for almost two thirds of all firms. Founder-controlled corporations are especially small and only account for 10% of total employment.

2.2. Do Family Firms Differ from Other Firms?

Table 2 allows us to look for systematic differences between the four types of firms we have defined in the previous section. First, family firms grow, on average, much

TABLE 2. Characteristics of family firms.

	All firms	Widely held firms	Family firms, managed by		
			Founder	Heir	Professional CEO
Total Assets (bn euros)	2.3	5.2	0.6	1.0	2.3
Total Sales (bn euros)	1.9	3.8	0.4	1.1	2.8
Employment	10,489	22,184	3,845	7,685	14,537
Age (years)	62	66	32	84	70
Former SOE (fraction)	0.09	0.25	0.01	0.01	0.07
ROA	0.12	0.10	0.15	0.13	0.12
ROE	0.19	0.15	0.27	0.20	0.21
Market to Book	1.4	1.3	1.6	1.3	1.4
Sales growth	0.09	0.07	0.16	0.07	0.10
Dividend/profit	0.22	0.26	0.19	0.21	0.21
Debt/Assets	0.38	0.39	0.38	0.38	0.38

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details and sources.
Note: Column 1 provides summary statistics for all firms in the sample; columns 2–5 detail these statistics by family status. ROA is defined as the ratio of EBITDA to book value of total asset. ROE is defined as the ratio of earnings to book value of equity. Market to Book is defined as the sum of market capitalization and (book value asset minus book value of equity) divided by book value of total assets.

faster than non-family firms, but this is mostly due to the contribution of founder-managed corporations. For these corporations, sales growth stands around 16%, instead of 9% for the average listed firm. A similar picture arises for the ratio of market to book value of assets.[9]

In contrast, when we look at accounting profitability, all types of family firms do better than widely held firms. Founder-managed firms are the most profitable ones. That founders do better in terms of profits, growth, and valuation is consistent with the extensive literature documenting "founder effects" (see, for a survey, Adams, Almeida, and Ferreira (2005) and Fahlenbrach (2005)). In a cross section, founders tend to run firms with outstanding performance, the question being whether they are inherently good managers, or whether those founders who manage to keep control are only those who perform well. Using various instruments, Adams Almeida, and Ferreira suggest that selection issues are minor, and that almost all of the founder effect may be interpreted in a causal way. Using US data on listed firms, they find a founder effect on retrun on assets of around 3 percentage points in OLS regressions and of around 2 points when using their instruments. Our cross tabulation suggests it might be even larger in the French context, although a multivariate analysis needs to be run to estimate such an effect.

Even when we set founders aside, family firms are still more profitable than widely held corporations, although to a lesser extent. The result is particularly striking for return on equity (ROE[10]) but is also present when we look at returns on assets (ROA[11]). This is not too surprising as far as professionally managed family firms are concerned, as these companies have the advantage of having large, long term shareholders. Anderson and Reeb (2003) and Amit and Villalonga (2006) find similar results in the cross-sections of their sample of large US-listed firms. For France, the concern could be that large shareholders might be using their voting rights to pursue value-destroying projects that grant them private benefits. Results from Table 2 suggest that the benefits from monitoring outweigh these potential costs of expropriation. Finally, the main surprise from Table 2 is that family firms run by descendants also outperform widely held corporations in terms of profitability. The existing literature on large US firms provides mixed evidence: although Anderson and Reeb (2003) have similar results, Amit and Villalonga (2006) and Pérez-González (2006) exhibit opposite ones. In Canada, Morck, Strangeland, and Yeung (1998) find that heir-managed Canadian firms underperform all other types of firms. Overall, the balance of evidence from North American studies tilts in the direction of underperforming heir management.

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9.   Market to book is measured as the sum of market capitalization and (book value asset minus book value of equity) divided by book value of total assets.

10.   ROE is defined as the ratio of earnings to book value of equity.

11.   ROA is defined as the ratio of EBITDA to book value of total assets.

The obvious problem with the univariate approach, however, is that family status in cross tabulations may be a proxy for other variables, notably age and size. That family firms are smaller than non-family firms is confirmed by an examination of Table 2, which also provides a comparison of the various types of firms in terms of size, age, and capital structure. On all accounts, widely held firms are much larger than family firms, and slightly older too. This conceals, however, a great heterogeneity between family firms. For example, family firms run by an outside CEO are those who resemble the most widely held firms, both in terms of age and size. Firms run by descendants are on average smaller, but older than the average corporation in our sample. As expected, firms still run by their founders are young and very small.

3. Multivariate Evidence

Given that family firms tend to have a different age and size than widely held firms, it is necessary to conduct a multivariate analysis. Our empirical strategy follows the approach taken by Anderson and Reeb (2003) in their cross-sectional analysis of US family firms.

3.1. Empirical Strategy

We estimate the following equation, for firm i at date t:

$$y_{it} = \alpha + \beta_1 F_{1i} + \beta_2 F_{2i} + \beta_3 F_{3i} + \gamma X_{it} + \varepsilon_{it}, \tag{1}$$

where y_{it} is a measure of corporate performance (based on accounts, market value, or dividend payout). $F_i = (F_{i1}, F_{i2}, F_{i3})$ is our family status variable, broken down into three dummy variables representing founder-controlled (F_1), heir-controlled (F_2), and professionally managed (F_3), the widely held firm being our reference. F_i varies little with time, so we cannot identify firm fixed effects with this equation. As argued previously, this is a major concern if we want to interpret our results in a causal way; we will therefore try to avoid it and will postpone the discussion on endogeneity and selection. Given the absence of firm fixed effects, the best we could do was to allow for flexible correlation across residuals ε_{it} of a given firm, using White's (1980) method.

The X_{it}'s are various, possibly time-varying, controls. They include year dummies, 13 industry dummies, the firm's log assets, and the firm's log age. As further control, we also add a dummy equal to 1 when the firm has been, at some point, state-owned. As it turns out, 25% of now widely held firms used to be government enterprises (that were nationalized in 1936, in 1945, or in 1981). Privatizations started when the Right came back to power in 1986–1988, and after 1993, under

both left-wing and right-wing governments. Many of these privatizations took place through IPOs on the stock market, in order to ensure political support from the population and to increase the size and depth of the French stock market. As it may be the case that widely held firms underperform because they face difficulties to adjust to privatization, we need to control for this in our regressions.

We also add other controls, which can be both causes and effect of corporate performance. We will thus not comment on them because they are highly endogenous; yet, we include them to replicate the regressions run by Anderson and Reeb (2003) on their US sample and also because they could be argued to be correlated with both family status and corporate performance. To control for the effect of ownership concentration—which is likely to be correlated with the presence of a family among shareholders—we add the percentage of cash flow rights held by the largest shareholder (and its square, in unreported regressions). Using our data on stock prices, we also include the variance of past stock returns as a proxy for firm specific risk.[12] We also include firm leverage, measured by the ratio of debt to total assets. A theoretical reason for this additional control is, for instance, Jensen's (1986) theory of free cash flows, which generates a positive correlation between leverage and performance, debt being used as a disciplining device. On the contrary, high debt could also be the result of bad performance. As it turns out, leverage comes out significantly negative in most performance regressions, which lends more credence to the second mechanism.

3.2. Family Firms Outperform Widely Held Firms

We focus on four different measures of corporate performance. We use three measures of accounting profitability: ROA (defined as EBITDA divided by book value of total assets), ROE (defined as earnings divided by book value of equity), and the payout ratio (defined as dividends divided by pre-tax profit—computed only for firms with positive pre-tax profit). We also look at a measure of market valuation, the market to book ratio (defined as the sum of market capitalization and (book value of asset minus book value of equity) divided by book value of total assets).[13] Table 3 reports two sets of regressions. In columns 2, 4, 6, and 8, we report the regressions of corporate performance on the explanatory variables as in equation (1). In columns 1, 3, 5, and 7, we group all family firms dummies together into one single "family ownership" dummy. This amounts to assuming that all management arrangements in family firms have an equal effect on performance, that is, $\beta_1 = \beta_2 = \beta_3$.

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12. As, for instance, families could simply be more profitable because they undertake riskier projects.

13. Market to book is therefore a mesure of the market value of assets, though the lower quality of our consolidated accounts does not allow us to obtain as clean a measure as in US studies using COMPUSTAT.

TABLE 3. Performance of family firms.

	Return on assets (×100)		Return on equity (×100)		Market to book		Dividend to profit (×100)	
Family firm	1.7*** (0.6)	–	9.6*** (1.7)	–	0.08* (0.05)	–	−5.5*** (1.8)	–
Founder CEO	–	1.8*** (0.8)	–	10.3*** (2.2)	–	0.15*** (0.06)	–	−7.6*** (2.3)
Heir CEO	–	1.9*** (0.7)	–	9.4*** (1.9)	–	0.04 (0.06)	–	−4.8** (2.1)
Professional CEO	–	1.5*** (0.7)	–	9.0*** (1.9)	–	0.06 (0.06)	–	−4.8** (2.0)
Log (Assets)	−.3*** (0.1)	−.4*** (0.1)	1.7*** (0.5)	1.6*** (0.5)	0.03** (0.01)	0.03*** (0.01)	−0.9** (0.4)	−1.0** (0.4)
Log(Firm Age)	−.6** (0.3)	−.7*** (0.3)	−4.0*** (0.8)	−3.8*** (0.9)	−0.13*** (0.03)	−0.11*** (0.03)	1.9*** (0.9)	1.4 (0.9)
Former SOE	−0.9 (0.7)	−1.0 (0.7)	1.0 (2.4)	1.0 (2.4)	−0.19** (0.09)	−0.18** (0.09)	1.7 (2.0)	1.5 (1.9)
Fraction equity of largest block	0.4 (1.0)	0.4 (1.0)	3.4 (2.8)	3.4 (2.8)	−0.04 (0.08)	−0.04 (0.09)	1.9 (3.1)	2.0 (3.1)
Debt/Assets	−9.2*** (1.2)	−9.3*** (1.2)	−15.6*** (4.4)	−15.8*** (4.4)	−0.55*** (0.09)	−0.56*** (0.09)	2.0 (3.5)	2.3 (3.5)
Stock return volatility	−8.1*** (1.9)	−8.2*** (1.9)	−16.5*** (5.7)	−16.4*** (5.7)	−0.75*** (0.12)	−0.73*** (0.13)	1.6 (6.8)	1.2 (6.8)
Industry FE	yes	yes	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes	yes	yes
Heir = Professional		.65		.79		.84		.98
Observations	2,325	2,325	2,329	2,329	2,248	2,248	1,138	1,138
Adj. R^2	.22	.22	.13	.13	.24	.23	.09	.10

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details on data construction and sources.

Note: Huber-White-Sandwich estimates, allowing for correlation of all observations of a given firm. Dependent variables are ROA (column 1 and 2), ROE (column 3 and 4), Market to book ratio (market capitalization plus (book value of assets minus book value of equity) divided by book value of total assets – column 5 and 6) and pay-out ratio (dividends divided by pre-tax profits – column 7 and 8). Family firms is a dummy indicating family ownership (column 1, 3, 5, 7). Founder CEO is a dummy indicating that the CEO is the founder of the firm. Heir CEO is a dummy indicating that the CEO is a descendant of the founder. Professional CEO is a dummy indicating that the CEO has been hired by the controlling family. Other explanatory variables are Log(Assets) (logarithm of the book value of total asset), Log(Firm Age) (logarithm of firm age measured in years plus one), Former SOE (dummy equal to 1 if the firm is a former state owned enterprise), Fraction equity of largest block (cash-flow right of the largest identified shareholder), Debt/Asset (leverage ratio), Stock return volatility (standard deviation of the firm's stock price). These regressions control for 13 industry fixed effects (Industry FE) and year fixed effects (Year FE). Line "Heir = Professional" provides the p-value of an equality test between the coefficient "Heir CEO" and "Professional CEO."

Standard errors are in parentheses.

* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

We first turn to accounting measures of performance. A quick examination of Table 3 shows that family firms outperform non-family firms in our sample of listed firms (columns 1 and 3). The difference in ROA is 1.7 percentage points and the difference in ROE is as high as 9.6 percentage points. These differences are both statistically significant and economically large, because the sample standard deviation is 8 points for ROA and 23 points for ROE. Looking at columns 2 and 4, we see that the over-performance of family firms is present for all types of management. Both founders and outside CEOs working in family firms outperform widely held companies by, respectively, 1.8 and 1.5 points of ROA and 9.4 and 9.0 points of ROE. More surprisingly, heir-managed family firms are also more profitable than widely held companies, by 1.9 percentage points of ROA. So all sub-categories of family firms outperform to a similar extent a benchmark of widely held firms. As it turns out, a test of equality is far from being rejected (F probability $= 0.81$). These results are extremely robust and hold in front of various specification checks, like removing various subsets of the control variables (not reported), running the regressions separately for each year (Table C1), and controlling for firm diversification (Table C2).

Our results are strikingly consistent with what Anderson and Reeb (2003) found for the US. Looking at ROA, they find that founder-controlled firms outperform widely held firms by 3.5 percentage points—compared to 1.8 in our sample. Secondly, in their study, heir-controlled firms outperform widely held corporations by 2 percentage points, exactly as in ours. Last, and still in line with our results, professionally run firms only outperform the control group by 1 point of ROA, which is not statistically significant in their analysis. In contrast to Anderson and Reeb, we thus find that professional managers are very similar to the rest of the family group. Last reference to the cross-sectional analysis in the literature, our results are completely at odds with Morck, Stangeland, and Yeung's (1998) evidence from Canadian firms, although they adopt a similar sample construction. Indeed, Morck, Stangeland, and Yeung find that heirs are the worse performers of all firms, whether family-controlled or widely held. Moreover, in their sample, even founders are outperformed by widely held corporations. This very last result in their study is surprising in light of the extensive "founder effect" literature mentioned earlier.

We then ask how, in the French context, the stock market prices the over-performance of family firms. As it turns out, not much (see columns 5 and 6). The difference in market to book ratios between family and non-family firms is not statistically significant, and economically small (0.08 for a sample standard deviation of 0.7). This result does, however, conceal some heterogeneity between family firms. Founder-managed firm have higher market-to-book (MB) ratio than widely held and other family firms: Their MB ratio is 0.15 above widely held companies, and significantly so. Family firms managed by a descendant of the founder or outside CEO do as well as the benchmark, neither better nor worse.

This result stands in sharp contrast with our robust findings from accounting measures of performance.

A potential reason for this insignificant difference may be that family firms tend to pay fewer dividends. One reason why this should be the case is that families seek to keep more internal funds to fund their pet projects (the expropriation hypothesis).[14] We thus run in columns 7–8 similar regressions using the ratio of dividend to earnings as a dependent variable (defined only when corporate pre-tax profits are positive). The pay-out ratio is indeed significantly lower by almost 6 points for all family firms taken together. This is economically sizeable given that the sample average pay-out ratio is 20 points. When we look at all three subcategories of family firms separately, we see that they all tend to pay a significantly lower proportion of their profits as dividends. The extent to which they do so is similar (a formal F test cannot reject equality), but it seems that founders tend to pay out less than other types of family firms. This may be due to growth opportunities, but when we include sales growth as a control, this difference remains unchanged.[15]

Another possible reason is the difference in how returns covary with the market return, namely, that family firms have higher betas. It is often argued that family firms have a "long-term" management policy. Such a view would state that, compared to non-family firms, family companies invest less in booms, more in recessions and, for instance, commit to job preservation, such that they hoard labor in bad times, and hire less in good times. Therefore, the amount of money distributed to shareholders of family firms would be lower in downturns, and larger in upturns, implying a larger beta for family firms. Because they pay more when other assets have large returns, they are less valuable, which depresses the MB ratio of family firms. Using our monthly stock returns data, we estimated, on the 1991–2002 period, betas for firms which do not change family status over the 1994–2000 period. We then regressed these estimated betas on family status, controlling for size, age, industry, and book leverage (results available from the authors). Apart from founders, who tend to have higher betas, other family firms do not show systematic differences with widely held corporations. Differences in betas are, apparently, not the explanation to the low valuation of family firms.

A last, more daring, explanation for this discrepancy between profitability and stock market valuation could be that the market has been mistakenly punishing family firms over the period. This would be consistent with the stock market

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14.   Since 1967, the French tax system is a priori neutral with respect to dividend taxation. A complex system of tax credit makes the tax rate on corporate profits equal to income tax for shareholders. Also, capital gains are taxed like income. So there is no obvious fiscal reason for which family firms would want not to pay dividends to themselves.

15.   Regressions not reported here but available from the authors.

returns evidence by Van der Heyden (2004) on the largest listed firms: He find excess returns for a buy-and-hold portfolio of family stocks as large as 10% over the 1994–2000 period. Therefore, either the market has misunderstood the potential held by family firms at the time, or it overestimated future returns of non-family firms, many of them recently privatized by the government. Given that Van der Heyden does not use the same breakdown as we use, nor the same sample, this remains, however, a conjecture.

3.3. Discussion on Endogeneity Biases

The cross-sectional evidence we have presented, though robust and compelling, cannot be interpreted as evidence of a causal effect of family ownership/management on performance. A first, obvious, reason is that family status depends itself on performance. The performance of professionally managed firms—be they widely held or family-controlled—could be underestimated in a cross-section if it were easier to transfer corporate control to a descendant when the firm performs well. This would create a simultaneity bias. To address this concern, we look at firms who are transmitted to descendants, two years before this transmission. Due to the limited time frame of our panel, we only find 30 such events. Nevertheless, these firms do not outperform their industry prior to transmission (see Table 4). Thus, descendant managers do not seem to inherit the best firms in our sample. Then, we focus on family firms that were transmitted to professional managers (21 events). They tend to slightly, but not significantly, underperform their industry benchmark prior to transmission (see Table 4). Thus, it does not appear obvious that only the best firms remain managed by the family, although the number of transitions we base our analysis on is too small to obtain a sufficient statistical power.

TABLE 4. Management transitions.

Industry-adjusted ROA	Before transition	After transition	Change in adjusted ROA
Firms transmitted to Heir CEO			
Mean	−0.00	−0.01	−0.01
Student's t	(.01)	(.01)	(0.61)
Number of observations	30	30	30
Firms transmitted to Professional CEO			
Mean	−0.03	−0.04	−0.01
Student's t	(.02)	(.02)	(0.44)
Number of observations	21	21	21

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details on data construction and sources.

Note: This table displays the evolution of industry-adjusted performance for family firms whose control is transmitted to heir or professional CEO. "Before transition" represents two years before the transition; "After transition" represents two years after the transition.

A more straightforward way to control for firm unobserved heterogeneity and its possible correlation with family status would be to look at the change in performance when the firm is transmitted to an heir and when it is transmitted to a professional manager, and to compare the difference in performance changes. This is the approach taken by Pérez-González (2006) in his study of US firms. In our sample, it turns out that both heirs and professional CEOs tend to reduce the firm's ROA to the same extent (around −.01, as is obvious from Table 4). Consequently, the difference in difference estimator of the effect of heir management upon firm performance is nearly zero, and statistically insignificant. Once again, the number of transitions is likely to be too small to make realistic statistical statements.

A second source of upward bias is endogenous sample selection. Assume, for example, that heir-controlled firms who do badly have a higher tendency to go bankrupt, or to be sold out to a large group or private equity investors. In this case, the only heir-managed firms who would survive would be those who do relatively well, which would lead us to overestimate their performance. To check if this is the case, we look at the profitability of all types of firms prior to de-listing. From 1994 to 1999, we observe 142 de-listings in our data: 25 founder-controlled, 26 heir-controlled, and 22 professionally managed family firms de-listed over the period. Prior to de-listing, exiting firms have in general a level of profitability very similar to that of remaining firms. The only sizeable difference comes from heirs: Staying heirs underperform those who go private by 3 percentage of industry adjusted ROA. This is economically significant and almost statistically so. This suggests that endogenous attrition, if anything, leads to underestimating, rather than overestimating, the performance of heir-managed firms.[16]

4. Management Styles in Family Firms

This section seeks to explain how different types of family firms achieve better performance. We start with a simple breakdown of profitability (ROA) that allows us to attribute differences in ROA to productivity, wage, or capital intensity differences. We find that founders overperform because they are more productive, heirs because they pay lower wages. Professionals seem to operate with less capital.

We then confirm these findings using other sources of data. Even after controlling for skill structure, it turns out that heirs pay lower wages. This may be due to heirs being able to insure their workers against adverse industry shocks. Indeed, they have, on average, a longer horizon than professional CEOs. Moreover, we

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16.   A similar bias could be that the exchange authorities require a better performance—or a more transparent governance—from family firms when they want to go public. Hence, entry in our sample would induce an upward selection bias: only the best family firms are listed. We looked at the first-year-of-listing profitability of heir-managed firms, compared to an industry benchmark. It was not any different from the first performance of other categories.

also find that sales and employment in heir-managed firms adjust less to industry shocks. Professional managers, in contrast, are better in finance: They pay lower interest rates on their debt and make acquisitions that are more profitable in the long run.

4.1. Breaking Down Corporate Performance

This section seeks to explain the cross-sectional differences in profitability shown in Table 3. To shed light on the determinants of profitability, we first use the following decomposition of ROA:

$$ROA = (L/A) \times (Y/L - w). \tag{2}$$

L/A represents labor intensity and is measured as the ratio of the number of employees to book value of total assets. Y/L represents labor productivity and is measured as the ratio of value added (i.e., total sales less non-labor costs of inputs) to the number of employees. Finally, w represents the average wage paid to employees and is measured as total labor costs divided by the number of employees. Unsurprisingly, firms are more profitable when other things equal, (1) their production process uses less capital, (2) labor productivity is higher, and (3) wages are lower. Of course, all these variables are jointly determined: capital intensity depends on the relative prices of labor and capital, labor productivity depends on organization, on the amount of capital per workers, and on the skill composition of the workforce. Finally, w is the outcome of a bargaining process involving capitalists and workers, both of them considering their outside options on the capital and labor markets respectively, but also corporate performance as a whole. Therefore, we are not attempting here to perform a structural estimation of the behavior of family firms, but simply taking a first step at understanding the causes of family firms' greater profitability.

We use equation (2) to break down the conditional difference in ROA between family and non-family firms (exhibited in Table 3) into conditional differences in productivity, wage, and capital intensity.

Simple algebra (see Appendix B, equation (B.1)) shows that the unconditional difference in average ROA between family and non-family firms can be re-written as

$$\Delta ROA = \overline{ROA}_F - \overline{ROA}_{NF}$$

$$= \underbrace{\overline{(L/A)}_F \Delta(Y/L)}_{\text{unconditional difference in productivity}} - \underbrace{\overline{(L/A)}_F \Delta w}_{\text{unconditional difference in wage}} \tag{3}$$

$$+ \underbrace{\overline{(Y/L - w)}_{NF} \Delta(L/A)}_{\text{unconditional difference in capital intensity}} + \underbrace{\Delta[\text{Cov}((L/A), (Y/L) - w)]}_{\text{difference in covariance}}.$$

Thus, the unconditional difference in mean ROAs can be exactly re-written as the sum of four terms. In addition to the three obvious effects (labor productivity, wage, and labor intensity differences), we need to include the difference in the covariance of L/A (i.e., labor to capital ratio) and $Y/L - w$ (i.e., value added per worker minus average wage) for family and non-family firms. This last term is a direct by-product of the non linearity of equation (2).

Equation (3) provides us with a simple relation between the unconditional means of the different ratios to explain the unconditional difference in performance. However, the differences in profitability observed from Table 3 are computed conditional on observables. Moreover, we are interested in the contribution of conditional rather than unconditional differences in labor productivity, wage and labor intensity to total performance, as we do not want to capture effects stemming from differences in observables. To make the link between the estimates of Table 3 and these conditional differences, we show in Appendix B that we need to include a fifth term to equation (3), which indeed captures the effect of differences in observable characteristics across types of firms. We then obtain a simple relationship between the performance coefficients estimated in Table 3 and the conditional differences in labor productivity, wage, and labor intensity. The detail of this derivation is given in Appendix B.

Table 5 reports, for each family status, the contributions to corporate performance of all five effects (productivity, wage, capital intensity, covariance, effect of observables). The first line looks at the components of the difference in ROA between founder-run firms and non-family firms. As it turns out, the difference (2.6 percentage points out of 2.1) can be mostly explained by a difference in productivity. The second line looks at the spread between heirs and widely held firms: In this case, the bulk of the effect is accounted for by differences in wage levels (2.7 percentage points out of 2.2). Finally, the third line of Table 5 compares professional CEOs in family firms to non-family firms. Here the picture is a little more complex: professional CEOs pay lower wage, but the benefit to investors is more than compensated by a lower productivity. We will make sense of this pattern in the next section. In fact, professional CEOs achieve superior

TABLE 5. Contributions to firm performance.

ROA coming from ...	Higher L/K ratio	Lower wage	Higher labor productivity	Difference in observables	Low covariance	Total
Founder CEO	−.003	0.4	2.6	−0.2	−0.7	2.1
Heir CEO	−.002	2.7	−0.6	−0.6	1.0	2.2
Professional CEO	.015	3.6	−4.7	0.2	1.4	1.7

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details and sources.

Note: This table breaks down the difference in performance between family firms and widely held firms, using the decomposition presented in equation (B.2) in Appendix B. Each column presents one of the coefficients of equation (B.2), for each family status.

performance because they run their operations with lower capital to labor ratios, not because they pay lower wages.

The broad picture emerging from Table 5 seems to indicate that (1) founders tend to display a larger productivity of labor than non-family firms, (2) both hired and descendants CEOs in family firms pay wages that are sizeably lower than widely held firms, and (3) the productivity of labor is much lower in firms run by professionals, but (4) professionals compensate somehow by running operations with higher labor to capital ratios. These results are fully confirmed both quantitatively and statistically, when we run separate regressions of labor productivity, average wage, and capital intensity on family status and controls. These regression results are not reported to save space.

In the following sections, we seek to go deeper in our understanding of these differences, by looking more precisely at both employment and investment policies.

4.2. Family Firms Pay Lower Wages

The main feature of Table 3 is that heir and professionally managed family firms pay wages that are lower by 10% than those paid by widely held firms. A potential explanation for these lower wages could be that family firms simply hire less-skilled employees, but pay the market wage. Part of this effect is likely to be captured by industry effects, but there may be intra-industry variations in the skill structure of firms. To check this, we matched our data set of listed firms with employer tax files which report, in theory, limited information on each employee, of each company (for a thorough description of these files, see Abowd, Kramarz, and Margolis 1999). In fact, the matching is far from perfect for three reasons. First, given that the French workforce has some 25 million employees, and our limitations of computing power, we use an extract of the whole database (4%). Secondly, many employees are likely to work for a subsidiary of the listed firm present in our data. We thus need to track ownership relation between various subsidiaries of a same group in order to "consolidate" employment and wages. We do this with a survey (LIFI, INSEE), which is, by design, far from being exhaustive below a given threshold, in particular for new firms. Third, the data were available only until 1998 included.

Thus, when the information is available, the employer tax files provide us, for each firm, with the average annual wage and measures of the skill structure that would normally take place in individual wage regressions. We use the share of male employees, their mean seniority and age, and finally the fractions of managers, supervisors, skilled employees, and unskilled workers. We then regress this new measure of mean wage, at the firm level, on our family variable, on the firm level controls of Table 3 and on these additional controls of skill structure.

Table 6 reports the estimates of such regressions. In column 1, we simply use aggregate wage bill and employment figures from our accounting data and report an estimated wage discount in both professionally and heir-managed family firms of around 10%. In column 2, we run the same regression, using the average wage from the tax files instead of accounting data. We obtain similar estimates

TABLE 6. Wages in family firms: accounting for skill structure.

	Log(wage bill/empl.) ($\times 100$)				
	Acc. Data	Employer Tax files			
	(1)	(2)	(3)	(4)	(5)
Founder CEO	−0.3	−10.6***	−6.4***	−2.8	−7.8***
	(4.8)	(4.2)	(2.3)	(2.2)	(2.4)
Heir CEO	−10.0**	−14.0***	−5.2***	−4.3**	−3.8**
	(4.5)	(3.7)	(2.0)	(1.9)	(1.6)
Professional CEO	−9.4**	−10.3***	−4.1*	−2.5	−1.9
	(4.7)	(4.0)	(2.3)	(2.2)	(1.6)
Fraction of managers	–	–	110.8***	107.7***	111.7***
			(7.6)	(6.1)	(5.4)
Fraction of supervisors	–	–	35.3***	36.2***	47.6***
			(5.8)	(5.6)	(7.1)
Fraction of skilled employees	–	–	−7.9	4.0	14.9***
			(4.9)	(5.0)	(5.7)
Mean age	–	–	–	1.2***	0.2
				(0.2)	(0.2)
Mean seniority	–	–	–	0.5**	1.9***
				(0.2)	(0.3)
Fraction of male employees	–	–	–	8.4**	2.0
				(4.2)	(5.7)
Log(Assets)	1.72*	1.88***	2.12***	1.52***	−.14
	(1.00)	(.77)	(.43)	(.42)	(.35)
Log(Firm Age)	−1.35	.16	2.78***	.93	−.04
	(1.80)	(1.32)	(.94)	(.94)	(.84)
Former SOE	13.7***	5.45	4.64**	2.39	4.24***
	(5.64)	(4.04)	(2.37)	(2.09)	(1.53)
Industry FE	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes
Observations	1,351	1,427	1,427	1,427	1,427
Adjusted R^2	.29	.25	.64	.68	.85

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details on data construction and sources.

Note: Huber-White-Sandwich estimates allowing for correlation of all observations of a given firm. Column 1 regresses, on the sub-sample for which the employer tax files are available, the log of the average wage as measured with the DAFSA Yearbooks on family status and various controls (i.e., Log(Asset), Log(Firm Age), and Former SOE defined in Table 3). Columns 2 performs the same regression using the measure of wage given by the employer tax files. Column 3 adds variables controlling for the skill structure of the workforce (fraction of managers, fraction of supervisors, fraction of skilled employees). Column 4 controls additionally for mean age, mean seniority, and the fraction of male employees. Finally, column 5 weights observations by the number of workers retrieved in the tax files. All the regressions control for 13 industry fixed effects as well as year fixed effects.

Standard errors are in parentheses.

* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

for descendant and professionally managed firms (10%), but a lower estimate for founder-managed firms. The reason for such a discrepancy comes from a different size-wage relation in founder firms: In unreported regressions,[17] we see that wages in large founder firms are significantly lower than in small founder firms, whereas such a relation does not hold for other types of firms. Considering the fact that the DADS files over-represent the importance of large firms,[18] this explains why the founder coefficient in column 2 differs from the one in column 1.

In columns 3 and 4, we include the skill structure controls progressively. As is apparent from these two columns, the wage discount of professionally managed firms vanishes, which suggests that family firms run by outside CEOs pay lower wages mostly because they have younger and less-skilled workers. The discount remains, however, significantly different from zero for heir-managed firms. It thus seems that descendants manage to pay wages lower by 4–5%, even after controlling for the firm skill structure. In column 5, we run the same regressions as in column 4, except that we now weight observations by the number of workers retrieved in the tax files. The reason why we do this is that the average wage is more precisely estimated when more workers are tracked using the tax files. As it turns out, the significant wage discount in heir-managed firms sustains. As one can also notice, the coefficient on founder-managed firms becomes significantly lower than it was in column 4. This is not surprising because, as we mentioned earlier, large founder-managed firms pay significantly lower wages than small founder-managed firms.

That outside CEOs in family firms hire lower-skilled workers may explain why, in these firms, labor productivity is much lower than in widely held corporations and other family firms (as is apparent from Table 5). Another possibility is that professional CEOs substitute unskilled labor to capital, to make invested capital more profitable. It is indeed obvious from Table 5 that outside CEOs appear to have a much lower capital to labor ratio than that of other types of firms. Such evidence is consistent with professional CEOs in family firms making a more parsimonious use of capital than descendants or widely held companies.

This preliminary analysis suggests that family firms may be achieving higher profits by two different means: (1) descendants manage to pay lower wages for similar skill and productivity and (2) outside CEOs make a more parsimonious use of capital. We provide further evidence consistent with these two hypotheses in the following sections.

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17. These regressions are available from the authors upon request.

18. This over-representation of large firms in the DADS sample comes from the LIFI files (see Appendix A.3), which mostly tracks ownership for large firms.

4.3. Descendants Can Commit on Long-Term Employment

How do descendant CEOs succeed in paying lower wages, without recruiting low skill workers, and still obtain a high level of labor productivity? We explore here a lead inspired by Shleifer and Summers (1988): dynastic management endows the family with enough credibility to enforce implicit contracts. Under implicit labor contracts, the firm promises that most workers will keep their jobs even if total sales decrease. The firm thus provides employment insurance to its employees. In exchange for this, workers accept a lower wage, or to work harder for the same wage. Because the employee is risk averse (his labor supply is not diversified), and the firm is risk neutral, in the absence of credit constraints the arrangement is ex ante value creating. The problem with this theory is that usually, firms are not credible when making such promises. Their incentive to renegotiate ex post is too strong, in particular when the firm can easily be taken over by a management which is not bound by such a commitment (Shleifer and Summers). Families might have an advantage in enforcing this type of contract. First, they have a longer horizon than salaried managers: dynastic management can therefore create value that would be destroyed—both ex ante and ex post—by delegated management. Second, provided the family is involved in management, a culture irrationally tying top management to employees might prevent job losses in bad time, even if they were dynamically optimal. Although this destroys ex post profit, it creates value ex ante (Kreps 1990). Third, because families own the firm, they may be able to commit without fear of being taken over ex post. Professional managers who are not owners completely lack this ability to commit.

We test this by looking at the sensitivity of firm employment to industry sales shocks. A possible concern with this approach is that our sample period is short (1994–2000). It contains only one cycle, with 1994–1996 being downturn years, and 1997–2000 being expansion years. Therefore, industry-level sales shocks, because they are partly determined by aggregate shocks, will capture the upward trend of the economy over the period. If family and non-family firms turn out to follow different trends of growth over this short period, we might attribute this movement to different responses in sales shocks.

To avoid this, we control for aggregate shocks, and allow firms to vary in their responses to economy-wide shocks. More precisely, we estimate the following model:

$$\log Y_{it} = \alpha_i + \beta(X_{it}) \log sales_{st} + \gamma(X_{it})\delta_t + \varepsilon_{it}, \qquad (4)$$

where Y_{it} stands for firm i's total employment or sales at date t, α_i is a firm fixed effect, $\log sales_{st}$ is the log of total sales of the industry the firm i is in, and δ_t

is a year dummy indicating economy wide sales shocks.[19] $\beta(X_{it})$ and $\gamma(X_{it})$ are elasticities to industry and economy wide shocks, which are supposed to depend on firms observables. We posit

$$\beta(X_{it}) = a + bF_i + c \log age_{it} + d\text{SOE}_i,$$
$$\gamma(X_{it}) = a' + b'F_i + c' \log age_{it} + d'\text{SOE}_i,$$

where F_i is the set of our family dummies, age_{it} is the firm's age, and SOE equals 1 when the firm has been state-owned.

As discussed previously, because $\log sales_{st}$ partly depends on the overall state of the economy, it may well be that $\log sales_{st}$ and δ_t are correlated. If we omit $\gamma(X_{it})\delta_t$ in equation (4), we may capture a part of $\gamma(X_{it})$ in the estimate of the sensitivity of employment to shocks (the βs). If, for some other reason, family firms have grown faster over the late 1990s, and therefore have a larger γ, then the estimate of β for family firms will be upward biased. This is why we control for aggregate shocks.

Estimation results are shown in Table 7. Columns 1 and 2 study the response of firms' sales to industry shocks, and columns 3 and 4 look at employment. For industry s at date t, $\log sales_{st}$ uses average sales for all companies in the industry, except firm i. We take average sales, instead of total sales, in order to account for attrition: If an average firm in the industry de-lists, our measure of industry sales will not be affected. Finally, we restrict ourselves to industries where at least 20 firms are present, to have a precise estimate of average sales. Columns 1 and 3 assume that $c' = d' = 0$, and columns 2 and 4 relax these constraints.

A look at columns 2 and 4 shows that indeed, employment reacts less to industry shocks in heir-managed firms. The result is not present unless we control for firms' characteristics and especially the Former SOE dummy. This is not very surprising as there are reasons to believe that former SOEs also exhibit this pattern of labor hoarding and less volatile activity. Because most widely held firms are former SOEs, not including a control for Former SOE creates a composition effect that brings the reference group (widely held firms) artificially close to the group of interest (heir-managed firms).

Heirs may be able to smooth out employment over the industry cycle, either (1) by choosing less risky projects or (2) by modifying their own mark-up across the cycle. Columns 1–2 suggest that the first explanation might be true, as firms'

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19. We choose not to run directly a difference on difference equation because the fixed effect specification allows us to be much more agnostic on the timing of response of employment growth to sales growth. Assume for example that our model is slightly mis-specified in the following way: employment does not react to contemporary sales, but to sales lagged by one year. In this case, the fixed effect estimate is going to capture most of the effect by comparing the firm's average employment before and after the sales shock. In contrast to this, the difference estimate is not going to see any correlation given that in the very year sales change, employment remains fixed. Hence, although we prefer the fixed effect estimate of equation (4), it must be clear that what we have in mind is the response of employment changes to industry shocks.

TABLE 7. Do family firms smooth employment shocks?

Dependant variable	log $sales_{it}$		log $employment_{it}$	
	(1)	(2)	(3)	(4)
log $sales_{st}$	0.20	0.17	0.36*	0.34*
	(0.15)	(0.16)	(0.20)	(0.21)
log $sales_{st}$	−0.05	−0.08	−0.12	−0.20
× Founder CEO	(0.08)	(0.08)	(0.13)	(0.13)
log $sales_{st}$	−0.17**	−0.21***	−0.22**	−0.27**
× Heir CEO	(0.07)	(0.07)	(0.11)	(0.11)
log $sales_{st}$	0.04	0.04	0.07	0.01
× Professional CEO	(0.11)	(0.12)	(0.14)	(0.13)
log $sales_{st}$	−0.18**	−0.21**	−0.22**	−0.16
× Former SOE	(0.09)	(0.09)	(0.11)	(0.11)
log $sales_{st}$	0.00	0.01	−0.05	−0.03
× log age.	(0.03)	(0.04)	(0.03)	(0.04)
Firm FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Year FE × Founder	no	yes	no	yes
Year FE × Heir	no	yes	no	yes
Year FE × Professional	no	yes	no	yes
Year FE × SOE	no	yes	no	yes
Year FE × log age	no	yes	no	yes
Test Heir = Professional	.04**	.04**	.01***	.01***
Observations	1,977	1,977	1,898	1,898
Adjusted R^2	.97	.98	.97	.97

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details on data construction and sources.

Note: Huber-White-Sandwich estimates allowing for correlation of all observations of a given firm. Dependent variables are log of sales (column 1 and 2) and log of employment (column 3 to 4). log $sales_{st}$ is the log of average sales in industry s at date t. Column 1 and 3 estimate equation (4) assuming that $c' = d' = 0$. Column 2 and 4 relax all the constraints. All regressions control for firm fixed effects as well as industry fixed effects. Line Heir = Professional provides the p value of a test of equality between the coefficients Heir CEO and Professional CEO.

Standard errors are in parentheses.

* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

sales are much less sensitive—not at all, it turns out—to industry shocks in heir-managed firms. In fact, if we use firms' profitability as a dependent variable (Y_{it}), we find—in unreported regressions—that firms' profitability is not more sensitive to industry shocks in family firms managed by a descendant.

Results from Table 7 could also be explained by the fact that heir-managed firms tend to operate in "niches" that are relatively sheltered from competition. The argument is a selection effect. Founders start firms in any kind of industry, but their descendants have lower than average managerial ability. If product market competition is soft, descendants can continue to run the firm. If the environment is competitive, descendants, with their lower than average managerial ability, cannot survive. They have to hire professional managers, or sell their firms altogether to public or private investors. Because they self-select into niche

markets, descendants thus run more stable firms, both in terms of employment and sales. Because competition is softer, the firms they run are more profitable. This view has two consequences: (1) heir-managed firms should be less present in competitive industries and (2) heir-managed firms should underperform in more competitive industries.

We look at these two empirical implications. First, we investigate whether family, in particular heir-managed, firms tend to operate in less competitive industries. We measure competition by computing an index of sales concentration at the industry level (an Herfindahl index). Due to data limitations, this measure is very crude as it uses a rough industry classification (14 categories) and sales of listed firms. Using this measure, we found that over the 1994–2000 period, 32% of non-family firms are in industries where competition is above median. The fraction raises to 52% for descendant-run family firms, and 51% for those run by a hired CEO. Using our crude measure of competition, there is slight evidence that descendants tend to operate more in competitive industries.

We then test whether heirs do worse in competitive industries, by comparing the heir effect in performance regression in competitive and in non competitive industries. In Table 8, we present the ROA regressions on family status, as specified in Table 7, columns 1 and 2. We split our sample into two parts: (1) industries whose 1994 Herfindahl is below median (competitive) and (2) industries whose 1994 Herfindahl is above median (non competitive). We find no difference: whatever the degree of competition, heirs outperform their competitors by approximately the same margin. All in all, the data provide little support for the fact that descendants only survive in "niche" markets, and that

TABLE 8. Performance of family firms and competition.

| | Return on assets ($\times 100$) | | | |
	Competition above median		Competition below median	
Family firm	1.6**		2.1**	
	(1.9)		(2.4)	
Founder CEO	–	1.4	–	2.3*
		(1.5)		(1.8)
Heir CEO	–	2**	–	1.8*
		(2.1)		(1.7)
Professional CEO	–	1.2	–	2.2**
		(1.1)		(2.1)
Observations	1,235	1,235	1,090	1,090
Adjusted R^2	.18	.18	.25	.25

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details on data construction and sources.

Note: Huber-White-Sandwich estimates, allowing for correlation of all observations of a given firm. Dependent variable is ROA (ratio of EBITDA to book value of asset). The specification used in this table is similar to Table 3. Columns 1 and 2 are estimated on industries with a 1994 Herfindahl below median (competitive). Columns 3 and 4 are estimated on industries with a 1994 Herfindahl above median (non competitive).

Standard errors are in parentheses.

* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

this relative protection from competition explains their performance. Both pieces of evidence should, however, be interpreted with caution, given the noisiness of our competition measure.

Although imperfect, these tests lend further credence to the first, slightly different, interpretation of Table 7: descendants "smooth out" industry shocks as part of their labor management policy. One possible reason why they could commit to long term labor contracts is that they, as managers, have a much longer horizon than professional CEOs. To see this, we look at CEO turnover, and ask whether it is lower in heir-managed family firms. We measure CEO turnover as a dummy equal to 1 if the current CEO does not run the company in the coming year. We then regress it on our family status variables and on usual determinants of CEO turnover such as corporate performance (measured as ROA or annual stock return), ownership concentration, firm size, age, year, and industry dummies (for a typical study of CEO turnover see for example Weisbach (1988)). We also add, as their governance is likely to be different, a dummy for former SOEs.

Linear regression results are reported in Table 9. Column 1 simply compares CEO turnover in family and non-family firms, accounting for year and industry fixed effects. As it turns out, CEO turnover is much lower when the family is still in the management. In founder and heir-managed firms, the probability of changing CEO is lower by some 9 percentage points than in widely held firms. This is a huge difference, given that the mean probability of CEO turnover is equal to 0.10 in our sample. When an outsider runs the family business, his chances to leave the job are lower by only 3 percentage points than if he ran a widely held company. The difference is not significant; it is, however, significant when we compare heirs and professional managers in family firms. In this simplified regression, we can reject with 95% confidence that heirs and outside CEOs in family firms face the same probability of turnover. The difference, some 5 percentage points, corresponds to some 4 years of additional tenure. Finally, columns 2 and 3 then ask whether this significant difference can be explained by differing firm characteristics. Including ROA as a right hand side variable reduces the difference between heirs and professionals a bit, and renders its estimate noisier and insignificantly different from zero. In this context, it is thus likely that slightly larger ROA within heir-managed firms (see Table 3) explains why CEO turnover is less frequent in these firms.

4.4. Outside CEOs Are More Financially Literate

We have seen previously that outside CEOs operate at lower ratios of capital to labor. We present here two further pieces of evidence consistent with the fact that professional managers make a more efficient use of capital.

TABLE 9. CEO turnover in family firms.

	CEO Turnover		
Dependent variable	(1)	(2)	(3)
Founder CEO	−9.8***	−8.7***	−9.3***
	(1.9)	(2.0)	(2.5)
Heir CEO	−7.7***	−7.2***	−9.4***
	(2.1)	(2.2)	(2.5)
Professional CEO	−3.0	−4.4*	−6.4**
	(2.6)	(2.4)	(2.7)
ROA	−	−0.5***	−0.4***
		(0.1)	(0.1)
Log(Assets)	−	−	0.5
			(0.5)
Log(Firm Age)	−	−	1.7
			(1.1)
Former SOE	−	−	−4.1
			(2.9)
Fraction equity of largest block	−	−	5.8
			(4.0)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Test Heir = Professional	0.05**	0.22	0.22
(p value)			
Observations	2,208	1,930	1,795

Source: Panel of French listed firms over the 1994–2000 period. See Appendix A for details on data construction and sources.

Note: Huber-White-Sandwich estimates, allowing for correlations of all observations of a given firm. CEO Turnover, the dependent variable, is a dummy equal to 1 if the CEO loses his position in the following year. Column 1 simply controls for the family status. Column 2 adds profitability (ROA) as a control. Column 3 adds Log(Assets), Log(Firm Age), Former SOE, and "Fraction equity of largest block" as additional controls. All regressions control for 13 industry and year fixed effects.

Standard errors are in parentheses.

* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

The first piece of evidence is related to the cost of debt. Using very clean data on bond issues, Anderson, Mansi, and Reeb (2003) find that, when compared to non-family firms, the corporate yield spread on family firms is consistently 30–40 basis points lower. They argue that, as family firms are long-term shareholders, they can commit more easily not to default, which reduces their risk premium. We run similar regressions to theirs and present the results in Table 10. Our measure of the cost of debt is, however, much noisier: because we do not have data on the bond yield spreads, we have to content ourselves with the ratio of interest paid to financial debt. This measure should be approximately equal to the average of all spreads on all loans and bonds, weighted by the sizes of the various issues. We then regress this average cost of debt on the same controls as Table 3, plus the firm's current profitability as measured by ROA. In our sample, we find that the average interest rate paid by family firms is on average lower by 30 basis

TABLE 10. Interest rate paid by family firms.

	Average interest on debt ($\times 100$)	
	(1)	(2)
Family firm	−0.3	–
	(0.6)	
Founder CEO	–	−0.1
		(0.6)
Heir CEO	–	0.5
		(0.8)
Professional CEO	–	−1.6**
		(0.7)
Log(Assets)	−0.5***	−0.4***
	(0.1)	(0.1)
Log(Firm Age)	−0.1	−0.1
	(0.3)	(0.3)
Former SOE	0.1	0.1
	(0.1)	(0.9)
Fraction equity	−0.2	−0.1
of largest block	(1.1)	(1.1)
Debt/Assets	−15.2	−15.3***
	(1.4)	(1.4)
Stock return	3.0*	2.7
volatility	(1.6)	(1.6)
ROA	−4.8	−5.3
	(5.6)	(5.6)
Industry FE	yes	yes
Year FE	yes	yes
Heir = Professional		.004***
Observations	2,200	2,200
Adjusted R^2	.22	.23

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details on data construction and sources.

Note: Huber-White-Sandwich estimates allowing for correlation of all observations for a given firm. The dependent variable is the average interest rate paid on debt. Column 1 and 2 control for Log(Assets), Log(Firm Age), Former SOE, fraction equity of largest block, leverage, stock return volatility and ROA (defined in Table 3). Both regressions also control for 13 industry fixed effects as well as year fixed effects. Column 1 controls for family ownership (Family firm) and column 2 controls for family management status (Founder CEO, Heir CEO, Professional CEO). Line Heir = Professional gives the p-value of an equality test between the coefficients Heir CEO and Professional CEO.

Standard errors are in parentheses.

* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

points, albeit not significantly so. Although imprecise, the order of magnitude is consistent with findings of Anderson, Mansi, and Reeb's (2003) study.[20] When we look at the various subcategories of family firms, we find that those run by

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20. A careful reader will notice that, in Table 10, the sign on leverage is negative. Anderson, Mansi, and Reeb (2003), who run similar regressions, find a positive correlation with leverage. Theoretically, both directions of correlation are possible: highly levered firms may have a higher cost of debt because of costs of financial distress, but low interest rate firms may wish to take on more debt. As it turns out, the difference between both studies can be traced back to the difference in the measure of interest rate. Using the same measure as ours on COMPUSTAT data, we found a negative and robust correlation between leverage and interest.

professional managers are the ones which pay significantly lower interest rates, by a huge 160 basis points. This is consistent with both the ability to commit of long term shareholders and the efficient financial management of professional CEOs.

Secondly, we look at the efficiency of a specific investment project: the acquisition of another firm. First, acquisitions are interesting because their profitability is relatively easy to evaluate. Most of the finance literature measures the profitability of a deal as the returns for long-run shareholders of the bidder. These long-run returns (3–5 years after deal completion) are then adjusted for risk using different models of expected returns (multi-factor models, benchmark firms, industry portfolios). In the past decade, this literature has made large strides in identifying the various biases that arise in such long run studies (for examples of recent contributions, see Lyon, Barber, and Tsai (1999) and Mitchell and Stafford (2000)). We will thus be able to build on this literature to compare the efficiency of acquisition policies of family and non-family firms.

The second reason why acquisitions are interesting is the large variability of their long-run performance. Over the long run, acquisitions were on average value-destroying in the 1980s (Rau and Vermaelen 1998) and in the 1990s (Moeller, Schlingemann, and Stulz 2005). However, these negative long-run stock returns are mostly due to large acquisitions (Moeller, Schlingemann, and Stulz), to friendly deals (Rau and Vermaelen) and to operations financed with share issues (Loughran and Vijh 1997). Hostile bids, small acquisitions financed with cash, are in general followed by positive long-run returns. These results suggest that some acquisitions—the large, friendly ones, financed with stock—are simply evidence of uncontrolled managerial hubris. Firms where corporate governance is poor, shareholders passive, and managers all-powerful engage in these spectacular deals to build their CEO's empire. In contrast, firms with sound governance, large shareholders, and profit-maximizing managers may engage in small deals or hostile bids that on average increase shareholder value.

We thus ask whether family firms make better acquisitions than non-family firms, by comparing the risk adjusted stock returns of bidders from 0 to 4 years after the deal completion. To do this, we match our data set with data on monthly stock returns from SDC platinium (see Appendix A.4 for further description of this source).

Before comparing the gains from acquisitions, we started by regressing the number of acquisitions made by each firm on our family dummies, along with year and industry controls, and find that descendant-managed family firms indeed make significantly fewer acquisitions. This effect does vanish, however, once we start controlling for firm size (using log assets). Founders, who tend to run very small firms, become the only ones to make more acquisitions

than the other categories of firms. One possibility is that founders make series of value enhancing, small acquisitions. As we will see below, this is not the case.

We then compare the efficiency of acquisitions policies for each type of firm. First, we take a "naive approach." For each date between 1 and 36 months after an acquisition, we compute the buy and hold return of holding the acquirer's stock from deal completion until that date. We then adjust this return for risk, by subtracting the bidder's expected return. Our model for expected returns is taken from Fama and French (1996). For each firm, we regress monthly stock returns on the time series of market return, SMB (the monthly excess return of small firms) and HML (the monthly excess return of value firms). We subtract the monthly rate on 10-year French treasury bills from stock returns and the market returns. These three factors proxy for risk dimensions that investors seem to value. The residual of this regression—the part of monthly return that is not explained by these three factors—is our measure of abnormal return. To estimate our model of expected returns, we use the pre-acquisition period as our estimation period, and then compute residuals on the post period. Given that we require at least 12 months of data before the transaction to estimate our models, we end up with 845 acquisitions for which we can compute abnormal returns in the month of acquisition.[21] After that, given natural attrition and right censorship in the panel (our returns data stop in October 2003), we can follow returns for only 595 transactions after 36 months.

Using our measure of abnormal returns, we then compute, for each deal, the firm's cumulative abnormal returns from 0 month after the acquisition is completed, until 36 months after. Although long- run performances of acquisition are highly heterogenous, the vast majority of US studies find that, on average, cumulative abnormal returns are negative in the long run. The same is true for our French sample, where the cumulative abnormal return of buying and holding a bidder's stock is, on average, -7%.

Figure 1 plots average cumulative returns to long-term shareholders who bought the acquirer's stock 12 months before the deal, until 36 months after the acquisition. Ninety percent confidence bands are drawn with dotted lines. We break down acquisitions into those made by non-family firms and those made by our three subcategories of family firms.[22] As it turns out, long-term shareholders of family firms run by professionals do not lose, or gain, any wealth. Acquisitions made by widely held companies are slightly value destroying, with long-run buy and hold returns averaging -5% after 2–3 years. Then come founder-managed

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21.   All types of firms are well represented: 262 acquisitions have been performed by widely held corporations, 191 by founders, 71 by heirs, and 125 by professional CEOs in family firms.

22.   Family status of the acquirer for each acquisition is defined at the time of acquisition. If, for instance, an acquisition is disclosed when a descendant is in command, but the firm becomes widely held the year after, the acquisition still counts as "heir-managed".
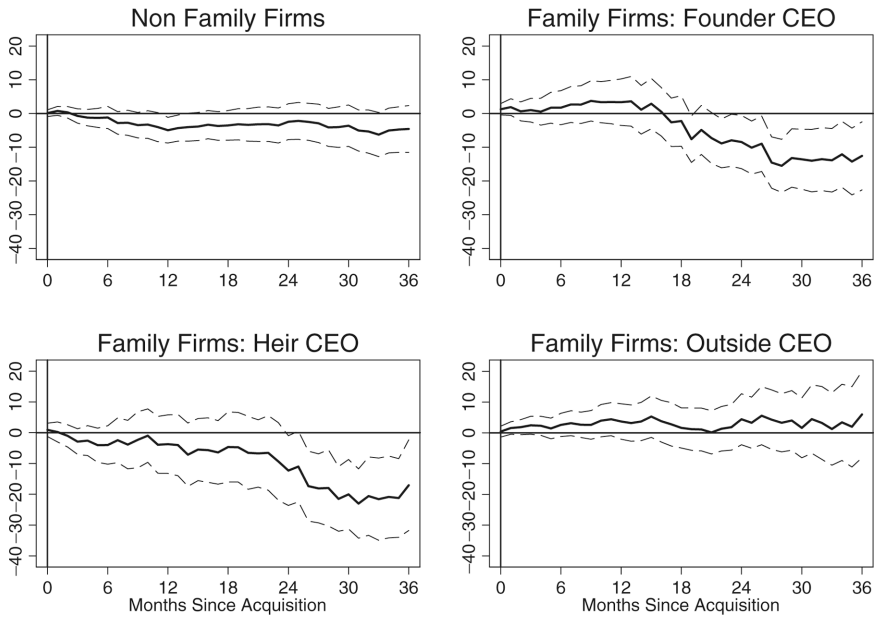
FIGURE 1. Post-acquisition abnormal returns of acquiring firms.

firms, whose acquisitions seem to destroy 15% after 2–3 years. The worse acquisitions are performed by descendants, whose long-term shareholders lose out a statistically significant 20% after 2–3 years.

Such evidence suggests that, within family firms, professional CEOs are better at making acquisitions than founders or their descendants. We provide the values of mean cumulative returns and formal t tests in Table 11. As it turns out, post acquisition, the long-run returns of founders and descendants are negative and statistically significant. This is not the case for firms run by professional CEOs, be they widely held or family-owned. As a result, within family firms, the performance of acquisitions made by heirs is significantly lower than that of hired CEOs. This confirms our contention that professional CEOs use capital more parsimoniously.

In the finance literature, the computation of mean long-run, buy-and-hold, and abnormal returns has, however, been criticized by Mitchell and Stafford (2000). They suggest that acquisitions are not independent events (they tend to occur in waves), and that, therefore, innovations on subsequent stock returns are correlated. As a result, standard t statistics on mean abnormal returns tend to overestimate their precision and lead to over-rejection of the null that abnormal returns are zero. In addition, the distribution of cumulative returns tend to be non normal (positively skewed), which invalidates standard t statistics. As a

TABLE 11. Abnormal returns to long-run shareholders of acquirers.

Months since acquisition	Widely held firms	Family firms, managed by			T-prob of test heir = professional
		Founder	Heir	Professional CEO	
0	0.1	1.3	0.9	0.4	
	(0.2)	(1.5)	(1.1)	(0.4)	0.71
+6	−1.2	1.7	−4.0	2.6	
	(0.7)	(0.7)	(1.3)	(1.3)	0.06*
+12	−5.0***	3.4	−3.7	3.7	
	(2.5)	(1.0)	(0.8)	(1.3)	0.17
+18	−3.5	−2.2	−4.6	−1.6	
	(1.6)	(0.6)	(0.8)	(0.5)	0.32
+24	−3.6	−8.5**	−12.3**	4.4	
	(1.2)	(2.1)	(2.1)	(1.0)	0.02**
+30	−2.4	−13.6***	−20.0***	1.6	
	(0.9)	(3.0)	(3.5)	(0.3)	0.01***
+36	−3.6	−12.6***	−17.0**	6.0	
	(1.2)	(2.4)	(2.3)	(0.8)	0.04**

Source: Panel of French listed firms, over the 1994–2000 period. See Appendix A for details on data construction and sources.

Note: OLS estimates. The dependent variable is cumulative abnormal returns. Explanatory variables are periods after (or before) completion of the acquisition. Column 1 gives long term abnormal returns for widely held firms, column 2 for family firms with a founder CEO, column 3 for heir-managed family firms and column 4 for professionally managed family firms. Column 5 provides an equality test for the coefficient of the regression in column 3 and 4. t-statistics are in parentheses.

* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

result, Mitchell and Stafford advocate the use of monthly calendar time portfolios. Such portfolios have the twin advantage of (1) aggregating the cross-sectional variance of returns, which reduces the correlation problem, and (2) being normally distributed, such that standard t statistics are reliable. Before proceeding to the results, notice that this approach is generally thought to be conservative; for instance, Lyon, Barber, and Tsai (1999) argue that it lacks power to detect long-run returns.

We compute the (equally weighted) monthly stock returns of portfolios made of bidders whose last acquisitions took place in the past 1, 2, 3, or 4 years. We then compute such portfolios for each type of family acquirers. The time window is January 1994–October 2003. Last, to test whether heirs make worse acquisitions than professional CEOs in family firms, we compute the return of a portfolio that is long in professional CEOs who are past bidders and short in descendant who are past bidders. These returns (minus risk-free rate) are then regressed on the three Fama–French factors. Table 12 reports the (monthly) alphas of these portfolios: the first line is for a portfolio containing all past bidders, the second line for all widely held bidders, the third line for founder bidders, the fourth line for all heir bidders, and the fifth line is for all professionally managed firms. The sixth line reports the alphas for portfolios long in professionals and short in heirs.

TABLE 12. Monthly alphas on calendar time portfolios of acquirers.

Portfolios of past bidders	Years since last acquisition			
	0–1 years	0–2 years	0–3 years	0–4 years
Long all firms	−0.2	−0.1	−0.3	−0.3
	(0.6)	(0.6)	(1.2)	(1.4)
Long non-family firms	−0.4*	−0.2	−0.3	−0.3
	(1.8)	(1.0)	(1.4)	(1.5)
Long Founder firms	0.0	−0.2	−0.2	−0.1
	(0.0)	(0.4)	(0.4)	(0.4)
Long Heir CEOs	−0.3	−0.2	−0.5	−0.6*
	(0.8)	(0.4)	(1.4)	(1.7)
Long Professional CEOs	0.2	0.1	0.0	−0.1
	(0.7)	(0.4)	(0.0)	(0.2)
Long Professional CEOs	0.9**	0.4	0.7**	0.7**
Short Heir CEOs	(2.2)	(1.0)	(2.0)	(2.0)

Source: Alphas on monthly calendar time portfolios whose returns are computed over 1994–2003. These portfolios are composed of all past bidders whose last transaction took place in the past 1, 2, 3, or 4 years. They are equally weighted and therefore, re-balanced every month. For each of these portfolios, monthly returns minus risk free rate are then regressed on the three Fama–French risk factors (market return minus risk free rate, small firm premium, the value premium) computed for France. The constants of these regressions are displayed on this table, with t statistics in parentheses.

* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

As expected, this conservative method provides results similar to cumulative returns, albeit statistically weaker. Post-acquisition returns for founders and descendants are still negative, but not significant any more (some 1–2% a year for founders, 3–4% for heirs). Post-acquisition returns of professionally managed family firms are weakly positive. Most importantly, within family firms, acquisitions made by heirs significantly underperform those made by professional CEOs. The "long in professional CEOs, short in heir CEOs" portfolio generates a large and significant 8% annual abnormal return. The last comparative result from Table 11 is therefore robust to the calendar time portfolio approach, in spite of its conservativeness.

5. Summary and Leads for Future Research

In this paper, we have sought to understand why family firms outperform non-family firms, and whether family firms have distinct "management styles." First, founders simply have larger labor productivity. This founder effect is very large, because it explains nearly all of the difference in profitability between founder firms and widely held corporations. This effect, though large, is very imprecisely estimated in regressions. This suggests that we may not have the most adequate model (or the adequate breakdown) to explain the performance of founder firms. However, our results confirm those of existing papers on founder effects.

Fortunately, we are able to say more about the management styles of other family firms.

Secondly, we have presented three pieces of evidence consistent with the fact that, thanks to their longer horizons, heirs can manage their labor force more efficiently. First, firms managed by a descendant of the founder pay significantly lower wages, for a given skill structure. Second, they provide insurance across the business cycle to their workers. Third, turnover is less likely for heirs than it is for professional CEOs in family firms. These three results are consistent with an implicit insurance story: heir managers, because of their longer horizon, find it easier than professional managers to sustain reputational contracts with their workers, providing them with more insurance in exchange of lower wages. Professional managers, whether in family firms or in widely held firms may lack the credibility necessary to implement such implicit contracts.

Third, professional CEOs in family firms compensate for this lack in credibility vis-à-vis their workers by managing capital more efficiently. First, they pay on average lower interest rates on their outstanding debt. Second, their external acquisitions tend to be, in the long run, more profitable. One plausible explanation is that they were more likely to be trained in finance/economics at the university or in an MBA. Whether acquired by education or by experience, financial literacy seems to be how hired CEOs are as profitable as heirs in our data. We believe these results to be consistent with Bertrand and Schoar's (2003) finding that there are heterogenous financial management styles across companies. In particular, they show that CEOs holding an MBA degree are more financially "agressive" than others. Here, we presented evidence that professional managers in family firms have a particular style compared to family managers, namely, their ability at managing capital efficiently.

This paper has focused on real effects of family management. When we look at stock returns, it turns out that family firms, in particular those run by professional managers, have beaten the market over the 1990s, even after taking into account the risk factors that the asset pricing literature considers as important. Our data thus delivered results consistent with Van der Heyden (2004). This is not easy to interpret: Does this mean that the market has suddenly understood the virtues of family management? Does this mean that non-family firms have done particularly badly over the decade? Can this be interpreted as further evidence that professional managers in family firms are good at communicating to (and persuading) analysts and propping up the stock price?

Another possibility would be that family firms are subject to particular risks, because they are more likely to be taken over when market conditions are good. As a result, their beta (correlation with the market return) would be time varying and would covary negatively with the market. This is a question we plan to address in future research.

Appendix A: Data

This study uses five distinct sources of data, described in the following sections.

A.1. Corporate Accounts

The initial sample is drawn from the DAFSA yearbook of all firms listed on the French stock market.[23] over the 1994–2000 period.[24] There are on average some 700 such firms each year. This yearbook mostly collects data from annual reports and therefore provides us with the firm's consolidated accounts (balance sheet and profit accounts) as well as more "organizational information" such as: total employment, major shareholders, all board members, and part of the top management—including the CEO. Firms' age and industry are also provided, although the industry classification only has 13 different names.[25]

Overall, there were 682 firms listed on the French stockmarket in 1999, and 549 for which we have value added figures—therefore excluding mostly financial firms. Additionally the number of these firms is modest when compared to the overall population (some 2 million firms exist in France, among which some 700,000 corporations), these firms tend to be heads of groups, and thus control a large number of other firms. Most of the time, these subsidiaries are legally different firms, but effectively mere "divisions" of the group. Less frequently, these firms really are separate entities that are controlled by the listed holding, but with other shareholders. This is why it is critical here to use consolidated accounts; without them, our information on employment, assets, sales, and costs would be almost meaningless (a holding company has no sales and just checks in dividends, for example). Given that listed firms tend to be large and group leaders, it turns out that they represent a large share of aggregate activity. Total sales generated by these firms represent some 900 bn euros, or 66% of French GDP. For those 549 firms for which we have value-added figures in 1999, the sample we have represents 14% of total GDP. Total employment amounts to some 6 million jobs (one-third of private sector employment), although many of them abroad—in particular in very large groups. Last, total market capitalization of firms listed on the French stock exchange amounts to 119% of GDP.

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23. Until 1997, France had no less than seven stock exchanges (Bordeaux, Marseilles, Nancy, Nantes, Lille, Lyons, and Paris), although most firms (70%) were listed in Paris. All exchanges were merged in 1997.

24. The DAFSA yearbooks in fact collected firm level information since at least the mid-1960s, but they have been computerized only since 1994.

25. Another, finer and more standard, classification was also provided, but it turns out that under this classification more than one-third of all firms simply appears as "holdings," with no further information on the group's activity. This is why we chose to focus on the data-specific, unconventional, industry classification.

A.2. Family Ownership and Management

Taking all firms listed on the stock exchange in 1999, we begin by determining whether these firms are "family firms" or not. To do so, we look at the firm's shareholders. When we find that the founder or the founder's family was a blockholder of the company, we label the firm as "family firm". We also add as an additional requirement that the blockholder owns more than 20% of the voting rights, taking into account the pyramidal structure of certain family groups. This requirement is almost useless as in only very few cases did a family own less than 20% of the voting rights. A few additional remarks are needed at this point. First, we deal with the problem of multiple founders by considering that it is sufficient that one of the family is still present among the shareholders to label the firm as a family firm. Second, in a few instances, we stumbled upon raiders, that is, individuals who started with a very tiny firm—sometimes a family firm—and became progressively major players through a series of successful market operations and acquisitions (for instance François Pinault, or Vincent Bolloré). We label these firms as family firms (and more precisely as "founder-controlled")—even though they did not create, per se, the companies in question.

In addition to the basic DAFSA files, the information on the company's history and the identity of the owner are collected from three main sources. First, we directly look into the annual company reports obtained mainly through the Internet. As it turns out, in many cases, the ownership structure provided in the annual reports remains somewhat opaque, especially because in many circumstances French families tend to hold control through pyramids of holding corporations (see Faccio and Lang 2002). To get at the identity of the ultimate controlling owner, we use the information collected since 1997 by the *Conseil des Marchés Financiers* (CMF). This administrative body is an outlet of the Treasury which is supposed to monitor French financial markets; an act passed in 1997 made it mandatory for individuals or firms who cross various thresholds in a listed firm's capital to declare it to the CMF.[26] In turn, the CMF has to make it public, and, in order to improve the transparency of the French financial system, the CMF publication provides us with the ultimate owners of the holdings generally responsible for the transactions. Last, we complemented these two sources of information with the use of various French business newspaper web sites (*L'Expansion*, *Le Nouvel Economiste*).

Following Anderson and Reeb (2003), we then break this category down into three sub-categories:

(1) A firm is said to be "founder-controlled" when the founder of the firm still holds the family block and is CEO.

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26. These thresholds are 5%, 10%, 20%, 33%, and 50% of all votes.

(2) A firm is said to be "heir-managed" when (a) the founder no longer holds control over the firm (most of the time because he retired or died) yet (b) the heirs of the founder collectively control the company votes and (c) a direct or indirect heir of the founder is the actual CEO of the company.

(3) A firm is said to be "family-owned but professionally managed" when the family (founder or heirs) still holds the controlling block, but the CEO position is held by an outsider.

Following this methodology for our starting year 1999, we are able to track the family status of 470 companies among the 549 non-financial/non–real estate firms present on the market this year. We then track back any family status changes between 1994 and 1999 by looking at CEO changes in the period. We find 161 such CEO changes and try, for every one of them, to determine whether the nature of the family status is affected: Only 52 of them actually turn out to correspond to such transitions. We also track with the same method any family status changes in the year 2000.

Finally, we repeat this whole operation on firms exiting the market before 1999 but present at some point on the market after 1994, so that we finally look at the family status of any firm present on the French stock market between 1994 and 2000.

Out of a total sample (i.e., including all years) of 731 non-financial/non–real estate firms, we are able to track the family status for 595 firms.

A.3. Employment Data

Total firm employment (consolidated) is reported in the DAFSA yearbook. Computing the skill, seniority, and age structure within the firm requires more detailed firm-level employment data.

To do this, we use the social security files made available to the statistical office by the tax administration. For each subsidiary that belongs to the listed group, these files provide us with the wage, occupation, age, and seniority of 4% of the employees—all employees born in October of an even year. We then use another survey ("Liaisons Financières," described for instance in Thesmar and Thoenig (2004)) to track the group that each subsidiary belongs to. This survey on financial relations between firms is exhaustive on all firms that have more than 500 employees or more than €1.5 million of shares of other firms. Consequently, most subsidiaries of our listed groups are likely to be covered by the sampling technique. We restrict ourselves to subsidiaries that are 100% controlled, directly or indirectly by the group leader (who is in general the listed firm of the group).

We first use these employee level data to re-compute total employment and average wage in the firm. In general, computed total employment is smaller than

employment reported by DAFSA,[27] for two reasons. First, most of these firms, in particular the largest ones, have foreign subsidiaries and thus foreign employees that do not enter our social security records. Secondly, some of these firms include in their consolidated statements employees of firms that they do not 100% control. Because accounting regulation is not clear on consolidating rules, there is little we statisticians can do on that front.

We then use these data to add information on firms' gender, occupational, age, and seniority structure. Unfortunately, education-based measures of skill are not available from this data set; however, as can be made clear from the Labor Force Survey which includes both sets of information, the occupation variable proxies education. We computed the fraction of managers, supervisors, skilled workers/clerks, and unskilled workers/clerks as well as the average age, age squared, and average seniority of workers. Finally, we also retrieved the fraction of women employed.

A.4. Stock Prices

Daily stock price data over the 1991–2002 period are provided by Euronext, the French stock exchange. For each day the stock market is open, Euronext provides in particular, for each firm listed, the price at which the last transaction of the day was realized. For each month, we take the price of the last transaction of the last day of the month, and compute monthly returns using these prices. Euronext price data take account of dividends payments, but not always of stock splits, which creates sometimes huge variations in calculated monthly stock returns. To account for this, we simply trimmed the stock returns data by deleting the top and bottom 1% of the distribution.

To compute abnormal returns, we need a model of expected returns. We estimate three different models of expected returns. The first model simply assumes that a stock's expected return equals the market return. Unfortunately we cannot directly compute the market return with our data, because Euronext does not provide any figure for the number of shares outstanding before 1997. To simplify, we use as proxy for the market return the monthly return on the leading French stock market index, the CAC40, which is provided since 1988.

The second model of expected returns is the CAPM. We first take our measure of the riskless rate of return from EUROSTAT, which provides us with a monthly time series on the rate of return of 10-years French Treasury bills since 1980. After de-annualization, we use this measure to compute excess returns on various stocks and the market. Then, for each firm, we regress the excess stock return on

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27. In 1998 for instance, domestic employment of French listed firms (computed using social security files) accounted for about 37% of total employment of these firms (computed using reported employment in the DAFSA Yearbook).

the excess market return, and take the residuals of these regressions as our second measure of abnormal return.

The third model takes into account the fact, well documented in the asset pricing literature, that small firms, and value firms (with low market to book value of assets), show consistently positive abnormal return in a CAPM model. As it has become standard in this literature, we follow Fama and French (1996) and add to our model of expected returns, in addition to the market return, the excess return of small firms (SMB), and the excess return on value firms (HML). SMB is computed by sorting firms according to the past year capitalization. We call "big", the 20% largest firms, and "small" the 20% smallest. To determine SMB, we subtract, each month, the value weighted monthly returns of the largest firms (by previous year's standard) from the value weighted monthly returns of the 20% largest firms (again, by previous year's standard). To compute HML, we sort firms by past year book to market value of assets. We call "value firms" firms with the 20% highest book to market in the previous year, and "glamor," firms with the lowest 20%. HML is the difference in value-weighted monthly returns between the value and the glamor portfolio. Finally, for each firm, we regress excess returns on the time series of the market excess return, on SMB, and on HML, and take the residual of this regression as our third measure of abnormal returns.

In the last two cases, the models of expected returns are estimated separately for each transaction (acquisition), in all the months available since 1991 before the deal. We also require that the acquiring firm has at least 12 months of stock returns prior to the transaction.

A.5. Acquisitions

The data source for large acquisitions is SDC platinium, a firm that collects publicized transactions (repurchases, LBOs, M&A) undertaken by companies in various countries. For France, SDC reports since 1990 some 1,000 completed acquisitions per year. We focus on all successfully completed acquisitions where the bidder (1) belongs to our sample, (2) owns less than 50% before the transaction, and more than 50% afterwards. From SDC, we then retrieve the month and year of the acquisition.

For the firms in our sample, we end up with some 100 acquisitions per year between 1994 and 1998. In 1999 and 2000, we have some 150 acquisitions, which is not surprising given excellent financial market acquisitions. The number of firms making acquisitions is somewhat lower, given that some firms undertake several acquisitions (sometimes as much as 5 in a given year): over the whole period, some 80 firms (out of 650) make at least one acquisition. For the few observations for which target size is reported (a third of the total), we find that the average cost of the transaction stands around $ 180 millions.

Appendix B: Breaking Down Performance

Differences in ROA among the different groups of family firms are estimated with equation (1):

$$\forall i, t : \quad ROA_{i,t} = \alpha + \beta_1 F_{1,i} + \beta_2 F_{2,i} + \beta_3 F_{3,i} + \gamma X_{i,t} + \varepsilon_{i,t}.$$

For family status f, this difference is given by the β_f coefficient, which is identified as

$$\beta_f = \overline{ROA_f} - \overline{ROA_0} + \beta(\overline{X_f} - \overline{X_0}),$$

where $\overline{ROA_f}$ is the mean value of ROA for family status f. To understand where this difference comes from, we use the following equality for each firm i:

$$ROA_i = (L/K)_i((Y/L)_i - w_i),$$

where L/K is the ratio of employment to capital, Y/L is the ratio of value added to employment, and w is the mean wage paid in firm i.

Using this equality, we can compute the mean of ROA for any type of family status f as

$$\overline{ROA_f} = \overline{(L/K)}_f\left(\overline{(Y/L)}_f - \overline{w}_f\right) + \mathrm{Cov}((L/K)_f, (Y/L - w)_f).$$

Therefore, the unconditional difference in the mean of ROA between firms with family status f and widely held firms comes as

$$\begin{aligned}
\Delta(ROA) &= \overline{ROA_f} - \overline{ROA_0} \\
&= \overline{(L/K)}_f\left(\Delta\left(\overline{(Y/L)}\right) - \Delta(\overline{w})\right) + \left(\overline{(Y/L)}_0 - \overline{w}_0\right)\Delta\left(\overline{(L/K)}\right) \\
&\quad + \Delta(\mathrm{Cov}((L/K), (Y/L) - w)). \qquad\qquad\qquad\text{(B.1)}
\end{aligned}$$

The differences in the right-hand side of the previous equation are unconditional differences. We are interested in the contribution of conditional differences to corporate performance. Therefore, we can estimate the following equations for all i and t:[28]

$$(L/K)_{i,t} = a + b_1 F_{1,i} + b_2 F_{2,i} + b_3 F_{3,i} + c X_{i,t} + \eta_{i,t},$$
$$(Y/L)_{i,t} = A + B_1 F_{1,i} + B_2 F_{2,i} + B_3 F_{3,i} + C X_{i,t} + u_{i,t},$$
$$w_{i,t} = \mathcal{A} + \mathcal{B}_1 F_{1,i} + \mathcal{B}_2 F_{2,i} + \mathcal{B}_3 F_{3,i} + \mathbf{C} X_{i,t} + v_{i,t}.$$

Using the result from these estimations, one can link the conditional differences in profitability (the β_f coefficients) to the conditional differences in labor

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28. Notice that these three models use the real ratios and not the logarithm of these ratios.

to capital ratio (the b_f coefficients), labor productivity (the B_f coefficients) and wages (the $\mathcal{B}_f$ coefficients):

$$\Delta(ROA) = \overline{(L/K)}_1\big(B_1 - \mathcal{B}_1 + (C - \mathcal{C})(\overline{X_1} - \overline{X_0})\big)$$
$$+ \big(\overline{(Y/L)_0} - \overline{w}_0\big)\big(b_1 + c(\overline{X_1} - \overline{X_0})\big) + \Delta(\text{Cov}(L/K, Y/L - w)).$$

Therefore,

$$\beta_f = \underbrace{\overline{(L/K)}_f(B_f - \mathcal{B}_1)}_{\text{difference in labor production} - \text{difference in Wage}} + \underbrace{\big(\overline{(Y/L)_0} - \overline{w}_0\big)b_1}_{\text{difference in capital labor ratio}}$$
$$+ \underbrace{\big(\overline{X_f} - \overline{X_0}\big)\big(\beta + \overline{(L/K)}_f(B - \mathcal{B}) + \big(\overline{(Y/L)_0} - \overline{w}_0\big)c\big)}_{\text{differnce in observable}} \qquad\qquad \text{(B.2)}$$
$$+ \underbrace{\Delta(\text{Cov}(L/K, Y/L - w))}_{\text{covariance term}}.$$

We therefore see that the conditional differences in ROA come from five different sources: conditional differences in labor productivity, conditional differences in wages, conditional differences in capital to labor ratio, differences in observables between family status, and different covariance structure between labor to capital ratio and labor productivity net of wages. Table 6 simply displays each of these five terms for the differences in performance between founder-managed, heir-managed, professionally managed, and widely held firms.

Appendix C: Additional Tables

TABLE C.1. Year by year regressions of performance of family firms.

	ROA (×100)			ROE (×100)		
			CEO type			
	Founder	Heir	Professional	Founder	Heir	Professional
1994	1.3	2.2**	1.7	12.5***	12.3***	10.0***
	(1.1)	(1.0)	(1.2)	(3.3)	(3.1)	(3.5)
1995	1.7	1.1	1.7	8.8***	4.4	8.5***
	(1.1)	(1.0)	(1.1)	(3.2)	(3.0)	(3.3)
1996	.4	.8	.7	5.3	9.8***	3.9
	(1.1)	(1.0)	(1.1)	(3.5)	(3.3)	(3.6)
1997	1.4	1.2	.6	11.4***	11.7***	8.7***
	(1.2)	(1.1)	(1.2)	(3.3)	(3.1)	(3.3)
1998	2.4**	2.0*	1.5	13.8***	9.6***	9.7***
	(1.1)	(1.1)	(1.2)	(3.0)	(2.8)	(3.0)
1999	.8	1.8*	1.4	8.9**	5.3	11.2***
	(1.2)	(1.1)	(1.2)	(3.5)	(3.5)	(3.7)

TABLE C.1. CONTINUED.

	ROA (×100)			ROE (×100)		
			CEO type			
	Founder	Heir	Professional	Founder	Heir	Professional
2000	3.7***	2.7**	2.5**	8.6**	7.4*	7.3*
	(1.2)	(1.2)	(1.2)	(4.4)	(4.4)	(4.5)
Fama-Mc Beth	1.7***	1.8***	1.4***	9.9***	8.6***	8.5***
Coefficient	(.4)	(.3)	(.2)	(1.1)	(1.2)	(.9)

Source: Year by year OLS estimates. See Appendix A for details on data construction and sources. Dependent variables are ROA (columns 1 to 3) and ROE (columns 4 to 6). Control variables are similar to those used in Table 3. Estimates of the coefficients on all three family dummies, along with their standard errors, are reported for each year (lines).
* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

TABLE C.2. Performance of family firms: further robustness checks.

	ROA (×100)	ROE (×100)	Market to book	Log(wage bill/ empl.)
Founder CEO	2.3***	10***	.31***	−.025
	(.9)	(2.2)	(.1)	(.048)
Heir CEO	2.6***	11***	.14	−.12***
	(.79)	(1.9)	(.093)	(.048)
Professional CEO	1.8**	8.9***	.16	−.091**
	(.85)	(2.2)	(.12)	(.047)
Log(Assets)	−.29*	1.3**	.064***	.016
	(.16)	(.53)	(.023)	(.011)
Log(Firm Age)	−.6*	−3.3***	−.18***	−.0015
	(.36)	(.92)	(.044)	(.017)
Former SOE	−1	1.5	−.4***	.099*
	(.82)	(2.5)	(.14)	(.053)
Fraction equity of largest block	.24	.26	.12	.026
	(1.2)	(3.1)	(.14)	(.062)
Debt/Assets	−10***	−23***	−.97***	−.25***
	(1.4)	(4.5)	(.17)	(.065)
Stock Return Volatility	−9.7***	−23***	−1.2***	−.083
	(2.2)	(6.8)	(.24)	(.14)
Focus	1.1	−.48	.27**	.051
	(1.1)	(2.9)	(.14)	(.058)
Industry FE	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Heir = Professional	.33	.4	.89	.45
Observations	1,841	1,845	1,762	1,753
Adj. R^2	.21	.17	.29	.3

Source: Huber-White-Sandwich estimates, allowing for correlation of observations within a given firm. See Appendix A for details on data construction and sources.
Note: This table is similar to Table 3 with *focus* (Herfindhal index using 2-digit classification of industries—equal 1 when firm operates in a single sector and goes to 0 as the firm becomes very diversified) as an additional control.
* Significant at 10%. ** Significant at 5%. *** Significant at 1%.

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