WHICH FIRMS BENEFIT MORE FROM FINANCIAL DEVELOPMENT?

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Which Firms Benefit More from Financial Development?

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Abstract

We exploit the substantial diversity in financial development of the 'single-market' EU-15 economies to test whether more developed financial systems are better at tackling asymmetric information proxied by firm age and size. Comparing the growth effect of financial development across firms of different type, we find that financial development disproportionately fosters the growth of young—but not the youngest—companies, while there is relatively little evidence of differences in the effect across firms of different size.

Abstrakt

V tomto článku využíváme značných rozdílů ve stupni rozvoje finančních trhů zemí skupiny EU-15 k testování hypotézy, že finančního rozvoj má větší efekt na růst firem zatížených informačními asymetriemi, které aproximujeme pomocí velikosti a věku firem. Naše srovnání efektu finančního rozvoje přes různé typy firem naznačuje, že efektivní finanční systémy více napomáhají růstu mladých (i když možná ne těch nejmladších) firem. Na druhou stranu nenacházíme žádné výrazné rozdíly v efektu rozvoje finančních trhů na růst firem různé velikosti.

Keywords: Financial development, Corporate growth, Information Asymmetry
JEL classification: F36, G15, G21, O16, O52

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1. Introduction

It has long been recognized that there is a pervasive positive cross-country correlation between the level of a country's financial development and its level of economic activity (e.g., Goldsmith, 1969, or King and Levine, 1993), with causality possibly running both ways. Finance theory surveyed in Levine (1997) contends that financial development can foster corporate growth because financial intermediaries play a key role in overcoming market frictions due to moral hazard and asymmetric information. These frictions give rise to financial constraints and represent a fundamental source of external finance costs, which ought to be lowered through financial development. Efficient financial institutions provide external finance even to informationally opaque businesses, that is to firms with little information available on their economic and financial status.

There is much survey evidence suggesting that small and young firms from both developed and developing countries are constrained in their access to external finance.[1] Applying the logic of finance theory, it is therefore likely that company size or age serve as an effective proxy for the extent of market frictions, particularly the extent of information asymmetries, that firms face.[2] Under this assumption, small and young firms are likely to benefit disproportionately from the development of financial institutions and markets. Yet, so far there is relatively little research asking whether this is the case. In this study, we measure the extent to which the development of national financial systems boosts the growth rate of small and young firms more than that of large and old firms.

We follow much of the recent finance-and-growth research and apply (a variant of) the Rajan and Zingales (1998) identification strategy. This strategy was developed to avoid the fundamental identification problem of measuring the effect of finance on growth, which would call for isolating

[1] We discuss this literature in Section 5, where we also argue that evidence based on non-subjective data is needed to complement the survey-based findings.

[2] It is not clear how the extent of moral hazard varies with firm size. See Martin and Sayrak (2003) for a recent survey. The banking literature usually relates opaqueness to firm age and size. Recent examples are Berger et al. (2001) and Berger et al. (2002).

the part of the variation in financial development that is unrelated to unobservable current and future growth opportunities.[3] Rajan and Zingales assume that different industries have a different, technologically determined need for external finance. They form a proxy for this need based on several strong assumptions and regress industry growth from a sample of countries on country and industry fixed effects as well as on the *interaction* between a measure of industry external finance dependence and a proxy for country financial development. Their regressions suggest that industries predicted to be in greater need of external finance grow faster in countries with more developed financial markets, conditional on all (potentially unobservable) country- and industry-specific factors driving growth.

Clearly, this strategy can also be applied to compare the impact of financial development on firms facing a differential degree of informational opaqueness, such as firms of different size or age. We expect that, due to information asymmetries, small and young firms are on average more financially constrained than larger and older companies. Using size or age as a proxy for information asymmetry thus substitutes for an overt quantification of the firm-specific extent of financial constraints. In particular, one can study the growth effect of the interaction between a firm's age (size) and a country's level of financial development.

Applying this strategy helps to uncover the *mechanism* of the finance-growth effect, even if it remains impossible to identify the overall impact of financial development on growth. In the Rajan-Zingales framework, the mechanism is based on external sources of finance being more costly than internal ones. Hence, lowering the overall costs of external finance benefits disproportionately

[3] Few studies are able to solve this identification problem. Finding a valid instrument for country-level financial development is difficult, as is securing large enough samples in order to avoid small-sample biases of instrumental variable estimators. Guiso et al. (2004b) solve the identification problem by looking within a country and focusing on historically predetermined variation in local financial development. They suggest that small firms grow faster in regions of Italy that feature more developed credit markets, which is consistent with small firms being more constrained than large firms in their operation and growth through access to external finance. Theirs is an important finding, but it addresses only within-country differences in financial development.

those firms that face higher need of external finance (for industry-specific, presumably technological reasons). In contrast, in our study the mechanism consists of lowering the relative costs of external finance for businesses that are more informationally opaque because of their size or age. Our mechanism is therefore closely tied to the underlying fundamental source of external finance costs: information asymmetry. It corresponds to the screening and evaluation process performed by financial intermediaries deciding upon granting external finance.

We provide novel evidence on the age-related differences in the growth effect of financial development. On the other hand, ours is not the first study to focus on the differences in this growth effect by firm size. Beck et al. (2004) measure these differences at industry level. They use cross-industry, cross-country data from 44 countries and 36 manufacturing industries and focus on the interaction between financial development indicators and US industries' share of employment by firms with less than 20 employees. They employ industry-induced variation in firm size, as such variation is likely to be related to industry technology differences and not to firm-specific unobservables,[4] and find that industries with a higher share of very small firms in the US grow faster when served by more developed financial systems.

However, the reliance on industry-level indicators may not be innocuous to the estimation of the size-related differences in the growth effect of financial development. Beck et al. (2004) choose to concentrate on an industry's share of very small firms. They therefore do not explore the size shape of the finance-growth relationship and effectively assume that the same specific size threshold (having 20 employees) explains the severity of size-related market frictions in all industries. Further, the existence of substantial dispersion of firm size within industries implies that their industry growth-rate averages are based on firms of all sizes. Even two industries that exhibit a similar share of very small companies do not necessarily share a similar firm size distribution. In other words, any strategy that uses an industry indicator for firm size implies size miss-classification for

[4]Their use of industry-level data is no doubt also the consequence of the lack of reliable firm-level data for the wide set of countries they analyze.

a significant share of firms, which ultimately underlie industry-level growth rates.

In this paper, we apply the Rajan-Zingales strategy *at the firm level*. In contrast to Beck et al. (2004), this allows us to measure size and growth precisely, trace out the finance-growth effect differences across firms of different size, as well as check for the presence of industry-specific size thresholds driving the severity of financial constraints. Using firm-level data also allows us to tap a previously underutilized source of variation—within industry comparisons. We can actually compare estimates based on different sources of size variation: within- and across-industry. This is useful, because employing within-industry size comparisons to estimate the size-related differences in the finance-growth effect raises an important concern. Companies that are smaller than industry average may have weaker management, which might make them unlikely to receive external finance even in highly developed financial markets. To check for the importance of such unobservables for our parameters of interest, we can focus exclusively on the growth performance of companies that are near the typical industry size. Such focus would not be possible with industry-wide growth and size aggregates. (When working with age, we prefer to use firm-level variation as industry differences in age are less likely to be technology related.)

Another potential problem with the Beck et al. (2004) approach is that it is not clear that countries at widely different levels of economic development, such as those included in their sample of 44 economies, will share similar size structure of their industries in absence of differences in financial development—an assumption invoked in their approach.[5] In this study, we therefore compare the growth experience of firms across a set of highly comparable economies. We analyze firms operating in the EU-15 'single market' under harmonized product market regulation. The high degree of similarity of the analyzed firms in terms of both growth opportunities and technology contrasts with much of the existing finance-growth literature. It assists in correctly measuring the finance-growth relationship. For example, using industry fixed effects to control for common industry

[5]The evidence on similarity of firm-size distributions across countries is mainly based on the most developed economies (e.g., Kumar et al., 1999).

growth shocks is highly realistic within the EU-15 group.[6] Fortunately for our empirical exercise, significant differences persisted in financial system development across the EU-15 economies at the time of the start of the 'single market', despite extensive product market integration, as documented by, e.g., Guiso et al. (2004a) or Allen et al. (2006).

In sum, relying on a large firm-level data set covering EU-15 firms between 1995 and 2003, the Amadeus database, we regress firms' average value-added growth rates on an interaction of firms' size or age with several dimensions of country-level financial infrastructure. We hesitate to use a linear specification of the interaction of financial development indicators with firm size and age because it is not clear that information asymmetry decreases proportionately with firms' age or size and because we wish to impose few functional form restrictions. Hence, we interact financial development with indicators of a firms' position in quintiles of the firm size or age distribution.[7] Our regressions further condition on a set of firm-level pre-determined controls and a full set of country and industry dummies. We therefore ask whether, for example, Greek financial institutions differ significantly from those of the UK in their ability to overcome information asymmetry (identify profitable projects) of young and/or small companies relative to their ability to provide external finance for projects of older and/or larger companies.

Focusing on firms with more than 100 employees or more than 20 million Euro of total assets,[8] we find little significant difference in the effect of financial development across firms of different size. On the other hand, using the oldest companies as the benchmark group, there is strong evidence of a disproportionate positive effect of financial development on all except perhaps the

[6] For recent evidence on EU business cycle synchronization see Camacho, et al. (2005). In Bena and Jurajda (2007), we confirm the presence of 'synchronized' EU-15 growth patterns at industry level in the Amadeus data, which forms the basis of our estimation.

[7] Similar to the approach of Beck et al. (2004) or Rajan and Zingales (1998), ours is therefore a group-level interaction approach. However, our groups are formed based on firm-level information (firm size or age), whilst the previous literature relied on interactions based on group-level (industry) characteristics.

[8] See Section 3 for detailed sample inclusion criteria. We justify this sample choice in Section 5.

youngest firms. Specifically, we recover an inverted-U shape of the interaction between age and financial development, such that firms of approximately median age benefit the most from financial development. It therefore appears that financial development fosters growth of young (but not the youngest) companies even within a set of some of the most developed countries of the world.

The structure of the paper is as follows: In the next section we present our methodology. Section 3 contains a description of the data and summary statistics, while section 4 presents the basic results together with some robustness checks and with a comparison of our findings to those based on the Beck et al. (2004) industry-level approach. Section 5 further discusses the relationship of our findings to those from the existing literature; Section 6 summarizes the findings.

2. Methodology

Our goal is to investigate differences in the effect of financial development on corporate growth across firms of different age or size. Applying the Rajan and Zingales (1998) framework, we ask about these differences using linear regressions of average firm value-added growth rates on (i) a set of firm-level control variables, (ii) country and industry fixed effects, and (iii) the interaction of a country's level of financial development with selected firm-level characteristics: age or size. In line with the existing literature, we therefore control for all observable as well as unobservable industry- and country-level determinants of growth.

We view the establishment of the EU 'single market', which harmonized product market regulation, as an opportunity to compare the growth performance of firms that increasingly face similar growth opportunities—those of the harmonized EU-15-wide market. Investment that would allow firms to benefit from these opportunities is likely to take place in the early stages of the 'single market' formation. Hence, our indicators of financial development are measured as of the beginning of the 'single market' in 1993.[9] Similarly, our firm-level controls are measured as close to this

[9] We investigate the sensitivity to the timing of the measurement of financial development in Section 4.3.

benchmark as possible—as of the beginning of the firm data. Put simply, we control for the starting position of firms entering the 'single market' and measure the difference that initial financial development makes for their growth.

Our basic regression specification, which asks whether firms of different age or size grow at a different rate across financial systems of differential depth, is of the following form:

$$G_{ijk} = \alpha + \beta \left(FD_i * Z_{ijk} \right) + Z_{ijk}\eta + \gamma_i + \delta_j + X_{ijk}^{'}\zeta + \epsilon_{ijk}, \tag{1}$$

where G_{ijk} denotes the average growth rate of the real value added of firm k in industry j in country i, and where FD_i corresponds to a measure of country financial development. The variable Z_{ijk} represents firm size (age) and is entered as both a base effect and in the financial-development interaction. Country and industry dummies are denoted as γ_i and δ_j, respectively, and we also condition on a set of firm-specific initial-period characteristics X_{ijk} including firm age (size), leverage, tangibility and collateralization, as well as an indicator for quoted companies and a set of indicators for company concentration of ownership and legal form.

However, Equation (1) implicitly assumes that the degree of information asymmetry varies proportionately with firms' age or size, which may be a restrictive assumption. In order to impose as little structure as possible on the key interaction relationship of our regressions, we therefore use a non-parametric interaction between a firm's age or size and a country's level of financial development. More specifically, we interact FD_i with a set of indicators for the firm's position in one of the quintiles or deciles of the age or size distribution, measured again as of the beginning of our data:

$$G_{ijk} = \alpha + \sum_{v=1}^{V} \beta_v \left(FD_i * I_{ijkv} \right) + \eta_v + \gamma_i + \delta_j + X_{ijk}^{'}\zeta + \epsilon_{ijk}, \tag{2}$$

where the set of binary indicator variables I_{ijkv} denotes the position of a firm in one of the quintiles (deciles) of the firms' age or size distribution, depending on the question we ask, while the fixed effects η_v capture the average growth rate of firms of the corresponding size or age group.

These regression specifications (Equation (2) and (1)) can be estimated based on different sources

of variation in firms' age or size. Our basic regressions interact financial development with absolute measures of age and size (namely years since incorporation and total assets expressed in a common currency) such that they employ both within- and across-industry differences in firm size or age. To interpret these basic estimates as corresponding to the effect of information asymmetries, one implicitly assumes that the degree of information asymmetry varies with size and age to the same (potentially non-linear) degree in different industries. However, if financial intermediaries use a different technology to evaluate projects of firms in different industries (i.e., different screening techniques), it is possible that the size (age) benchmark against which one measures the degree of information asymmetry differs across industries. A firm, which is large in absolute terms, could still be relatively small within its industry. Therefore, we alternatively evaluate the interaction effects using a relative within-industry measure of size and age, where each firm's size or age is expressed as the percentage deviation from the industry median size or age.[10] Using this alternative specification, we explicitly focus on only within-industry comparisons and assume that what matters for information asymmetry is the deviation of a given firm from the typical industry-specific size or age.

The existing literature focused on only across-industry differences, while we employ also within-industry sources of identification. However, using within-industry differences in firm size raises an important concern. Companies that do not grow because of internal problems, and so remain smaller than a typical firm in their industry, may not be able to benefit from financial development. In other words, to interpret the estimates based on within-industry size variation as corresponding to information asymmetry, one assumes that deviations of company size from the respective industry medians are unrelated to firms' unobservables affecting growth and related to firms' access to external finance. It is therefore important that we compare results based on within-industry size

[10] Clearly, the absolute/relative choice of a measure of size (age) will have only a minor impact on the estimation of the *base* size (age) effect as the inclusion of industry dummies transforms the data into deviations from industry averages.

variation to findings based on across-industry (technology related) size variation, which is unlikely to be related to firm unobservables. We also indirectly check for the importance of unobservables by comparing estimated parameters of interest based on within-industry variation from two alternative specifications: one where we control for firm-specific observable characteristics and one where we omit firm characteristics. Such comparison is based on the notion that firm-level observables and unobservables are likely to be correlated. If the interaction coefficients are little affected by the introduction of firm characteristics to our regression specifications, this would be consistent with unobservables having little effect.[11] Finally, we note that the endogeneity problem is unlikely to arise when estimating the age-related differences in the finance-growth effect as, conditional on entry and exit, firm age is exogenous.[12]

3. Data

We work with data from a set of countries where industries face highly synchronized shocks and share a highly similar technology content of industrial classification—the countries of the EU's 'single market'—during the 1995-2003 period, which covers the first years of the market's operation before its extension to post-communist countries. Firm-level financial statements and descriptive data, which allow us to compare the growth experience of highly similar firms residing in different countries, come from the Amadeus database. Country-level measures of financial development come primarily from the World Bank. We introduce these data sources in this section and complement the description with detailed tables in the Data Appendix.

[11] Similar comparisons have been employed in the analysis of gender or racial discrimination, e.g., by Hirsch and Schumacher (1992). See also Altonji et al. (2005) for estimation of binary treatment effects that use the extent of selection on observed characteristics as a guide to the extent of selection on unobservables.

[12] The consequences of firm entry and exit for our estimation are discussed in Section 5.

3.1. Firm-Level Data

We use firm-level data from the Amadeus (Analyse MAjor Databases from EUropean Sources) database, created by Bureau Van Dijk from standardized commercial data collected by about 50 vendors across Europe. Among the key advantages of the data from our perspective is that they cover both listed and unlisted firms of a wide variety of size and age categories and that they provide corporate descriptive statistics including growth together with a detailed source-of-finance accounts. In principle, the database should cover most public and private limited companies,[13] although coverage varies by country and generally improves over time. The firm and industry coverage of these data is an order of magnitude better compared to other existing firm samples as argued by Gomez-Salvador et al. (2004).

These data have been tapped in the finance-growth literature only recently, by Guiso et al. (2004a) to estimate Rajan-Zingales type regressions, and by Klapper et al. (2006) to study firm entry. Our selection of the analysis-ready sample follows the choices made by these two studies. Similar to Guiso et al. (2004a), we use the 'TOP 250 thousand' module of the Amadeus data,[14] which we downloaded in December 2006. Following Klapper et al. (2006) we use only unconsolidated statements to avoid double counting, and we also exclude all legal forms other than the equivalent of public and private limited liability corporations due to the uneven coverage of partnerships, proprietorships and other minor legal forms. Definitions of key variables and a listing of the included legal forms of firms by country are provided in the Data Appendix, in Tables DA.1 and DA.2, respectively.

[13] There are exceptions to the rule. For example, small and medium size German firms are not legally forced to disclose (Desai et al., 2003).

[14] Firms selected as TOP 250,000 had to meet at least one of the following inclusion criteria: For UK, Germany, France, and Italy operating revenue at least 15 million euros, total assets at least 30 million euros, or the number of employees at least 150. For all other countries operating revenue at least 10 million euros, total assets at least 20 million euros, or the number of employees at least 100. See section 5 for a discussion of the choice of the TOP250 module of Amadeus data.

The dataset is drawn from EU-15 countries that were part of the European Internal Market launched in 1993: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and United Kingdom. Similar to Guiso et al. (2004a), we exclude Luxembourg, because its financial sector is statistically anomalous, and we lose Ireland due to missing firm-level information. Firm coverage in the Amadeus data is incomplete before 1995 and after 2003 so we use only observations from 1995-2003.[15] Another reason why we do not use pre-1995 data is that Finland, Austria and Sweden joined the EU only in that year.

Following Rajan and Zingales (1998) and Guiso et al. (2004a), we focus on manufacturing industries (NACE 15 to 37). We exclude firms with missing total assets as well as non-active firms. We also omit from the analysis growth observations falling outside of the 5-to-95 percentile range of firms' value added growth rate and firms with significant state ownership.[16] Since Greek firms do not report value added, we used sales as a surrogate for them.[17]

Table 1 shows the final number of firm average value-added growth observations used in the study for each country, together with simple firm-level descriptive statistics corresponding to these observations.[18] Next, Figures 1 and 2 present the EU-15-wide as well as the country-specific distribution of firm age and size, respectively. It is clear that the firm size distribution is skewed, as expected, and that coverage varies across countries; specifically, firm size in Germany is affected by non-reporting of small firms. Nevertheless, the data provide extensive coverage of most of the

[15] Some firms are not present in the data for the whole period. In order to avoid potential biases from the combination of differential improvements in firm coverage across countries with time-changing aggregate growth rates, we replace the firm-level average growth rates available in the data with residuals from a regression of all observed firm-level annual growth rates on year dummies. Further, in order to lower noise in the average growth rates, we rely only on companies that report value added for at least 5 years.

[16] Specifically, we drop firms in which the state is as an ultimate owner of at least 10 percent of shares or a direct owner of at least 10 percent of shares. There is virtually no sensitivity to the choice of the percentage threshold.

[17] See Guiso et al. (2004) for the use of sales instead of value added. We check for the sensitivity of excluding Greece from the analysis in Section 4.3.

[18] We use IMF-IFS annual average exchange rates to convert all accounting data into millions of US dollars.

EU-15 economies and represent the best firm-level EU data source available to date.

3.2. Financial Development Indicators

Data on financial development are drawn from the World Bank's Financial Structure and Economic Development Database (March 2005 version) described in detail in Beck et al. (2000). To make our results comparable with those in the literature we use a number of measures of finance activity to proxy financial development. We start with the traditional measures of activity in the credit and stock markets, namely the ratio of private credit to GDP (PCDMBANKOFINSTGDP) and the ratio of stock market capitalization and stock market total value traded to GDP (STMCAPGDP and STMTVTGDP, respectively). We also rely on a measure of total country-level finance activity equal to the sum of (i) stock market capitalization, (ii) bank credit to the private sector and (iii) domestic debt securities issued by the private sector. This summary measure (Total Capitalization) is taken from Hartmann et al. (2006) and is expressed, again, as a fraction of country-level GDP. All proxies for financial development are averaged over the years 1990-1994, that is, as of the establishment of the 'single market'.[19]

In addition to volume-of-finance-activity measures of financial development, we also use a proxy for the institutional quality of financial markets. Specifically, we follow Beck et al. (2004) and use an indicator of the 'quality of accounting standards' (ACCOUNT), produced by International Accounting and Auditing Trends (Center for International Financial Analysis & Research, Inc.). This indicator rates companies' 1990 annual reports on the basis of their inclusion or omission of 90 items in the balance sheets and income statements and ranges from 0 to 90.

All five indicators of financial development are summarized across our EU countries in Table 2.[20] It is clear that despite the extensive integration of EU-15 national product markets up to 1994, there

[19] We rely on time averages to avoid year-to-year fluctuations. In Section 4.3, we check for the sensitivity to using measures of financial development based on a later period.

[20] A detailed definition of each measure is provided in the Data Appendix Table DA.1.

is still substantial diversity in the degree of financial development across the EU-15. The coefficient of variation is particularly high for our measures of stock-market activity. The bottom panel of Table 2 presents correlations (with statistical significance levels) among our different measures of financial development. The correlations suggest that these measures, although closely related, are nevertheless meaningfully different.

4. Results

Our analysis of average firm-level value-added growth rates covering 1995-2003 asks about differences related to firms' (initial) size or age in the effect of financial development on corporate growth following the introduction of the EU-15 'single market'. We initially use a linear specification for the interaction between financial development and firm size or age, but most of our estimation employs an alternative interaction specification based on a step function in size or age (see Equations (1) and (2) in Section 2), where we define the base (comparison) group as consisting of companies in the top 20% of the size or age distribution. We expect the growth rates of smaller and younger firms to be more sensitive to financial development because of information asymmetries.[21]

4.1. Basic Estimates

Table 3 presents a set of estimated linear interaction coefficients. The two main panels of the table correspond to the focus on either size or age interactions. Within each panel, we present results

[21] One may expect very large and/or old firms to have access to international sources of finance and thus be less sensitive to differences in the development of national financial markets, which provides additional motivation for the use of the interaction of financial development with a step function in size or age. We can alternatively use median-age and median-size firms as the base group. Such specification checks whether country unobservables as well as financial development levels affect large and old companies differently from those at the median age and size. We have compared the main results presented in this paper to those (unreported) ones where we alternatively use the near-median firms as the base group. The two batteries of results were fully consistent.

based both on an absolute and our relative within-industry measure of size or age.[22] Each sub-panel lists both the base effect of age or size and the interaction of the age or size growth gradient with national financial development indicators. Each column corresponds to the choice of a particular indicator. The control variables are industry dummies based on the 3-digit ISIC classification, firm-level controls, and country fixed effects. The firm-level controls are age or size, leverage, tangibility, collateralization and indicators of being quoted, legal form type and ownership concentration;[23] these controls are measured as of the first year a firm enters the sample. We drop firm observations falling outside of the 5-to-95 percentile range of value-added growth.

The coefficient estimates in the top panel of Table 3 suggest that larger firms, in terms of total assets, benefit less from financial development compared to smaller companies, in accord with our expectation. The interaction effects are statistically significant when based on the relative size measure. However, we cannot precisely estimate the underlying base effect of company size on its growth in most of the estimated specifications, which, given the well-established negative relationship between a firm's size and its rate of growth,[24] suggests that our interaction effects may be misspecified. In particular, it may, in part, be capturing the negative base effect of size.

The situation is even less clear in the case of the age interaction coefficients in the bottom panel of Table 3 as these are mostly negative for the relative (within-industry) age measure but positive for the absolute age comparisons. These financial-development interaction effects are estimated together with a statistically significant negative base effect of age. The results based on the absolute age measure suggest that older firms benefit disproportionately from financial development, which

[22] Recall from Section 3 that our relative measure of size (age) is based on the percentage deviation from the industry median size (age). When assigning firms to quintiles of the firm size (age) distribution, we assign 28% (18%) of companies to a different quintile when using the absolute instead of the relative measure.

[23] Ownership concentration (company independence with regard to its shareholders) is divided into low, medium and high based on the presence of shareholders with an ownership share over 25% or 50%.

[24] For example, Dunne et al. (1989) show that employment growth rates of US manufacturing firms decline with both company age and size.

contradicts our expectations as well as much of the survey evidence discussed in Section 5. Yet, such finding could be explained by the presence of large fixed costs of access to the financial system, which does not decline with financial development. More importantly, the combination of positive and negative interaction signs is puzzling.

To shed more light on the forces underlying these linear interactions and to allow for a non-proportional relationship between information asymmetry and firm size or age, we re-estimate our interactions using the step-function specification. The results for size and age are presented in Tables 4 and 5, respectively. The base size effect (in Table 4), which consists of four size quintile steps, is now precisely estimated, in contrast to the linear base size effect in Table 3. The estimated base size effect suggests, as expected, that smaller firms on average grow substantially faster than larger companies. The size-growth gradient appears to be somewhat convex—the group of smallest companies grows particularly fast. In further contrast to the results presented in Table 3, the interaction of size (groups) with country financial development indicators is never significant in Table 4, irrespective of the type of size comparison we use. The data is not able to support precise estimation of both the base and the interacted step function. We conclude that when analyzing firms that employ over 100 workers or hold assets in excess of 20 million euros, we detect no size-related differences in the growth effect of financial development. This finding is consistent with small firms being small not because of inadequate access to external finance, but because of having already reached their optimum size or because of internal problems.

Next, Table 5 lists specifications using a quintile step function in age. The shape of the estimated base age effect step functions is consistent with the negative linear age coefficient of Table 3 as younger firms grow on average faster than older companies. However, we now recover a decidedly non-linear functional form of the age-financial development interaction using both the absolute and relative measure of age: The youngest companies in our data do not benefit from the development of financial systems more than the oldest companies. On the other hand, companies located towards the center of the age distribution benefit disproportionately more. Such finding is in accord

with our initial guess about the interpretation of the positive linear (absolute) age interaction as corresponding to no access to financial markets for the youngest companies.

The age interaction coefficients imply substantial differences in growth effects of financial development across firms of different age. Specifically, the coefficients of Table 5 imply that moving from the minimum to the maximum value of our volume-of-finance-activity measures increases the annual growth rate of a firm of median age (corresponding to the third quintile of the age distribution) compared to an otherwise comparable firm of age above the 80th age percentile by about 3 to 4 percentage points. For example, when considering the private-bank-credit interaction coefficient, the almost 4-percentage-points effect corresponds to comparing a 20 year old firm to a 40 year old company across the Netherlands and Greece. The estimated difference in growth effects is almost twice as large when we replace volume-of-finance-activity measures with our proxy for institutional development—the accounting standards index.

Figure 3 visually presents both size- and age-financial development interactions, as well as the base size and age effects. The top (bottom) four graphs show estimates based on assigning firms to *deciles* of the size (age) distribution. The right column of graphs then presents the base effects while the left column plots the interactions with financial development indicators. The age decile interactions underscore the presence of an inverted-U age-financial interaction. Similarly, the decile specifications confirm the earlier finding of little evidence for the presence of a differential growth effect of finance across firms of different size, ceteris paribus.

4.2. Checking the Interpretation

4.2.1. Age and Size

Given the obvious correlation between size and age, an interesting question arises as to what extent our age interaction is merely a proxy for the size interaction and vice versa. To check for such omitted-variable problem, we introduce both age and size interactions at the same time in Table 6. As before, the first part of the table (Table 6-A) presents results based on comparisons of absolute

size and age, while the second part uses within-industry relative comparisons. It turns out that we are able to essentially replicate the results from Tables 4 and 5 in the bivariate interaction specification.

A natural extension of our basic approach is to ask about the importance of the combination of small size and young age for the interplay of information asymmetries and financial development. Hence, we estimate a size-age-financial development interaction in Table 7. We use a relatively parsimonious specification of this 'triple' interaction in that we allow the quintile (absolute) age-financial development interaction to be different for companies of below-median and above-median size. As before, the base comparison group consists of the oldest companies.[25] The estimates in Table 7 suggest that an inverted-U age-financial development interaction is present for both small (below median size) and large (above median size) companies. When focusing on small companies, there is a tendency for the positive age interactions to be larger and statistically stronger for the youngest firms, in contrast to results presented in Table 5. On the other hand, the age interactions within the group of larger companies tend to be stronger for older firms. The finding of particularly strong growth effects of financial development for very young small companies is an intuitive one as information asymmetries are likely to be particularly strong for such firms. However, we admit that the results in Table 7 are not fully consistent across different measures of financial development. We note, though, that because the peak of the inverted-U interaction occurs at a different age level for the two size groups, allowing the two interactions to differ leads to estimating age-related growth-effect differences in Table 7 that are sometimes substantially larger than those estimated using the whole sample in Table 5.

[25] Of course, we control for the different growth rates of the large and small companies within the base group. In other words, in all of the reported specifications, we control not only for the base age effect (using quintile steps) and for the base size effect (using a linear specification), but we also condition on a dummy for firms of above median size. We obtain highly similar estimates of the age quintile step functions for the two size groups when we alternatively use two separate base age quintile effects, one for each of the two size groups.

4.2.2. Intangibles

An important concern with the interpretation of the financial development interaction estimates as corresponding to information asymmetries has to do with the potentially different reliance of young or small firms on intangible assets. If financial development reduces the need for collateral or tangible assets, this may disproportionately improve access to external finance for those companies that use intangibles heavily. If young and small firms use intangibles more than old and large firms do, then our estimates thus far could correspond to the effect of intangibles, not to a reduction in the importance of information asymmetries with financial development.

To check for this alternative interpretation, we proceed in two steps. First, we estimate regressions (available upon request) of company tangibility[26] on our basic set of firm-level control variables including size and age. We find that younger and smaller companies actually display a statistically significantly higher share of tangible assets. Second, to check to what extent young age proxies for more than different asset intangibility, we estimate the (absolute) age-financial development interaction jointly with an interaction of financial development with an asset tangibility measure and present the estimated parameters in Table 8-A.[27] We recover the familiar inverted-U age interaction function even after allowing for an interaction of financial development with the firm's reliance on intangible assets. The tangibility-financial development interactions are interesting in their own right; they suggest that firms in the highest quintile of the firm tangibility distribution benefit less from financial development than all other companies, which is consistent with financial development reducing the need for tangible assets.

Table 8-B then replicates this exercise for the (absolute) size interactions; again, most of the estimated size interactions are statistically insignificant. Further, we also detect no sensitivity to additionally including the intangible-assets interaction in specifications based on the relative

[26] See Appendix Table D.A1 for definition.

[27] See Beck et al. (2004) for a similar probe in the case of size-related differences in the financial development effect.

measures of age and size.[28]

4.2.3. Youngest Companies

It is important to understand why we find less evidence for a disproportionate effect of financial development on the youngest companies compared to those of near-median age. We investigate one explanation based on adjustment of firms to financial system development at their incorporation. The hypothesis is that the timing of incorporation corresponds to the moment when firms raise (initial) external funding. If startups in less financially developed economies expect that after incorporation it may be hard (or take longer) to raise additional external finance, then these startups are likely to incorporate only if they can marshal an unusually high amount of initial equity (in comparison to otherwise similar startups in more financially developed systems). Such firm adjustment to financial development would then make the youngest companies in less financially developed economies temporarily less sensitive to their respective financial environments, which is consistent with our estimated interactions coefficients.

To provide tantalizing evidence on this hypothesis, we ask whether the share of equity capital on total assets, which we refer to as equity endowment, differs for otherwise similar newly incorporated companies across different financial systems. Table 9 reports estimates of interest from regressions of equity endowment on our set of firm characteristics, including size, a set of industry fixed effects, and our indicators of financial development. The top panel of the table shows coefficient estimates from simple specifications that do not control for country fixed effect and that are based only on companies of age zero or one. It suggests that there is a negative, albeit insignificant, relationship between a country's level of financial development and the typical share of equity on total assets of startups.

These results are reinforced in the second panel of Table 9, where we present estimates from two sets of regressions that do control for country fixed effects. Conditional on the effect that financial

[28] These results are available upon request.

development has on equity endowment of all firms, which is absorbed in the country dummies, we ask whether the age gradient of equity endowment differs across countries at different levels of financial development. Specifically, we focus on the equity endowment difference between the startups and all older companies. The coefficients on the interaction between the startup indicator (Incorporation) and financial development are all negative and statistically significant, while the base startup effect is positive. These findings are not affected by the specification of the base age effect. In comparison to older companies, startups feature an unusually high share of equity on total assets, but this gap is smaller in less financially developed economies, consistent with our hypothesis.

Hence, it may be that the reason why we are not able to find strong disproportionate growth effects of financial development for the youngest companies has to do with the selective entry of more equity-endowed firms in less financially developed countries. We provide further discussion of the importance of selective entry (and exit), including the size at entry, for our estimation in Section 5.

4.2.4. Comparing Within- to Across-Industry Size Variation

An important advantage of our firm-level approach is that we can ask whether within-industry and across-industry size or age comparisons lead to similar finance-size or finance-age growth effects. So far, we repeatedly compared results based solely on within-industry variation in firm size or age (deviations from industry median size or age) to those based on both within- and across-industry variation. This may be problematic to the extent that within-industry size variation is related to firm unobservables. In this section, we therefore focus on only across-industry size comparisons in order to rely on variation that is likely to be driven by industry technology and so unrelated to company-level unobservables.[29]

We estimate across-industry size interactions similar in spirit to those used by Beck et al.

[29] See Kumar et al. (1999) for evidence on differences in industry-specific typical firm size.

(2004). Specifically, the top panel of Table 10 presents a set of linear size-financial development interaction coefficients based on the EU-15-wide *industry median size* defined at the ISIC 3-digit industry level. All specifications include country and industry fixed effects; the battery of results in the top panel of Table 10 comes from regressions that, similar to Beck et al. (2004), do not condition on firm-level controls used in specifications reported in Tables 3 to 8, while the second set of coefficients corresponds to regressions where we do control for the influence of these firm-level covariates including firm-specific size. Clearly, controlling for firm-level variables has little effect on the estimated interaction coefficients of interest, which are always negative, in accord with the results of Beck et al. (2004), but which never reach conventional levels of statistical significance.

Even though our regressions employ company-level data, they implicitly measure the relationship between industry size (interacted with financial development) and industry growth rates. (The industry growth averages are formed conditional on the effects of firm-level characteristics.) One potential problem with this approach is that even unusually small or large firms, relative to the industry average size, are used to estimate the relationship between industry size and industry growth rate. Similar to Beck et al. (2004), we (implicitly) rely on averages of growth rates based on all firms within an industry, irrespective of firm size. To check for the importance of this measurement error, we exclude unusually small and unusually large firms, relative to industry typical size, from the estimation. These results, which rely only on firms that fall within the 40-60 percentile industry-specific size range, are presented in the third set of the top panel of Table 10. The estimated parameters suggest that there is little relationship between corporate growth rates and the interaction of industry size with country financial development.

In the bottom part of Table 10, we re-introduce within-industry variation in firm size by interacting financial development with *firm-specific* size. However, we do so only for the companies that fall within the 40-60 percentile size range used in the previous specification.[30] Although based on

[30] We obtain highly similar evidence when using a 30-70 percentile range instead.

firm-specific information (on both size and growth), such regressions correspond mainly to across-industry size comparisons. More precisely, while the firm-level size variation employed in these regressions may be in part related to company unobservables, the share of the technology-related across-industry variation in size is certainly higher here compared to our main specifications used in Tables 3 to 8. Yet, we obtain size interaction estimates that are very noisy and qualitatively similar to those in our main specifications (Tables 4 and 6), where we find little evidence for size interaction effects.

In sum, we find no evidence of a differential effect of financial development on firms of different size, irrespective of the type of size variation we employ.[31] The fact that solely across- and solely within-industry comparisons lead to the same conclusion is comforting and consistent with the presence of only a weak link between firm unobservables and within-industry size differences. Further support for this tentative conclusion comes from unreported regressions, in which we repeat the estimation of the size interaction coefficients based on only within-industry variation in size (specifications presented in the bottom panel of Table 4 and in Table 6-B) after omitting our set of firm-level controls from the regressions. The interaction parameters of interest are not materially affected, which, to the extent that company observables and unobservables are correlated, is consistent with unobservables having only negligible effect on our estimation.[32]

4.3. Robustness Checks

We perform a number of robustness checks in which we test for sensitivity of our main estimates to changes in the set of control variables, measures of financial development, measures of company growth, or estimation techniques.

First, our maintained assumption thus far has been that in absence of differences in financial

[31] We also find no statistically significant interaction coefficients in regressions using median industry age as the main interaction variable. Similarly, there is no sensitivity to simultaneously estimating two interactions, one based on within-, the other on across-industry variation in size or age.

[32] See Section 2 for a discussion of this type of comparisons.

development and other national growth determinants, growth synchronization of firms in the same industry and age or size category within the EU-15 'single market' would be near perfect. This assumption corresponds to the use of industry dummies in all of our specifications. In Table A.1 we alternatively allow for the presence of industry-country dummies, which corresponds to the presence of differences in industry-specific comparative advantage of each country. The estimated parameters show no material difference vis-à-vis those of Table 6.

Second, we use an alternative version of indicators of financial development. Our main set of results is based on pre-determined financial-development differences (measured during 1990-1994), but since then there has been significant progress on the financial integration front within the EU-15.[33] We therefore compare our main specifications to those based on an average measure of financial development taken over the 1995 to 1998 period, i.e., over the years before the introduction of the common currency in most of the EU-15 economies. We obtain interaction coefficients that are fully consistent with those based on the earlier measure of financial development, albeit somewhat smaller. These robustness checks are presented in Appendix Table A.2.

Third, we assess the sensitivity of our estimates to excluding Greece, the country for which value added data was not available so we relied on sales instead. As Table A.3 testifies, omitting Greece has no material influence on the estimated interactions.

Fourth, we check for the sensitivity to the definition of our dependent variable. Up to now, we estimated regressions explaining the variation in a simple time average of annual real value-added growth rates of the sampled companies.[34] In Table A.4 we present an alternative set of estimates based on the median company growth rate, which is highly similar to that presented earlier in Table

[33] Baele et al. (2004) imply that by the end of the 1990s full or near-full integration had been achieved for the overnight loan and government debt markets, while the corporate bond market and, especially, the bank loan and stock markets are still segmented.

[34] The presence of negative value-added growth rates complicates taking a compounded average. In an earlier version of this paper, we also directly used annual growth rates and conditioned on industry-time dummies. The results we obtained were similar to those presented here.

6.[35]

Finally, we also use alternative estimation techniques. In Table A.5, we present results based on a median regression technique. Up to now, we have avoided the influence of value-added growth outliers, present in any company-level financial data, by symmetrically excluding extreme values of growth rates from our linear 'mean' regressions. Here, we therefore alternatively apply median regressions, which are robust to outliers by design and allow us to use all available growth rate data (that is, even observations of average growth rates falling outside the 5-to-95 percentile range). The clustered standard errors (to be provided) we report are bootstrapped.

In Table A.6 we present (mean) regression results that do not rely on clustering residuals as a method of adjusting inference for the fact that our variable of interest, the interaction of firm size or age group with country financial development, varies only across groups of firms.[36] Here, we follow the suggestion of Wooldridge (2003) and break the estimation into two stages, one firm-level, the other country-age group or country-size group level. Using this alternative procedure, we again obtain highly similar coefficient estimates.

We conclude that our results are robust to a battery of robustness checks motivated by economic, data-related, as well as econometric questions.

5. Relationship to the Existing Literature

5.1. Consequences of Information Asymmetry

In firm surveys, small and young companies in both the developed and developing world report having less access to external finance than larger and older companies.[37] Survey responses are

[35] We also obtain a fully consistent set of estimates when using a growth rate implied by the difference between the last and first observed value of company value added.

[36] There is little sensitivity in our estimates based on whether we cluster standard errors at the level of countries or at the level of country-age or country-size groups corresponding the quintiles of the age or size distribution.

[37] Age and size explain a large share of the variation in firms' self-reported financing obstacles in the World Business Environment Survey, which covers much of the developing world (Beck et al., 2006). Similarly, the presence of financial

also used to ask about the effect of financing obstacles on firm growth. For example, Beck et al. (2005) suggest that the effect that the difference in financial development across a wide set of both developed and developing countries has on a firms' growth is strongest for the smallest companies. It is widely held that the main reason why small and young firms report lower access to external financing and benefit disproportionately from financial development is their information opaqueness. Firm survey evidence is thus consistent with the notion that financial development reduces the negative effects of information asymmetry and offers an effective way of promoting small firm growth—an important conclusion from a policy standpoint.[38]

Yet, it is imperative that these conclusions based on firms' subjective assessments are compared to those reached with non-subjective data. For example, it is not clear that firms of different age compare their unsatisfied need for external finance against the same benchmark; it could be that such firms differ in their ability to evaluate the potential gains from using additional external finance.[39] Further, the estimation of growth consequences of self-assessed financial constraints is plagued by potential reverse causality problems if firms that fail to grow (and remain small) because of internal problems tend to blame financial intermediaries for failing to provide external finance.

Unfortunately, it is fundamentally difficult to form a valid firm-level indicator of financial constraints.[40] On the other hand, it is still possible to ask about differences in the growth impact of financial development across firm types—differences that likely correspond to degrees of information asymmetry—by applying the Rajan-Zingales strategy described in the Introduction. Beck et

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constraints is negatively related to firm age in the survey of Italian firms studied by Angelini and Generale (2005).

[38] See also Bergell and Udell (1998) for an early discussion of small-firm finance and Beck and Demirguc-Kunt (2006) for a recent survey of this topic.

[39] Along similar lines, investment-cash flow sensitivities could be higher for smaller and/or younger firms in comparison to larger and more mature firms because (i) financial constraints are more binding for small and young firms or (ii) such firms learn from their cash flow about their uncertain growth prospect.

[40] Financial constraints are difficult to measure because they arise from the interaction of the quality of a financial system, a firm's inherently unobservable growth opportunity, and endogenous financing-related firm-level indicators.

al. (2004) apply the strategy across industries that are 'naturally' composed of different shares of small companies and find that industries that typically have a large share of small firms tend to grow faster than industries that typically have a large share of large firms in countries with a higher level of financial development. In this paper, we offer a complementary set of findings on finance-growth effects across firm size categories. Unlike Beck et al. (2004), we rely on firm-level size information. Unlike most previous studies, e.g., Beck et al. (2004) or Beck et al. (2005), we analyze the experience of firms in a set of highly developed comparable economies. Unlike all of the existing literature, we also focus on age and differentiate growth differences related to size from those related to age.[41]

What is the relationship of our findings to those available in the literature? To a significant degree, our results confirm a typical interpretation of the findings of survey-based studies, namely that financial market development benefits young firms disproportionately because they are particularly financially constrained. We also find, however, that as firms age, their benefit from financial development first rises, possibly thanks to improved access to the financial system.[42]

On the other hand, and in contrast to Beck et al. (2004), we do not confirm the survey evidence on size-related differences in growth effects of financial development. Taken at face value, our findings imply that small firms are small for reasons that have little to do with financial systems, which would imply that there is little rationale for providing subsidies to small companies. This could reflect our focus on only highly-developed economies or it could be the consequence of measuring growth effects for firms above a minimum size threshold, which is higher than that used in, e.g., Beck et al. (2004). Another potential reason why our findings differ qualitatively from those of Beck et al. (2004) is that the identifying assumption of the same size structure of industries across

[41] Using firm-country comparisons is a natural extension of the Rajan and Zingales (1998) strategy, which itself shifted the focus of the finance-growth literature from cross-country comparisons to country-industry comparisons.

[42] An alternative explanation for this finding is that recently incorporated firms have obtained initial finance at the moment of incorporation such that they do not *need* more external finance shortly afterwards. For further discussion, see Section 4.2.3.

countries in absence of differences in financial development is more likely to be satisfied in our sample of EU-15 economies.

Finally, we note that our use of volume-of-finance indicators of financial development implies that our age-related findings are consistent with the notion that *deeper* financial markets are more *efficient* in overcoming information asymmetry.[43]

5.2. Firm Entry and Exit

A poor financial system may prevent firms from reaching their optimal size and the measurement of such corporate growth effect is the object of our analysis. However, a poor financial system may also prevent entry of profitable companies. Our analysis of firm growth is therefore complementary to that of Klapper et al. (2006), who study the effect that a country's business environment and institutions have on entry of new firms.[44] Applying the Rajan-Zingales identification strategy at industry level, they find, among other results, that firm entry is higher in industries predicted to be in more need of external finance (using the measure of external finance need proposed by Rajan and Zingales, 1998) in countries that have a higher level of financial development. Klapper et al. (2006) also suggest, similar to other existing studies, that entrants are on average larger in countries with a lower level of financial development.[45]

Our study focuses on (the differences in) the effects of financial institutions *conditional on entry.* It is therefore important that we consider the implications for our estimation of the potentially different (unobservable) growth potential of firms entering in countries that differ in their degree of financial development.[46] The different firm entry process in different countries could induce

[43] Wurgler (2000) and Braun (2006) imply that deeper financial systems display better allocative efficiency.

[44] Their study is based on the same data we use, the Amadeus database. They effectively assume that entry of a firm into the database corresponds to (a random sample of) entry in the population of firms.

[45] Alfaro and Charlton (2006) and Aghion et al. (2006) provide similar evidence. Beck and Demirguc-Kunt (2006) survey the literature on the interplay between financial systems and firm size distribution.

[46] In Section 4.2.3, we show that entering companies in less financially developed economies enter with a higher

differences in (unobservable) entrant quality in our sample. As a hypothetical example, if entering companies in the highly financially developed UK environment are on average of lower growth potential than entrants in less financially developed Greece, then the higher effect of financial development on growth of young companies may be obscured by this sample selection on unobservable growth potential.

Our estimation controls for the difference in growth rates of firms of different sizes; hence, to the extent that growth potential at entry is proxied by size at entry (as in Beck and Demirguc-Kunt, 2006), our estimation is likely to be unaffected by the higher fraction of larger entrants in less financially developed countries. On the other hand, if the lack of external finance in some countries leads to a higher growth potential of entrants compared to entrants *of identical size* in more financially developed systems, then such sample selection on unobservable quality may lead us to under-estimate the difference in the financial-development effect for these firms compared to mature companies.[47]

In light of these considerations, it is important to recall that we use the 'TOP 250 thousand' module of the Amadeus data, which means that we do not study the growth of very small entrants. More specifically, our data cover firms with an operating revenue of at least 10 million Euro or total assets above 20 million Euro or more than 100 employees (or any combination of these conditions). Hence, we analyze post-entry growth of firms of a certain minimum size with the purpose of minimizing selection effects. Our assumption here is that recent entrants of such minimum size are of similar growth potential in countries with a different level of financial development.[48]

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share of equity on total assets. It is not clear that this correlates with cross-country differences in growth potential of freshly incorporated companies.

[47] Our presentation of the argument about selectivity is based on the unobservable quality of projects (growth potential). A similar line of argument could be built around the degree of information opaqueness, such that a Greek entrant may be expected to feature a lower level of opaqueness compared to the average entering UK company.

[48] In order to successfully understand the effect of financial development on very small firms, one ought to simultaneously study the process of firm entry, growth and exit.

So far we have discussed the implications of firm entry being affected by financial development for our estimation. By the same token, however, it is also possible that a selective exit of companies from our sample related to the level of financial development affects our estimation.[49] For example, it could be that high-growth companies in low-financial development countries are often acquired by their competitors from countries featuring a highly developed financial system and hence may disappear from our data. Alternatively, a highly developed financial system may "weed out," through competitive pressure, companies that would survive in a less financially developed environment.[50] In this regard, we note that our estimation is based on average (or median) growth rates during our sample period. As a result, companies that disappear from our data towards the end of the sample frame are still represented in the data. (We obtain similar results when using average and median growth rates to summarize company performance.)

As a final check, we have also re-estimated our main specifications based on two alternative samples, which differ in the degree of survival-related sample selection. First, we omitted all companies that disappear from the Amadeus database before the end of our data in 2003. Such *additional* sample selection ought to magnify any sample selection bias, but we obtain results (available upon request), which are fully consistent with those based on our main sample. Second, we additionally include companies that have less than 5 annual value-added observations available in the Amadeus database during our sample period.[51] Again, there was little difference in the estimates when compared to our main results.

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[49] Cabral and Mata (2003) show that in Portugal—an EU-15 country with a relatively under-developed financial system—selection of firms through exit has little effect on the firm size distribution.

[50] Indeed, our preliminary analysis suggests that a firm is more likely to exit from Amadeus databases between 1997 and 2003 if it operates in a more financially developed environment and that this exit 'gap' is larger across countries for younger and smaller companies. However, given that there is little information on the reason for exit from the database (e.g., bankruptcy, merger, non-reporting), we hesitate to draw conclusions.

[51] Such companies were not used in all of our estimation so far, see note n. 15.

6. Conclusion

By applying the Rajan-Zingales strategy at firm level, we measure the ability of national financial systems to foster corporate growth through tackling information asymmetry as proxied by firm size and age. We study the effects of financial development on firm growth conditional on entry and conditional on firms having reached a certain minimum size (having at least 100 employees or more than 20 million Euro of total assets), such that we capture these effects after the initial selection of projects at entry has taken place. Our estimation contrasts the growth performance of comparable companies operating within the EU-15 'single market', where they face harmonized product market regulation and common industry structure of growth opportunities, but where they must cope with significantly different national financial systems.

Using both across-industry and within-industry comparisons, we find little evidence of a differential effect of financial development on firms of different size, conditional on firms being of a certain minimum size. Taken at face value, this implies that small firms are small for reasons unrelated to financial system development. Since we do not study very small firms, our findings are not inconsistent with the notion that financial market development benefits very small firms disproportionately, as suggested recently by the study of firm entry by Klapper et al. (2006).

We also find that firms of approximately median age benefit more from financial development in comparison to old firms. In fact, we estimate an inverted-U shape for the age-financial development interaction, which is consistent with very young firms having relatively little access to the financial systems of EU-15 economies. Some of our evidence suggests that firms that are both very young and small, benefit strongly from financial development. Using volume-of-finance-activity measures and focusing on firms of all sizes, we find that moving from the least to the most developed financial system within the EU-15 results in a value-added growth rate advantage of a median-aged firm over a firm positioned in the top quintile of the age distribution of about 3 to 4 percentage points. The age-related difference in the effects of institutional quality, proxied here by a measure

of accounting standards, is at least as large. We also provide some tantalizing evidence suggesting that the youngest companies in less financially developed economies have an unusually high share of equity capital on total assets, which perhaps make these recently incorporated firms temporarily immune to the underdevelopment of financial markets, consistent with our inverted-U age-financial development interaction estimates.

Financial development therefore appears to offer an effective way of promoting the growth of young, but perhaps not the youngest firms even within a set of comparable highly developed economies. Our results are consistent with the notion that financial development has real consequences for corporate growth through successfully tackling information asymmetry.

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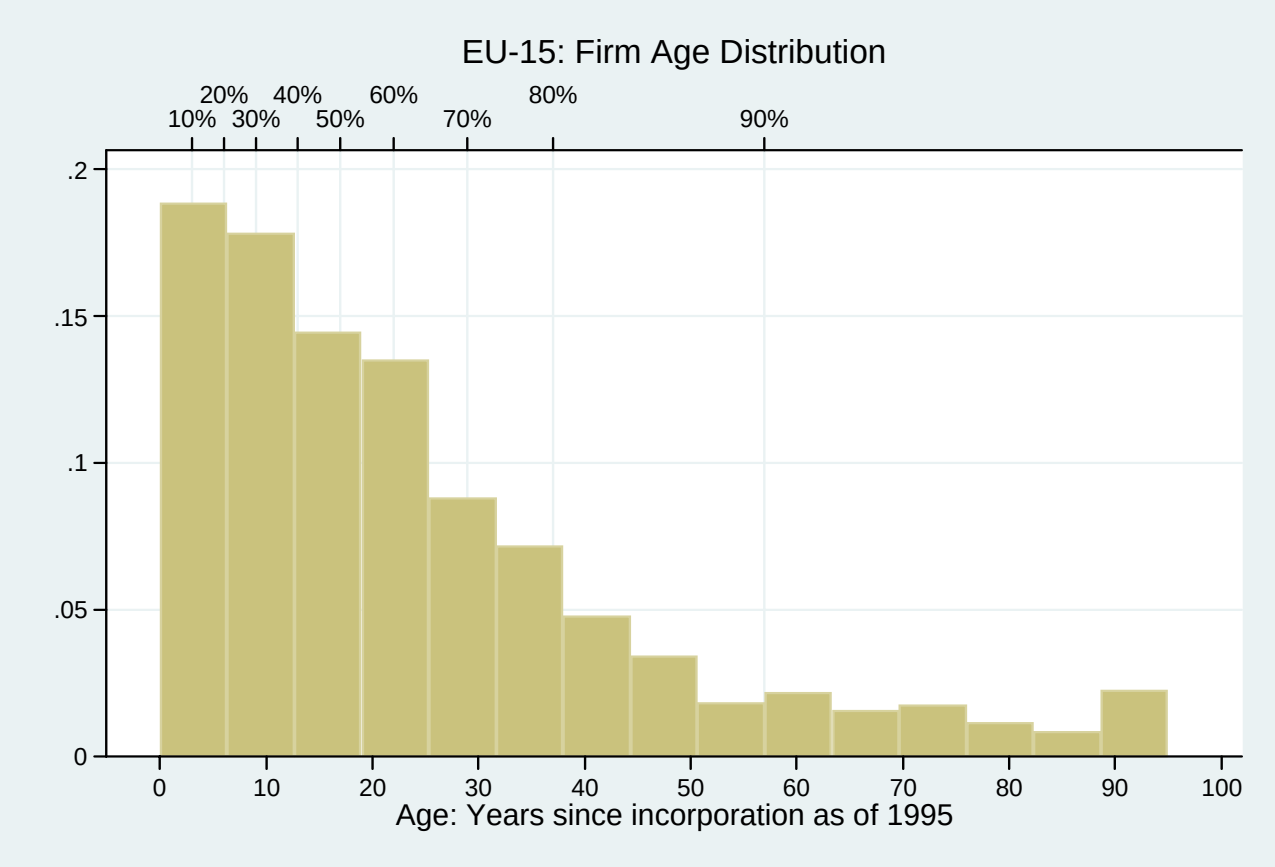
Table 1

Corporate Descriptive Statistics by Country: Firm Data over 1995-2003

	Size		Age		Growth		Tangibility		N
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	
Austria	120.4	45.8	19.3	10.0	0.019	0.013	0.34	0.33	122
Belgium	71.4	15.3	22.4	17.0	0.011	0.001	0.26	0.22	1,367
Finland	57.2	15.0	20.5	10.0	0.050	0.036	0.34	0.33	499
France	109.1	19.5	29.3	23.0	0.026	0.015	0.18	0.15	1,488
Germany	381.0	78.1	33.2	19.0	0.006	-0.005	0.30	0.27	473
Greece	23.5	9.0	16.3	14.0	0.064	0.051	0.28	0.25	658
Italy	49.3	17.8	20.1	16.0	0.031	0.020	0.22	0.19	4,599
Netherlands	204.8	28.5	35.7	30.0	0.000	-0.013	0.32	0.30	174
Portugal	54.7	17.6	27.5	22.0	0.007	-0.010	0.38	0.37	211
Spain	46.0	15.5	21.6	18.0	0.054	0.048	0.27	0.24	2,375
Sweden	70.2	11.9	33.3	28.0	0.048	0.040	0.31	0.30	983
UK	89.4	18.8	28.7	22.0	0.061	0.054	0.32	0.31	2,230

Note: The number of firm observations in the sample, N, corresponds to observations with non-missing average value-added growth rate. Size (total assets) is in millions of US dollars. Age is the number of years since firm incorporation. Growth is the average real value-added growth rate over 1995-2003. Tangibility is measured as fixed assets divided by total assets. Size and Tangibility are measured as of the first year a firm enters the sample while Age is as of 1995. Before computing these statistics we remove growth outliers (we use only the 5-to-95 percentile range of average firm value-added growth rate) and firms with less than 5 years of value-added data available. See the Data Appendix for complete definitions and sources of variables.



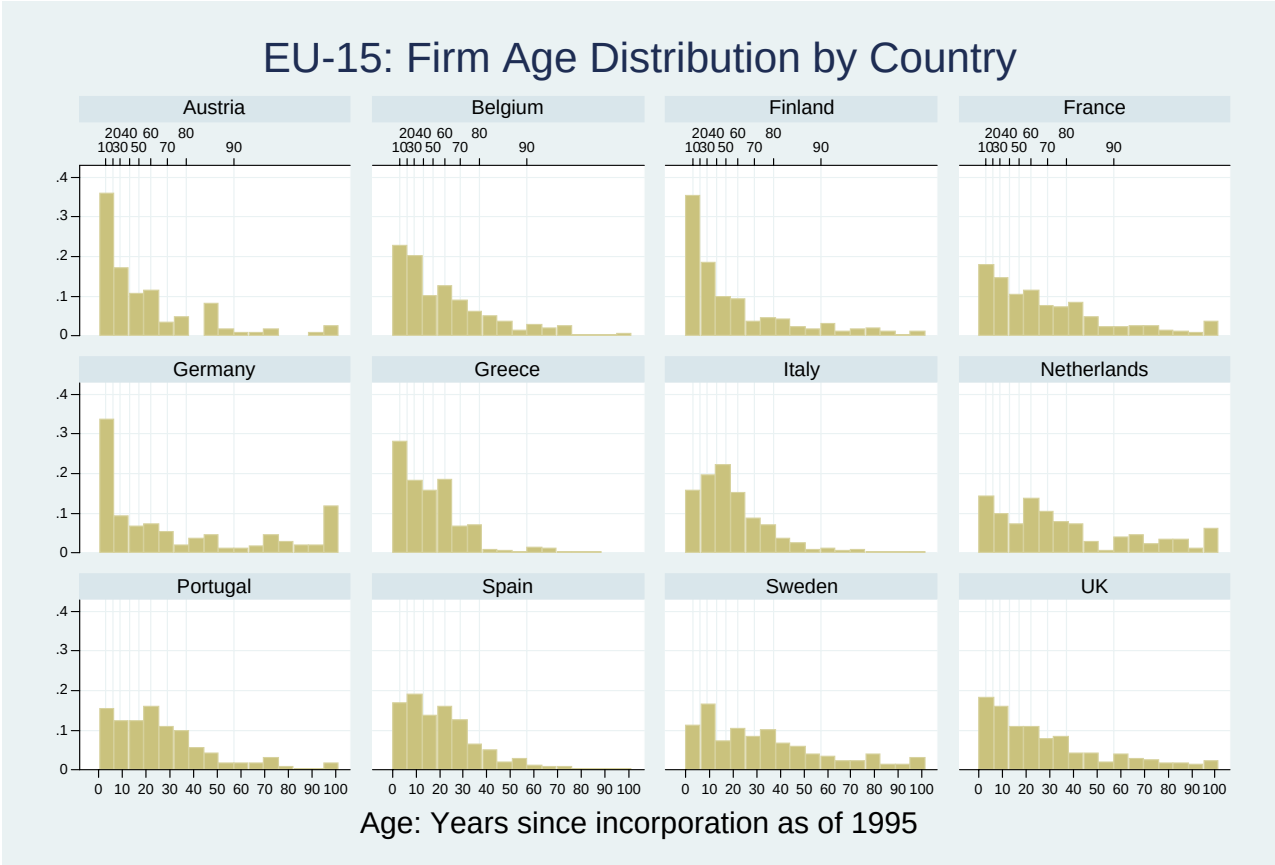
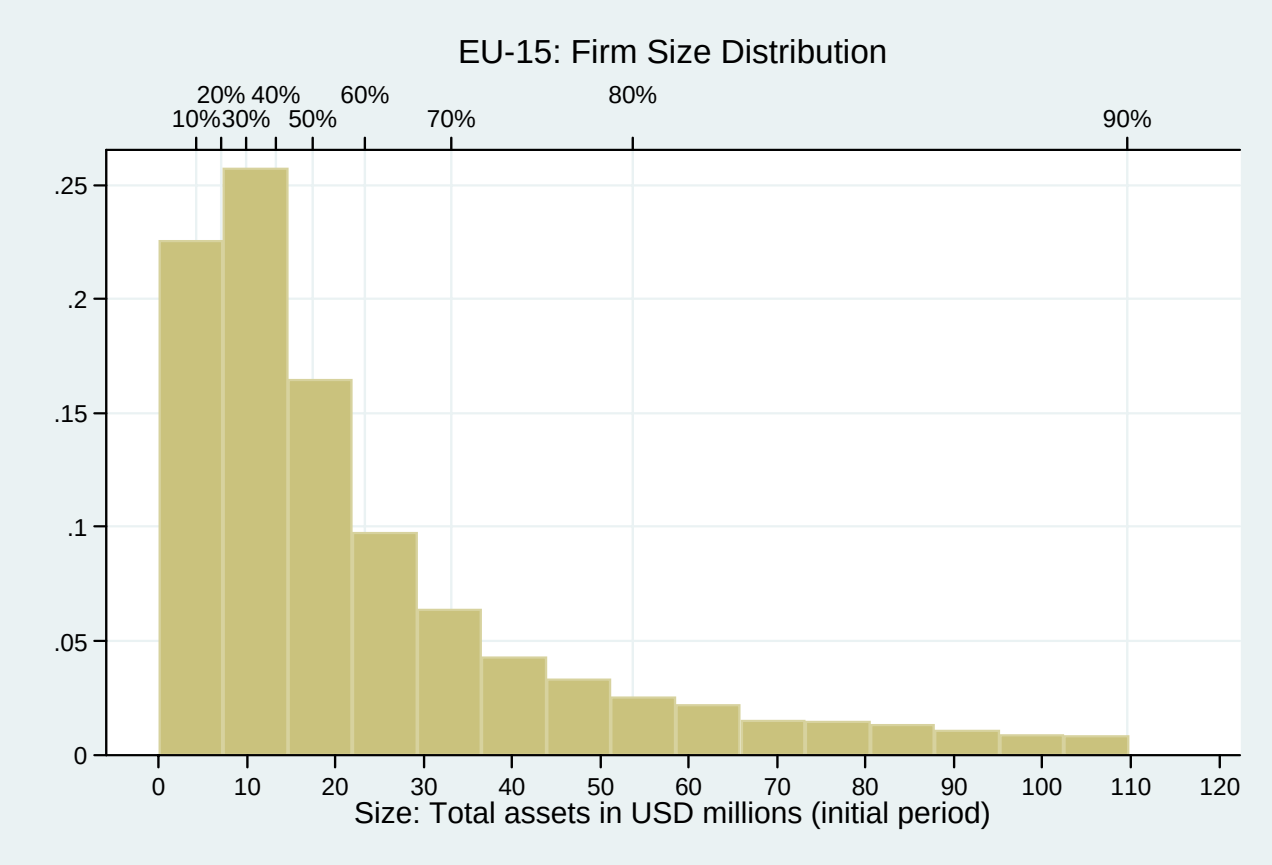


Figure 1

Note: Age (the number of years since firm incorporation as of 1995) is measured along the horizontal axis. The upper horizontal axis of each graph indicates deciles of the EU-15-wide age distribution. Before plotting the histograms we remove growth outliers (we use only the 5-to-95 percentile range of average firm value-added growth rate) and firms with less than 5 years of value-added data available. See the Data Appendix for complete definitions and sources of variables.



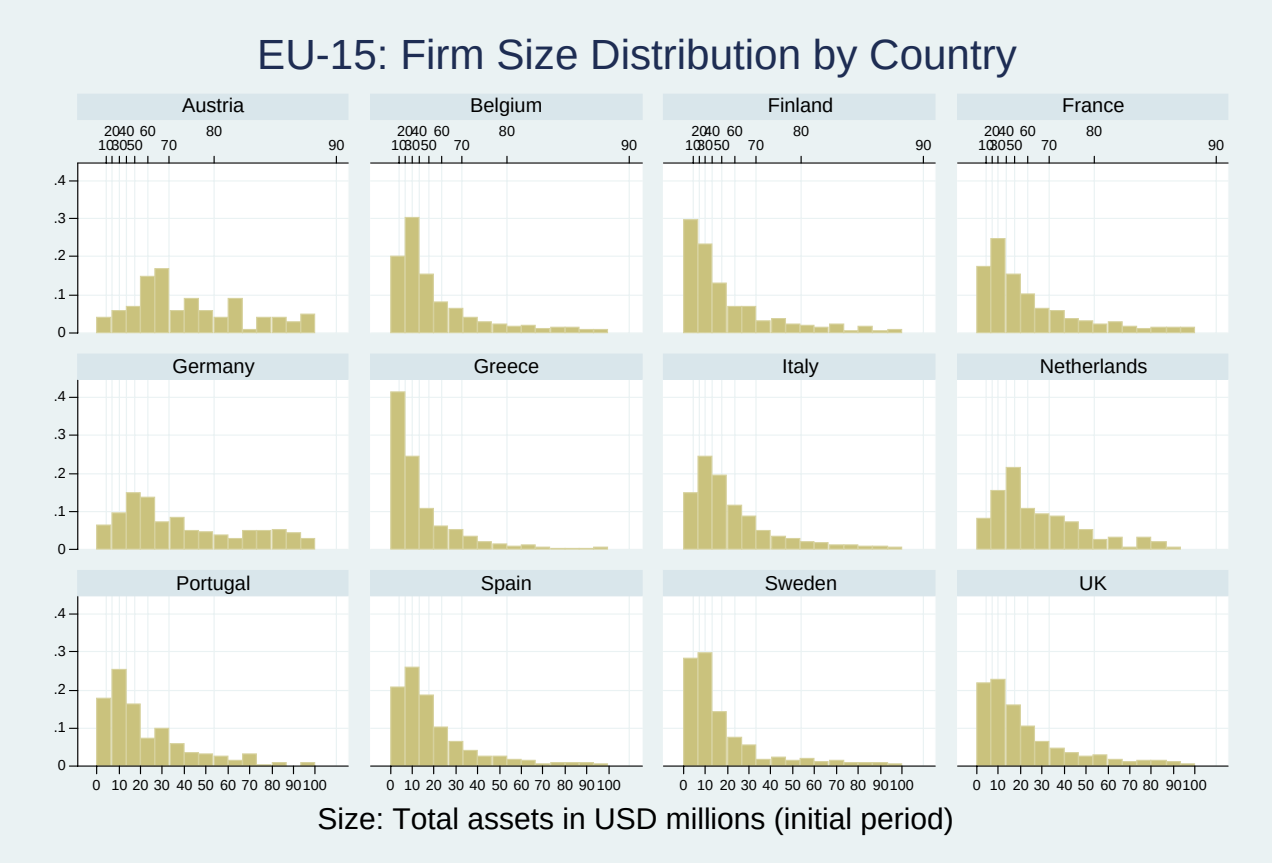


Figure 2

Note: Size (total assets in millions of US dollars as of the first year a firm enters the sample) is measured along the horizontal axis. The upper horizontal axis of each graph indicates deciles of the EU-15-wide size distribution. Before plotting the histograms we remove growth outliers (we use only the 5-to-95 percentile range of average firm value-added growth rate) and firms with less than 5 years of value-added data available. See the Data Appendix for complete definitions and sources of variables.

Table 2
Financial Development: The EU-15 over 1990-1994

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
		Basic Statistics			
Mean	0.86	0.31	1.35	0.13	0.64
Median	0.89	0.22	1.45	0.07	0.63
S.D. / Mean	0.38	0.80	0.33	0.94	0.20
Min	0.32	0.10	0.51	0.03	0.36
Max	1.41	0.97	2.25	0.45	0.83
Min Country	Greece	Austria	Greece	Greece	Portugal
Max Country	Netherlands	UK	UK	UK	Sweden
N	12	12	12	12	12
		Correlations			
Private Bank Credit	1.00				
Market Capitalization	0.57*	1.00			
Total Capitalization	0.71**	0.79***	1.00		
Market Value Traded	0.64**	0.90***	0.80***	1.00	
Accounting Standards	0.60**	0.57*	0.67**	0.51*	1.00

Note: We first compute the country average of each financial development measure in the period 1990-1994 (the exceptions is Accounting Standards, which correspond to 1990). Second, we present the Mean, Median, Coefficient of Variation, Min, and Max of the country averages from the first step across EU-15 countries. Denmark, Ireland, and Luxembourg are not included in this EU-15 comparison as they do not enter our firm-level analysis. The reported country-level financial development variables are used as explanatory variables in our regressions. See the Data Appendix for complete definitions and sources of variables.

Table 3

Financial Development (FD) and Corporate Growth: Linear Specification

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Size: Across- and Within-Industry Comparisons				
FD * Size	0.003	-0.022***	-0.005	-0.025*	-0.041
	(0.012)	(0.006)	(0.006)	(0.014)	(0.025)
Size	-0.006	0.004	0.004	0.001	0.023
	(0.012)	(0.003)	(0.010)	(0.004)	(0.017)
N	15,040	15,040	15,040	15,040	15,040
R^2	0.11	0.11	0.11	0.11	0.11
	Size: Within-Industry Comparisons				
FD * Size	-0.033***	-0.061***	-0.026***	-0.100***	-0.070***
	(0.011)	(0.019)	(0.006)	(0.032)	(0.014)
Size	0.006*	0.003	0.009***	0.002	0.010***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)
N	15,040	15,040	15,040	15,040	15,040
R^2	0.11	0.11	0.11	0.11	0.11
	Age: Across- and Within-Industry Comparisons				
FD * Age	0.042***	-0.002	0.019**	0.007	0.015
	(0.013)	(0.011)	(0.008)	(0.023)	(0.038)
Age	-0.104***	-0.065***	-0.095***	-0.067***	-0.077***
	(0.012)	(0.006)	(0.012)	(0.005)	(0.026)
N	15,040	15,040	15,040	15,040	15,040
R^2	0.11	0.11	0.11	0.11	0.11
	Age: Within-Industry Comparisons				
FD * Age	-0.099	-0.410**	-0.134	-0.548	-1.648***
	(0.201)	(0.203)	(0.117)	(0.410)	(0.402)
Age	-0.061***	-0.057***	-0.055***	-0.061***	-0.005
	(0.010)	(0.005)	(0.010)	(0.005)	(0.015)
N	15,040	15,040	15,040	15,040	15,040
R^2	0.11	0.11	0.11	0.11	0.11

Note: The dependent variable is the average of annual firm-level real value-added growth rates of manufacturing firms in the period 1995-2003. All country-level financial development variables are predetermined. Estimates in "Across- and Within-Industry Comparisons" panels are based on absolute measures of age and size: Age (the number of years since a firm's incorporation as of 1995) is scaled down by 100; Size (total assets) is in millions of US dollars. Estimates in "Within-Industry Comparisons" panels are based on relative measures of age and size: Age is the percentage deviation of firm's age from the industry median firm age on a 3-digit ISIC level and is scaled down by 10,000; Size is the percentage deviation of firm's size (total assets) from the industry median firm size on a 3-digit ISIC level and is scaled down by 10,000.

We also include (non-reported here) firm-level control variables: Leverage, measured as long-term debt plus current liabilities divided by total assets; Tangibility, measured as fixed assets divided by total assets; Collateralization, defined as fixed assets plus inventories plus accounts receivables divided by total assets; and Trade credit, measured as accounts payables divided by total assets. Tangibility, Collateral, and Trade Credit are measured as the percentage deviation from the respective industry median on a 3-digit ISIC level and are scaled down by 10,000. Age and Size (as well as all other firm-level control variables) come from the first year a firm enters the sample and remain fixed over time. We also include indicators for ownership concentration, a dummy for quoted firms, and a dummy for firms that have a Private Limited Company legal form.

See the Data Appendix for complete definitions and sources of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 4
Financial Development (FD) and Corporate Growth: Size Quintile Groups

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Size Q1	-0.023	-0.005	-0.007	0.015	-0.036
	(0.033)	(0.020)	(0.013)	(0.036)	(0.097)
FD * Size Q2	-0.021	-0.008	-0.008	-0.005	-0.061
	(0.023)	(0.013)	(0.009)	(0.022)	(0.061)
FD * Size Q3	-0.020	-0.008	-0.006	-0.014	-0.048
	(0.012)	(0.008)	(0.006)	(0.013)	(0.037)
FD * Size Q4	-0.007	-0.001	-0.002	0.000	-0.020
	(0.007)	(0.003)	(0.003)	(0.006)	(0.021)
Size Q1	0.102***	0.086***	0.094***	0.081***	0.108
	(0.030)	(0.012)	(0.021)	(0.013)	(0.066)
Size Q2	0.056**	0.041***	0.050***	0.039***	0.080*
	(0.020)	(0.008)	(0.015)	(0.008)	(0.042)
Size Q3	0.036***	0.022***	0.029**	0.021***	0.052*
	(0.011)	(0.006)	(0.011)	(0.005)	(0.026)
Size Q4	0.013**	0.007**	0.009*	0.006**	0.020
	(0.006)	(0.003)	(0.005)	(0.002)	(0.014)
N	15,040	15,040	15,040	15,040	15,040
R^2	0.20	0.20	0.20	0.20	0.20
	Within-Industry Comparisons				
FD * Size Q1	-0.029	-0.008	-0.009	0.004	-0.054
	(0.029)	(0.020)	(0.013)	(0.033)	(0.087)
FD * Size Q2	-0.020	-0.008	-0.007	-0.006	-0.048
	(0.019)	(0.012)	(0.008)	(0.020)	(0.057)
FD * Size Q3	-0.018	0.000	-0.005	-0.002	-0.031
	(0.011)	(0.008)	(0.007)	(0.017)	(0.033)
FD * Size Q4	-0.006*	0.003	0.000	0.002	-0.010
	(0.003)	(0.002)	(0.002)	(0.005)	(0.014)
Size Q1	0.105***	0.084***	0.094***	0.081***	0.118*
	(0.026)	(0.011)	(0.019)	(0.011)	(0.059)
Size Q2	0.052**	0.039***	0.047***	0.037***	0.068
	(0.017)	(0.007)	(0.013)	(0.007)	(0.039)
Size Q3	0.035***	0.021***	0.028**	0.021***	0.041*
	(0.009)	(0.006)	(0.011)	(0.005)	(0.022)
Size Q4	0.010***	0.004**	0.005	0.004**	0.012
	(0.002)	(0.002)	(0.003)	(0.002)	(0.010)
N	15,040	15,040	15,040	15,040	15,040
R^2	0.20	0.20	0.20	0.20	0.20

Note: The Table reports estimates obtained by interacting financial development measures with a step function based on a firm's position in quintiles of the firm size distribution. Estimates in the top panel are based on an absolute measure of firm size (total assets in millions of US dollars) while the coefficients in the bottom panel are based on the percentage deviation of firm's size from the industry median firm size on a 3-digit ISIC level. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

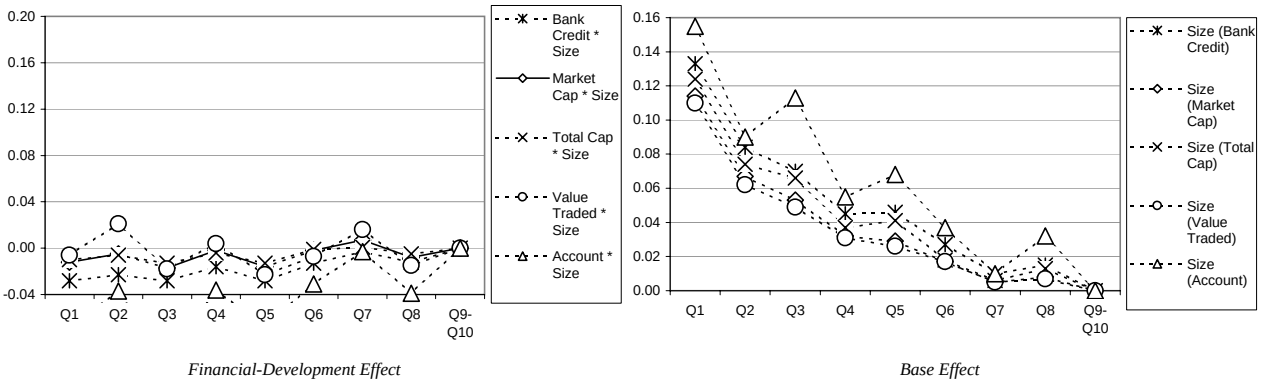
Table 5
Financial Development (FD) and Corporate Growth: Age Quintile Groups

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Age Q1	-0.004	0.012*	0.002	0.018	0.021
	(0.012)	(0.006)	(0.006)	(0.015)	(0.039)
FD * Age Q2	0.018	0.023***	0.011*	0.049***	0.064*
	(0.011)	(0.004)	(0.005)	(0.010)	(0.036)
FD * Age Q3	0.036**	0.040***	0.025***	0.077***	0.141***
	(0.013)	(0.004)	(0.003)	(0.009)	(0.041)
FD * Age Q4	0.022***	0.017***	0.013***	0.034***	0.082***
	(0.007)	(0.004)	(0.003)	(0.008)	(0.020)
Age Q1	0.041***	0.034***	0.035***	0.035***	0.024
	(0.009)	(0.005)	(0.008)	(0.004)	(0.026)
Age Q2	0.015	0.022***	0.014*	0.023***	-0.013
	(0.009)	(0.004)	(0.008)	(0.004)	(0.024)
Age Q3	-0.011	0.004	-0.017***	0.006**	-0.077**
	(0.008)	(0.003)	(0.004)	(0.003)	(0.026)
Age Q4	-0.014**	-0.003	-0.015**	-0.002	-0.051***
	(0.006)	(0.003)	(0.006)	(0.003)	(0.014)
N	15,179	15,179	15,179	15,179	15,179
R^2	0.12	0.12	0.12	0.12	0.12
	Within-Industry Comparisons				
FD * Age Q1	-0.003	0.013*	0.002	0.021	0.023
	(0.012)	(0.006)	(0.007)	(0.016)	(0.037)
FD * Age Q2	0.013	0.022***	0.011*	0.044***	0.054
	(0.013)	(0.005)	(0.005)	(0.012)	(0.043)
FD * Age Q3	0.040***	0.041***	0.025***	0.081***	0.141***
	(0.013)	(0.004)	(0.003)	(0.010)	(0.043)
FD * Age Q4	0.027***	0.021***	0.016***	0.043***	0.093***
	(0.007)	(0.004)	(0.003)	(0.009)	(0.022)
Age Q1	0.041***	0.035***	0.036***	0.036***	0.024
	(0.009)	(0.005)	(0.009)	(0.004)	(0.025)
Age Q2	0.020*	0.023***	0.015	0.024***	-0.006
	(0.010)	(0.004)	(0.008)	(0.004)	(0.028)
Age Q3	-0.011	0.006	-0.015**	0.008**	-0.074**
	(0.009)	(0.004)	(0.006)	(0.004)	(0.029)
Age Q4	-0.016**	-0.001	-0.017**	0.000	-0.056***
	(0.006)	(0.003)	(0.005)	(0.003)	(0.015)
N	15,179	15,179	15,179	15,179	15,179
R^2	0.12	0.12	0.12	0.12	0.12

Note: The Table reports estimates obtained by interacting financial development measures with a step function based on a firm's position in quintiles of the firm age distribution. Estimates in the top panel are based on the absolute measure of firm age (the number of years since a firm's incorporation as of 1995) scaled down by 100 while the coefficients in the bottom panel are based on the percentage deviation of firm's age from the industry median firm age on a 3-digit ISIC level. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

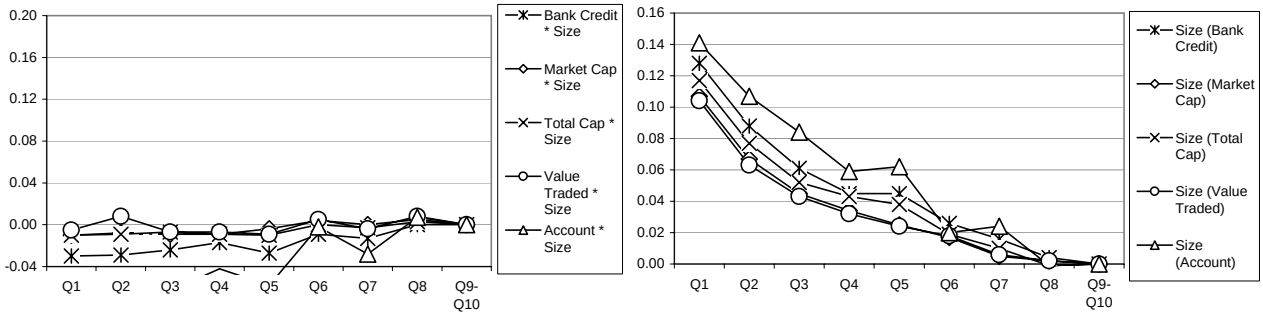
Financial Developemtn and Corporate Growth: Size Decile Groups

Across- and Within-Industry Comparisons



Financial-Development Effect *Base Effect*

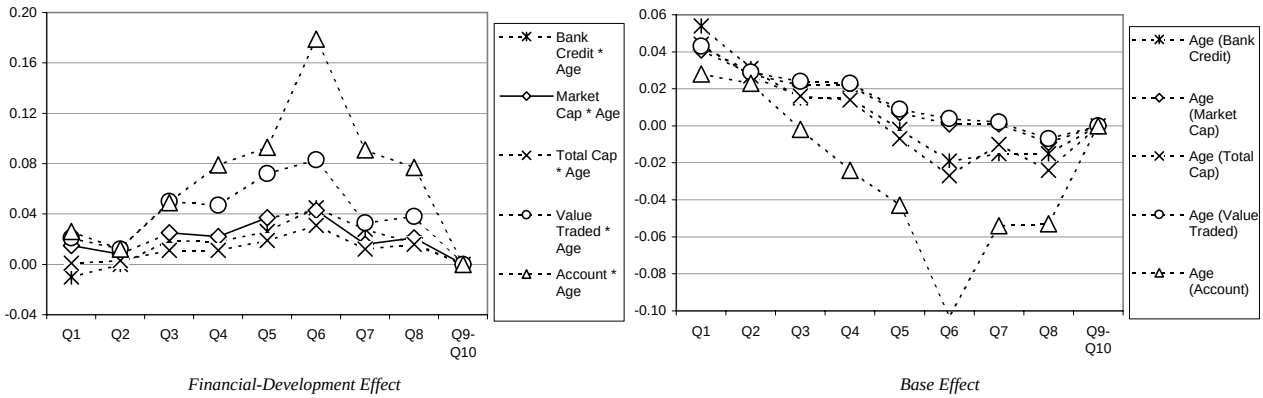
Within-Industry Comparisons



Financial-Development Effect *Base Effect*

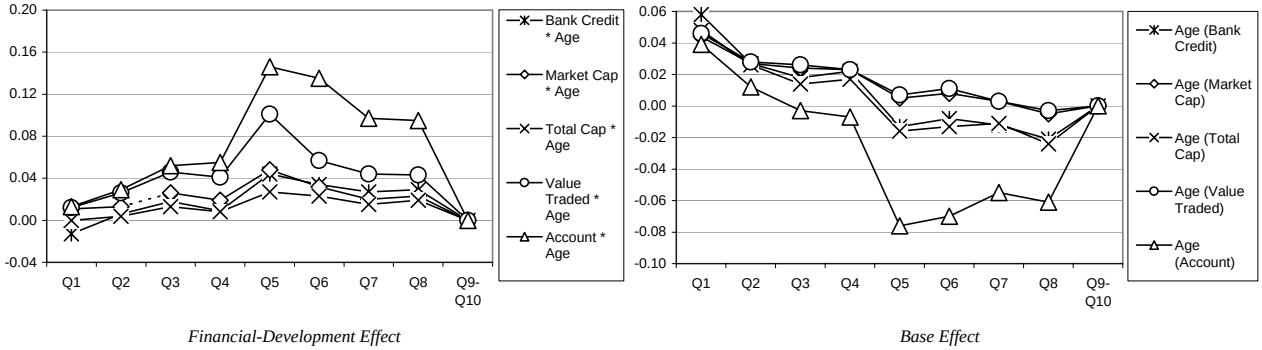
Financial Development and Corporate Growth: Age Decile Groups

Across- and Within-Industry Comparisons



Financial-Development Effect *Base Effect*

Within-Industry Comparisons



Financial-Development Effect *Base Effect*

Figure 3

Note: Data and equation specifications in the first (second) panel are analogous to those used in the first (second) panel of Table 4, except that we now use a decile step function in firms' size instead of a quintile one. The first panel uses the absolute measure of firms' size (total assets in millions of US dollars) and reports coefficients of the interaction of financial development indicators with size decile dummies (left) as well as the corresponding size groups base effect (right). The second panel reports analogous results from specifications based on a relative size measure (the percentage deviation of a firm's size from the industry median firm size).

Data and equation specifications in the third (fourth) panel are analogous to those in the first (second) panel of Table 5, except that we no use a decile step function in firms' age. The third panel employs (absolute) firms' age (the number of years since a firm's incorporation as of 1995) and reports coefficients of the interaction of financial development indicators with age decile dummies (left) as well as the corresponding age groups base effect (right). The last panel reports analogous results from specifications based on a relative age measure (the percentage deviation of a firm's age from the industry median firm age). See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies.

Table 6-A
Financial Development (FD) and Corporate Growth: Age and Size Quintile Groups

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Age Q1	-0.004	0.008**	0.003	0.008	0.007
	(0.007)	(0.003)	(0.003)	(0.008)	(0.022)
FD * Age Q2	0.015**	0.017***	0.009***	0.034***	0.048**
	(0.005)	(0.002)	(0.002)	(0.005)	(0.018)
FD * Age Q3	0.021**	0.024***	0.015***	0.043***	0.090***
	(0.007)	(0.005)	(0.003)	(0.008)	(0.016)
FD * Age Q4	0.010**	0.006	0.006**	0.012*	0.040**
	(0.004)	(0.004)	(0.003)	(0.006)	(0.013)
FD * Size Q1	-0.020	-0.008	-0.007	0.012	-0.036
	(0.032)	(0.020)	(0.012)	(0.035)	(0.093)
FD * Size Q2	-0.020	-0.010	-0.009	-0.007	-0.064
	(0.022)	(0.013)	(0.009)	(0.022)	(0.059)
FD * Size Q3	-0.019	-0.009	-0.007	-0.016	-0.051
	(0.012)	(0.007)	(0.005)	(0.013)	(0.034)
FD * Size Q4	-0.008	-0.002	-0.003	-0.001	-0.024
	(0.007)	(0.003)	(0.003)	(0.006)	(0.021)
Age Q1	0.027***	0.021***	0.019***	0.023***	0.019
	(0.005)	(0.002)	(0.004)	(0.002)	(0.015)
Age Q2	0.005	0.011***	0.004	0.012***	-0.015
	(0.004)	(0.002)	(0.003)	(0.002)	(0.011)
Age Q3	-0.008	0.000	-0.013***	0.002	-0.051***
	(0.005)	(0.002)	(0.004)	(0.002)	(0.011)
Age Q4	-0.007*	-0.002	-0.008*	-0.002	-0.026**
	(0.004)	(0.002)	(0.004)	(0.002)	(0.009)
Size Q1	0.100***	0.086***	0.093***	0.082***	0.108
	(0.029)	(0.012)	(0.019)	(0.013)	(0.064)
Size Q2	0.056**	0.043***	0.052***	0.041***	0.083*
	(0.020)	(0.008)	(0.015)	(0.008)	(0.041)
Size Q3	0.036***	0.024***	0.030**	0.023***	0.055**
	(0.011)	(0.006)	(0.010)	(0.005)	(0.024)
Size Q4	0.014**	0.008***	0.012**	0.007**	0.024
	(0.006)	(0.003)	(0.005)	(0.002)	(0.014)
N	15,179	15,179	15,179	15,179	15,179
R^2	0.21	0.21	0.21	0.21	0.21

Note: The Table reports estimates obtained by interacting financial development measures with two step functions, one based on a firm's position in quintiles of the firm age distribution, the other based on quintiles of the firms' size. Estimates are based on the absolute measure of firm age (the number of years since a firm's incorporation as of 1995) scaled down by 100 and the absolute measure of firm size (total assets in millions of US dollars). See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 6-B
Financial Development (FD) and Corporate Growth: Age and Size Quintile Groups

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
			Within-Industry Comparisons		
FD * Age Q1	0.003	0.013***	0.006*	0.021**	0.023
	(0.007)	(0.003)	(0.003)	(0.007)	(0.023)
FD * Age Q2	0.011	0.018***	0.010***	0.035***	0.041
	(0.008)	(0.002)	(0.003)	(0.004)	(0.025)
FD * Age Q3	0.030***	0.030***	0.019***	0.057***	0.107***
	(0.008)	(0.006)	(0.003)	(0.010)	(0.024)
FD * Age Q4	0.016***	0.011**	0.010***	0.023**	0.053***
	(0.004)	(0.004)	(0.003)	(0.009)	(0.010)
FD * Size Q1	-0.027	-0.012	-0.010	-0.004	-0.057
	(0.028)	(0.020)	(0.012)	(0.032)	(0.082)
FD * Size Q2	-0.018	-0.011	-0.008	-0.010	-0.051
	(0.018)	(0.011)	(0.007)	(0.018)	(0.053)
FD * Size Q3	-0.018	-0.002	-0.006	-0.006	-0.037
	(0.011)	(0.008)	(0.007)	(0.016)	(0.031)
FD * Size Q4	-0.007**	0.001	-0.001	-0.001	-0.013
	(0.003)	(0.002)	(0.002)	(0.005)	(0.014)
Age Q1	0.022***	0.020***	0.016***	0.022***	0.009
	(0.004)	(0.002)	(0.004)	(0.001)	(0.015)
Age Q2	0.009	0.012***	0.004	0.013***	-0.009
	(0.006)	(0.002)	(0.004)	(0.002)	(0.016)
Age Q3	-0.013**	0.000	-0.015***	0.002	-0.060***
	(0.005)	(0.003)	(0.004)	(0.002)	(0.016)
Age Q4	-0.011**	-0.001	-0.011**	-0.001	-0.033***
	(0.004)	(0.002)	(0.004)	(0.002)	(0.007)
Size Q1	0.104***	0.086***	0.096***	0.082***	0.120*
	(0.025)	(0.011)	(0.018)	(0.011)	(0.057)
Size Q2	0.052***	0.040***	0.048***	0.038***	0.070*
	(0.016)	(0.006)	(0.012)	(0.007)	(0.037)
Size Q3	0.036***	0.022***	0.030**	0.022***	0.046*
	(0.009)	(0.005)	(0.010)	(0.005)	(0.021)
Size Q4	0.012***	0.005**	0.007**	0.005**	0.014
	(0.002)	(0.002)	(0.003)	(0.002)	(0.009)
N	15,179	15,179	15,179	15,179	15,179
R^2	0.21	0.21	0.21	0.21	0.21

Note: The Table reports results analogous to the ones in Table 6-A except that the estimates are based on our relative measures of firm age and firm size: Age/size are measured as the percentage deviation of a firm's age/size from the industry median firm age/size on a 3-digit ISIC level and are scaled down by 10,000. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 7-A

Financial Development (FD) and Corporate Growth: Age Quintile Groups by Firm Size

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Age Q1 * Small	0.008	0.029***	0.011*	0.062***	0.029
	(0.017)	(0.005)	(0.005)	(0.011)	(0.047)
FD * Age Q2 * Small	0.024	0.030***	0.015***	0.070***	0.064
	(0.014)	(0.005)	(0.005)	(0.015)	(0.036)
FD * Age Q3 * Small	0.028**	0.029***	0.020***	0.062***	0.105***
	(0.012)	(0.005)	(0.003)	(0.010)	(0.034)
FD * Age Q4 * Small	0.011	-0.002	0.006*	0.001	0.055***
	(0.007)	(0.007)	(0.003)	(0.015)	(0.017)
FD * Age Q1 * Big	-0.022*	-0.012	-0.006	-0.034*	-0.017
	(0.012)	(0.007)	(0.005)	(0.018)	(0.046)
FD * Age Q2 * Big	0.007	0.008*	0.005	0.017**	0.036
	(0.008)	(0.004)	(0.005)	(0.007)	(0.033)
FD * Age Q3 * Big	0.024**	0.033***	0.019***	0.057***	0.096**
	(0.011)	(0.008)	(0.003)	(0.012)	(0.034)
FD * Age Q4 * Big	0.021***	0.023**	0.013***	0.042***	0.063***
	(0.004)	(0.008)	(0.003)	(0.013)	(0.017)
Big	-0.037***	-0.041***	-0.037***	-0.040***	-0.034***
	(0.006)	(0.005)	(0.005)	(0.006)	(0.004)
Age Q2	0.036***	0.027***	0.027***	0.028***	0.027
	(0.010)	(0.003)	(0.006)	(0.002)	(0.029)
Age Q2	0.011	0.016***	0.009	0.017***	-0.010
	(0.008)	(0.003)	(0.006)	(0.003)	(0.023)
Age Q3	-0.009	0.000	-0.015***	0.002	-0.055**
	(0.007)	(0.002)	(0.003)	(0.002)	(0.021)
Age Q4	-0.012**	-0.004	-0.013**	-0.003	-0.038***
	(0.005)	(0.002)	(0.005)	(0.002)	(0.012)
N	15,179	15,179	15,179	15,179	15,179
R^2	0.17	0.17	0.17	0.17	0.17

Note: The Table reports estimates of a triple-interaction specification, in which we multiply the interaction of financial development measures with a step function based on firms' position in quintiles of the firm age distribution by a dummy variable for 'Small' firms (those with below-median total assets) or by a dummy variable for 'Big' firms (those with above-median total assets). Estimates are based on the absolute measure of firm age (the number of years since a firm's incorporation as of 1995) scaled down by 100. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 7-B

Financial Development (FD) and Corporate Growth: Age Quintile Groups by Firm Size

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
			Within-Industry Comparisons		
FD * Age Q1 * Small	0.007	0.026***	0.009	0.056***	0.025
	(0.015)	(0.006)	(0.005)	(0.013)	(0.041)
FD * Age Q2 * Small	0.018	0.028***	0.016***	0.062***	0.055
	(0.016)	(0.006)	(0.005)	(0.012)	(0.044)
FD * Age Q3 * Small	0.035**	0.034***	0.023***	0.076***	0.119***
	(0.013)	(0.006)	(0.004)	(0.012)	(0.035)
FD * Age Q4 * Small	0.018*	0.004	0.011***	0.012	0.067***
	(0.009)	(0.005)	(0.003)	(0.012)	(0.020)
FD * Age Q1 * Big	-0.019*	-0.010	-0.005	-0.029*	-0.016
	(0.010)	(0.006)	(0.005)	(0.014)	(0.039)
FD * Age Q2 * Big	0.004	0.011**	0.007	0.019	0.031
	(0.010)	(0.005)	(0.004)	(0.011)	(0.041)
FD * Age Q3 * Big	0.031***	0.035***	0.021***	0.060***	0.111***
	(0.009)	(0.010)	(0.003)	(0.014)	(0.035)
FD * Age Q4 * Big	0.025***	0.026***	0.015***	0.053***	0.069***
	(0.005)	(0.006)	(0.003)	(0.012)	(0.019)
Big	-0.037***	-0.041***	-0.037***	-0.040***	-0.033***
	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)
Age Q2	0.035***	0.028***	0.028***	0.029***	0.028
	(0.009)	(0.003)	(0.006)	(0.002)	(0.026)
Age Q2	0.015	0.016***	0.008	0.018***	-0.005
	(0.009)	(0.003)	(0.006)	(0.003)	(0.027)
Age Q3	-0.012*	0.001	-0.016***	0.003	-0.062**
	(0.007)	(0.003)	(0.004)	(0.003)	(0.022)
Age Q4	-0.014**	-0.002	-0.015***	-0.002	-0.042***
	(0.005)	(0.002)	(0.005)	(0.002)	(0.013)
N	15,179	15,179	15,179	15,179	15,179
R^2	0.17	0.17	0.17	0.17	0.17

Note: The Table reports results analogous to the ones in Table 7-A except that the estimates are based on our relative measures of firm age and firm size: Age/size are measured as the percentage deviation of a firm's age/size from the industry median firm age/size on a 3-digit ISIC level and are scaled down by 10,000. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 8-A
Fin. Development (FD) and Corporate Growth: Age and Tangibility Quintile Groups

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Age Q1	-0.000	0.016***	0.006	0.023	0.025
	(0.013)	(0.005)	(0.006)	(0.015)	(0.041)
FD * Age Q2	0.018	0.021***	0.011*	0.043***	0.042
	(0.011)	(0.005)	(0.005)	(0.012)	(0.038)
FD * Age Q3	0.036***	0.035***	0.024***	0.069***	0.108**
	(0.012)	(0.006)	(0.003)	(0.013)	(0.041)
FD * Age Q4	0.025**	0.020***	0.016***	0.040***	0.070**
	(0.009)	(0.005)	(0.004)	(0.010)	(0.025)
FD * Tangibility Q1	0.021*	0.011**	0.014***	0.028**	0.061
	(0.010)	(0.004)	(0.003)	(0.010)	(0.037)
FD * Tangibility Q2	0.025***	0.015*	0.014**	0.025*	0.057***
	(0.008)	(0.007)	(0.005)	(0.013)	(0.018)
FD * Tangibility Q3	0.027*	0.020**	0.016***	0.042***	0.039
	(0.012)	(0.007)	(0.004)	(0.014)	(0.034)
FD * Tangibility Q4	0.025***	0.016**	0.011***	0.033**	0.040
	(0.006)	(0.005)	(0.003)	(0.011)	(0.029)
Age Q1	0.033***	0.028***	0.025**	0.030***	0.016
	(0.010)	(0.005)	(0.009)	(0.004)	(0.028)
Age Q2	0.011	0.019***	0.011	0.019***	-0.002
	(0.009)	(0.005)	(0.009)	(0.005)	(0.026)
Age Q3	-0.014	0.003	-0.019**	0.005	-0.056*
	(0.009)	(0.005)	(0.007)	(0.005)	(0.028)
Age Q4	-0.019**	-0.006	-0.021***	-0.005	-0.045**
	(0.007)	(0.004)	(0.006)	(0.004)	(0.018)
Tangibility Q1	-0.019**	-0.005	-0.020***	-0.006	-0.041
	(0.009)	(0.005)	(0.005)	(0.005)	(0.024)
Tangibility Q2	-0.032***	-0.017**	-0.031***	-0.016**	-0.049***
	(0.009)	(0.006)	(0.008)	(0.006)	(0.014)
Tangibility Q3	-0.033**	-0.018**	-0.034***	-0.017**	-0.037
	(0.011)	(0.006)	(0.009)	(0.006)	(0.024)
Tangibility Q4	-0.029***	-0.014**	-0.025***	-0.014**	-0.035
	(0.007)	(0.005)	(0.007)	(0.005)	(0.021)
N	16,770	16,770	16,768	16,770	16,768
R^2	0.10	0.10	0.10	0.10	0.10

Note: The Table reports estimates obtained by interacting financial development measures with a step function corresponding to firms' position in quintiles of the firm age and with an analogous step function based on firms' tangibility. Estimates are based on the absolute measure of age (the number of years since a firm's incorporation as of 1995) scaled down by 100 and a relative measure of tangibility (the percentage deviation from the industry median on a 3-digit ISIC level scaled down by 10,000). See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 8-B
Fin. Development (FD) and Corporate Growth: Size and Tangibility Quintile Groups

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Size Q1	0.006	0.004	0.009**	0.011	0.018
	(0.010)	(0.006)	(0.003)	(0.010)	(0.038)
FD * Size Q2	0.009	0.002	0.005	0.003	0.021
	(0.005)	(0.007)	(0.005)	(0.014)	(0.015)
FD * Size Q3	0.011	0.007	0.008**	0.018	0.007
	(0.009)	(0.006)	(0.003)	(0.011)	(0.023)
FD * Size Q4	0.015	0.012**	0.008**	0.030**	0.031
	(0.009)	(0.005)	(0.003)	(0.010)	(0.027)
FD * Tangibility Q1	-0.021	-0.004	-0.006	0.016	-0.032
	(0.033)	(0.020)	(0.013)	(0.035)	(0.095)
FD * Tangibility Q2	-0.021	-0.008	-0.008	-0.005	-0.060
	(0.022)	(0.013)	(0.009)	(0.021)	(0.061)
FD * Tangibility Q3	-0.020	-0.008	-0.006	-0.015	-0.045
	(0.012)	(0.007)	(0.006)	(0.013)	(0.036)
FD * Tangibility Q4	-0.007	-0.000	-0.002	0.000	-0.018
	(0.006)	(0.003)	(0.002)	(0.005)	(0.021)
Size Q1	-0.009	-0.006	-0.016**	-0.006	-0.016
	(0.009)	(0.005)	(0.006)	(0.005)	(0.024)
Size Q2	-0.017**	-0.011**	-0.017**	-0.011**	-0.023*
	(0.006)	(0.005)	(0.007)	(0.004)	(0.011)
Size Q3	-0.020**	-0.013**	-0.022***	-0.014***	-0.015
	(0.008)	(0.005)	(0.006)	(0.004)	(0.017)
Size Q4	-0.020**	-0.012**	-0.020***	-0.013***	-0.029
	(0.008)	(0.004)	(0.006)	(0.004)	(0.019)
Tangibility Q1	0.101***	0.085***	0.092***	0.081***	0.105
	(0.029)	(0.012)	(0.020)	(0.012)	(0.065)
Tangibility Q2	0.056**	0.041***	0.049***	0.039***	0.079*
	(0.019)	(0.008)	(0.015)	(0.008)	(0.041)
Tangibility Q3	0.036***	0.022***	0.028**	0.021***	0.050*
	(0.011)	(0.006)	(0.011)	(0.005)	(0.025)
Tangibility Q4	0.013**	0.007**	0.009*	0.006**	0.019
	(0.005)	(0.002)	(0.005)	(0.002)	(0.014)
N	15,040	15,040	15,040	15,040	15,040
R^2	0.20	0.20	0.20	0.20	0.20

Note: The Table reports results analogous to those in Table 8-A except that the interactions are based on firms' size (total assets in millions of US dollars) instead of age. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 9
Financial Development (FD) and Equity Endowment at Firms' Incorporation

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
		Newly Incorporated Firms			
FD	-0.180***	0.018	-0.035	-0.040	-0.252
	(0.053)	(0.049)	(0.032)	(0.144)	(0.230)
N	718	718	718	718	718
R^2	0.27	0.26	0.26	0.26	0.26
		All Firms			
FD * Incorporation	-0.116***	-0.088*	-0.066**	-0.183*	-0.242*
	(0.037)	(0.045)	(0.024)	(0.093)	(0.111)
Incorporation	0.141***	0.078***	0.139***	0.074***	0.209**
	(0.040)	(0.024)	(0.035)	(0.023)	(0.087)
Age	-0.106***	-0.105***	-0.106***	-0.106***	-0.105***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
N	15,987	15,987	15,987	15,987	15,987
R^2	0.14	0.14	0.14	0.14	0.14
		All Firms			
FD * Incorporation	-0.107**	-0.083*	-0.060**	-0.166*	-0.229*
	(0.035)	(0.042)	(0.022)	(0.084)	(0.106)
Incorporation	0.098**	0.041	0.096**	0.036	0.164*
	(0.043)	(0.027)	(0.039)	(0.026)	(0.085)
Age Q1	0.088***	0.088***	0.088***	0.088***	0.088***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Age Q2	0.045***	0.045***	0.045***	0.045***	0.045***
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Age Q3	0.007	0.006	0.007	0.007	0.006
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Age Q4	-0.001	-0.002	-0.001	-0.001	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
N	16,138	16,138	16,138	16,138	16,138
R^2	0.15	0.15	0.15	0.15	0.15

Note: The dependent variable is the fraction of firm's equity capital on total assets and is measured as of the first year a firm enters the sample and remains fixed over time. Incorporation is a binary variable equal to unity if a firm enters the sample with age 0 or 1. The first panel reports estimates from specification where we control for 3-digit-ISIC industry dummies, not shown. The second panel reports estimates from specification where we control for 3-digit-ISIC industry and country dummies, not shown. In all specifications we use additional firm-level control variables; see Table 3 notes for a list and the Data Appendix for definitions of variables. All specifications are linear regressions. We remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 10

Financial Development (FD) and Corporate Growth: Using Cross-Industry Size Variation

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
			All Firms, No Firm-Level Controls		
FD * Industry Size	-0.674	-0.604	-0.336	-1.393	-2.284
	(0.641)	(0.436)	(0.325)	(0.863)	(1.849)
N	15,179	15,179	15,179	15,179	15,179
R^2	0.06	0.06	0.06	0.06	0.06
			All Firms, with Firm-Level Controls		
FD * Industry Size	-0.468	-0.630	-0.319	-1.362	-2.111
	(0.584)	(0.402)	(0.292)	(0.829)	(1.622)
Firm Size	-0.003*	-0.004*	-0.004*	-0.004*	-0.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
N	15,040	15,040	15,040	15,040	15,040
R^2	0.11	0.11	0.11	0.11	0.11
			Firms Near Industry Median Size, with Firm-Level Controls		
FD * Industry Size	-0.220	0.475	0.156	0.854	0.232
	(0.709)	(0.579)	(0.448)	(1.271)	(2.104)
Firm Size	-0.748*	-0.732*	-0.742*	-0.729*	-0.745*
	(0.431)	(0.436)	(0.434)	(0.436)	(0.433)
N	3,041	3,041	3,041	3,041	3,041
R^2	0.11	0.11	0.11	0.11	0.11
			Firms Near Industry Median Size, with Firm-Level Controls		
FD * Firm Size	0.082	0.801	0.505	1.280	0.989
	(0.688)	(0.731)	(0.464)	(1.356)	(2.306)
Firm Size	-0.807	-0.987**	-1.426*	-0.893**	-1.397
	(0.647)	(0.458)	(0.737)	(0.427)	(1.555)
N	3,041	3,041	3,041	3,041	3,041
R^2	0.11	0.11	0.11	0.11	0.11
			Firms Near Industry Median Size, with Firm-Level Controls		
FD * Firm Size Q1	-0.008	-0.014	-0.009	-0.026	-0.026
	(0.017)	(0.010)	(0.010)	(0.020)	(0.034)
FD * Firm Size Q2	-0.011	-0.028***	-0.020**	-0.053***	-0.051
	(0.020)	(0.007)	(0.007)	(0.017)	(0.056)
FD * Firm Size Q3	-0.004	-0.011	-0.003	-0.019	-0.026
	(0.018)	(0.008)	(0.010)	(0.016)	(0.037)
FD * Firm Size Q4	-0.002	-0.019**	-0.010	-0.039***	-0.018
	(0.018)	(0.007)	(0.006)	(0.012)	(0.059)
Firm Size Q1	0.017	0.016	0.023	0.015	0.028
	(0.018)	(0.009)	(0.017)	(0.009)	(0.026)
Firm Size Q2	0.017	0.018**	0.036***	0.016*	0.043
	(0.016)	(0.007)	(0.011)	(0.008)	(0.035)
Firm Size Q3	-0.001	-0.001	-0.000	-0.002	0.013
	(0.017)	(0.007)	(0.016)	(0.006)	(0.026)
Firm Size Q4	0.003	0.007*	0.015	0.006	0.013
	(0.013)	(0.004)	(0.009)	(0.004)	(0.037)
N	3,041	3,041	3,041	3,041	3,041
R^2	0.11	0.11	0.11	0.11	0.11

Note: The first panel of the Table reports estimates from linear specifications, in which we interact financial development variables with industry median firm size (on ISIC 3-digit level). In the second panel, firm-level control variables are added (see Table 3 notes for a list of control variables used and the Data Appendix for definitions of variables). The third panel is analogous to the second panel, except that we only use companies falling into the 40-60 percentile range of industry-specific size distributions. This sub-sample is then used in the bottom two panels, where we intereact financial development with firm-level size. Firm size is measured using total assets in millions of US dollars as of the first year a firm enters the sample and remains fixed over time.

All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. We always control for 3-digit-ISIC industry and country dummies, not shown. Robust standard errors (clustered at ISIC 3-digit-level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table DA.1
Definition of Variables

	Amadeus Firm-level Variables
VA	Firm-level value-added in current prices deflated by PPI. As PPI we use Eurostat's not seasonally adjusted domestic output price index (in national currency) which covers total industry (excluding construction). Source: Amadeus.
VA_Growth	Annual firm-level growth rate of real value-added based on VA. The formula for VA_Growth we use is $(VA_t - VA_{t-1}) / ABS(½ VA_t + ½ VA_{t-1})$. In our estimations, we use residuals from regression of all observed firm-level annual growth rates (VA_Growth) on year dummies. Source: Amadeus.
VA_ShortPanel	0/1 variable, equal 1 if less than five years of value-added data available for a firm and 0 otherwise. Source: Amadeus.
VA_Negative	0/1 variable, equal 1 if the current or one lag value-added figure used while calculating annual firm growth (VA_Growth) was negative and 0 otherwise. Source: Amadeus.
VA_Avg	Simple average of the annual real firm-level value-added growth rates (VA_Growth) over the years a firm is available in the database for the period 1995-2003. Source: Amadeus.
VA_Med	Median of the annual real firm-level value-added growth rates (VA_Growth) over the years a firm is available in the database for the period 1995-2003. Source: Amadeus.
VA_StartEnd	Average growth of the real firm-level value-added calculated based on the value-added in the first year the firm appears in the database, VA_FirstYear, and the value-added in the last year the firm appears in the database, VA_LastYear, in the period 1995-2003 as follows: [(VA_LastYear – VA_FirstYear) / ABS(½ VA_FirstYear + ½ VA_LastYear)] / (LastYear - FirstYear). Source: Amadeus.
Age_A	The number of years from firm's incorporation (STATDATE - YEARINC) scaled down by 100. It is calculated as of 1995 and remains fixed over time. Source: Amadeus.
Age_R	The percentage deviation of firm's age (Age_A) from the industry median firm age on a 3-digit ISIC level and is scaled down by 10,000. It is calculated as of 1995 and remains fixed over time. Source: Amadeus.
Size_A	Firm's total assets (TOAS) in millions of US dollars. We use IMF-IFS annual average exchange rates to convert total assets into US dollars. It is calculated as of the initial-period (the first year a firm enters the sample) and remains fixed over time. Source: Amadeus.
Size_R	The percentage deviation of firm's total assets (TOAS) from the industry median firm size on 3-digit ISIC level, scaled down by 100. It is calculated as of the initial-period (the first year a firm enters the sample) and remains fixed over time. Source: Amadeus.
Leverage	Measured as a long term debt (LTDB) plus current liabilities (CULI) divided by total assets (TOAS). It is calculated as of the initial-period (the first year a firm enters the sample and remains fixed over time). Source: Amadeus.
Tangibility	Tangibility is defined as fixed assets (FIAS) divided by total assets (TOAS). We use the percentage deviation of firm's tangibility from the industry median firm tangibility on 3-digit ISIC level, scaled down by 100. It is calculated as of the initial-period (the first year a firm enters the sample and remains fixed over time). Source: Amadeus.
Collateralization	Collateralization is defined as fixed assets (FIAS) plus inventories (STOK) plus accounts receivables (DEBT) divided by total assets (TOAS). We use the percentage deviation of firm's collateralization from the industry median firm collateralization on 3-digit ISIC level, scaled down by 100. It is calculated as of the initial-period (the first year a firm enters the sample and remains fixed over time). Source: Amadeus.
Trade Credit	Trade credit is defined as accounts payables (CRED) divided by total assets (TOAS). We use the percentage deviation of firm's trade credit from the industry median firm trade credit on 3-digit ISIC level, scaled down by 100. It is calculated as of the initial-period (the first year a firm enters the sample and remains fixed over time). Source: Amadeus.
Financial Cost	Financial cost is defined as financial expenditures (FIEX) divided by the sum of non-current liabilities (NCLI) and total loans (LOAN). We use the percentage deviation of firm's financial cost from the industry median firm financial cost on 3-digit ISIC level, scaled down by 100. It is calculated as of the initial-period (the first year a firm enters the sample and remains fixed over time). Source: Amadeus.
Quoted	0/1 variable, equal 1 if the firm is publicly listed company and 0 otherwise. Source: Amadeus.

Private Limited Company	0/1 variable, equal 1 if the firm is 'Limited Liability Company' (Company whose capital is divided into shares which cannot be offered to the general public. The liability of its members is limited to the amount of their shares.) and 0 if the firm is 'Limited Company' (Company whose capital is divided into shares which can be offered to the general public and whose members are only liable for its debts to the extent of any amount unpaid on their shares.) Source: Amadeus.
Independence	Set of four 0/1 variables capturing firm's concentration of ownership structure (INDEPIND). INDEPIND_A equal 1 for a firm with no recorded shareholder with an ownership over 24.99% (either direct or total) and 0 otherwise. INDEPIND_B equal 1 for a firm with no recorded shareholder with an ownership percentage (direct or total) over 49.99%, but having one or more shareholders with an ownership percentage over 24.99% and 0 otherwise. INDEPIND_C equal 1 for a firm with a recorded shareholder with an ownership (direct or total) over 49.99% (also equal to 1 when firm indicates that the company has an Ultimate Owner) and 0 otherwise. INDEPIND_U equal 1 for a firm not falling into the categories A, B, or C indicating an unknown degree of independence. Source: Amadeus.
Equity Endowment	Firm's equity capital (CAPI) scaled by total assets (TOAS). It is calculated as of the initial-period (the first year a firm enters the sample) and remains fixed over time. Source: Amadeus.
Incorporation	0/1 variable, equal 1 if the firm enters the sample with age (Age_A) 0 or 1. Source: Amadeus.
	Financial Development Country-level Variables
PCDMBANKOFINSTGDP	Private credit by deposit money banks and other financial institutions to GDP. Average over the period 1990-1994. Source: The Word Bank Financial Structure and Economic Development Database.
STMCAPGDP	Stock market capitalization to GDP. Average over the period 1990-1994. Source: The Word Bank Financial Structure and Economic Development Database.
STMTVTGDP	Stock market total value traded to GDP. Average over the period 1990-1994. Source: The Word Bank Financial Structure and Economic Development Database.
Total Capitalization	The sum of (i) stock market capitalisation, (ii) bank credit to the private sector and (iii) domestic debt securities issued by the private sector to GDP. Average over the period 1990-1994. Source: Hartmann et al. (2006), Chart 1.
ACCOUNT	Index created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items in balance sheets and income statements and published by the Center for International Financial Analysis & Research, Inc. The maximum is 90, the minimum 0 and we scaled it down by 100. Source: The Center for International Financial Analysis & Research, Inc.

Table DA.2
Legal Forms in the EU-15

Country	Limited Companies	Limited Liability Companies
Austria / Germany	Aktiengesellschaft (AG, AG & Co KG)	Gesellschaft mit beschraekter Haftung (GmbH, GmbH & Co KG, Einzelfirma)
Belgium	Naamloze Vennootschap (NV), Société Anonyme (SA)	Besloten Vennootschap, (E)BVBA; Société Privée a Responsabilité Limite, SPRL(U)
Denmark	Limited Company, Company with Limited Liability (A/S)	Private Limited Company (ApS)
Finland	Osakeyhtiö a Julkinen (OYJ)	Osakeyhtiö (OY)
France	Société Anonyme (SA)	Société a Responsabilité Limite (SARL)
Greece	SA	Limited liability company (EPE), Sole shareholder limited liability company
Italy	Societa Per Azioni (SPA)	Societa a Responsabilita Limitata (SRL, SCARL)
Netherlands	Naamloze Vennootschap (NV)	Besloten Vennootschap (BV)
Portugal	Sociedade Anónima (SA)	Sociedade por Quotas Responsibilidada Limitada (LDA)
Spain	Sociedad Anónima (SA)	Sociedad Limitada (SL)
Sweden	AB - Public Limited	AB - Private Limited
United Kingdom / Ireland	Guarantee; Public, A.I.M.; Public, investment trust; Public, not quoted; Public, quoted; Unlimited	Private

Note: In order to ensure comparability of sampled firms across countries, we include only companies from the two broad categories: Limited Companies (companies whose capital is divided into shares which can be offered to the general public and whose members are only liable for its debts to the extent of any amount unpaid on their shares) and Limited Liability Companies (companies whose capital is divided into shares which cannot be offered to the general public. The liability of its members is limited to the amount of their shares). We exclude partnerships (at least one partner is liable for the firm's debts), sole proprietorships (there is only one shareholder) and cooperatives. We follow Bureau van Dijk’s grouping of the firms’ types. See Klapper et al. (2006) for a similar approach.

Table A.1-A
Industry-Country Dummies

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Age Q1	-0.002	0.010**	0.004	0.013	0.006
	(0.008)	(0.003)	(0.003)	(0.008)	(0.025)
FD * Age Q2	0.014**	0.017***	0.009**	0.033***	0.048**
	(0.006)	(0.003)	(0.003)	(0.005)	(0.019)
FD * Age Q3	0.022**	0.027***	0.016***	0.048***	0.084***
	(0.008)	(0.004)	(0.003)	(0.006)	(0.019)
FD * Age Q4	0.012**	0.009**	0.007**	0.017**	0.043**
	(0.004)	(0.004)	(0.003)	(0.006)	(0.016)
FD * Size Q1	-0.026	-0.009	-0.008	0.008	-0.056
	(0.031)	(0.021)	(0.013)	(0.035)	(0.095)
FD * Size Q2	-0.026	-0.010	-0.009	-0.008	-0.079
	(0.020)	(0.013)	(0.009)	(0.022)	(0.061)
FD * Size Q3	-0.024*	-0.009	-0.007	-0.014	-0.065
	(0.011)	(0.008)	(0.006)	(0.015)	(0.040)
FD * Size Q4	-0.012**	-0.001	-0.003	-0.000	-0.036
	(0.005)	(0.003)	(0.003)	(0.007)	(0.022)
Age Q1	0.025***	0.020***	0.018***	0.022***	0.020
	(0.005)	(0.002)	(0.005)	(0.002)	(0.016)
Age Q2	0.005	0.011***	0.005	0.012***	-0.015
	(0.005)	(0.002)	(0.004)	(0.002)	(0.012)
Age Q3	-0.009	-0.001	-0.014**	0.001	-0.047***
	(0.006)	(0.002)	(0.005)	(0.002)	(0.013)
Age Q4	-0.009*	-0.003	-0.010*	-0.002	-0.029**
	(0.005)	(0.002)	(0.005)	(0.002)	(0.011)
Size Q1	0.106***	0.088***	0.096***	0.083***	0.122*
	(0.028)	(0.012)	(0.021)	(0.013)	(0.066)
Size Q2	0.062***	0.044***	0.054***	0.042***	0.094**
	(0.018)	(0.009)	(0.016)	(0.009)	(0.042)
Size Q3	0.040***	0.024***	0.031**	0.023***	0.064**
	(0.011)	(0.006)	(0.011)	(0.006)	(0.028)
Size Q4	0.018***	0.008**	0.012**	0.007**	0.032*
	(0.004)	(0.003)	(0.005)	(0.003)	(0.015)
N	15,179	15,179	15,179	15,179	15,179
R^2	0.25	0.25	0.25	0.25	0.25

Note: The Table reports estimates analogous to those in Table 6-A except that we use 3-digit-ISIC industry dummies interacted with country dummies. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A.1-B
Industry-Country Dummies

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
		Within-Industry Comparisons			
FD * Age Q1	0.002	0.013***	0.005	0.021**	0.013
	(0.008)	(0.004)	(0.004)	(0.008)	(0.025)
FD * Age Q2	0.009	0.017***	0.009**	0.032***	0.034
	(0.009)	(0.002)	(0.003)	(0.005)	(0.025)
FD * Age Q3	0.031***	0.028***	0.017***	0.056***	0.093***
	(0.007)	(0.005)	(0.003)	(0.010)	(0.024)
FD * Age Q4	0.015**	0.012***	0.010***	0.024***	0.047***
	(0.006)	(0.003)	(0.003)	(0.007)	(0.015)
FD * Size Q1	-0.029	-0.011	-0.010	-0.001	-0.058
	(0.028)	(0.021)	(0.013)	(0.034)	(0.086)
FD * Size Q2	-0.017	-0.006	-0.006	-0.003	-0.049
	(0.017)	(0.010)	(0.008)	(0.017)	(0.051)
FD * Size Q3	-0.020	0.001	-0.005	0.000	-0.036
	(0.012)	(0.010)	(0.008)	(0.018)	(0.039)
FD * Size Q4	-0.008*	0.003	-0.000	0.002	-0.012
	(0.004)	(0.003)	(0.002)	(0.007)	(0.018)
Age Q1	0.022***	0.020***	0.017***	0.021***	0.015
	(0.005)	(0.002)	(0.005)	(0.001)	(0.016)
Age Q2	0.010	0.012***	0.005	0.013***	-0.005
	(0.006)	(0.002)	(0.005)	(0.002)	(0.016)
Age Q3	-0.014**	0.001	-0.013**	0.002	-0.051***
	(0.006)	(0.003)	(0.005)	(0.002)	(0.016)
Age Q4	-0.010*	-0.002	-0.012**	-0.002	-0.029**
	(0.005)	(0.002)	(0.004)	(0.002)	(0.010)
Size Q1	0.106***	0.087***	0.096***	0.083***	0.122*
	(0.026)	(0.012)	(0.020)	(0.012)	(0.060)
Size Q2	0.052***	0.040***	0.046***	0.038***	0.071*
	(0.015)	(0.007)	(0.013)	(0.007)	(0.035)
Size Q3	0.038***	0.022***	0.029**	0.022***	0.046
	(0.010)	(0.007)	(0.013)	(0.006)	(0.027)
Size Q4	0.013***	0.005*	0.006	0.005**	0.014
	(0.003)	(0.002)	(0.004)	(0.002)	(0.012)
N	15,179	15,179	15,179	15,179	15,179
R^2	0.25	0.25	0.25	0.25	0.25

Note: The Table reports estimates analogous to those in Table 6-B except that we use 3-digit-ISIC industry dummies interacted with country dummies. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A.2-A
Financial Development Measured over 1995-1998

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded
	Across- and Within-Industry Comparisons			
FD * Age Q1	0.000	0.006**	0.003	0.009
	(0.007)	(0.003)	(0.003)	(0.006)
FD * Age Q2	0.017**	0.013***	0.009***	0.023***
	(0.006)	(0.002)	(0.002)	(0.004)
FD * Age Q3	0.020*	0.018***	0.015***	0.022**
	(0.009)	(0.003)	(0.003)	(0.009)
FD * Age Q4	0.007**	0.005*	0.006**	0.013***
	(0.003)	(0.003)	(0.003)	(0.004)
FD * Size Q1	-0.026	-0.010	-0.007	0.005
	(0.028)	(0.018)	(0.012)	(0.034)
FD * Size Q2	-0.017	-0.010	-0.009	0.000
	(0.021)	(0.012)	(0.009)	(0.021)
FD * Size Q3	-0.015	-0.009	-0.007	-0.010
	(0.012)	(0.007)	(0.005)	(0.011)
FD * Size Q4	-0.005	-0.003	-0.003	0.001
	(0.007)	(0.003)	(0.003)	(0.006)
Age Q1	0.024***	0.021***	0.019***	0.021***
	(0.005)	(0.003)	(0.004)	(0.003)
Age Q2	0.004	0.010***	0.004	0.008***
	(0.004)	(0.002)	(0.003)	(0.002)
Age Q3	-0.007	-0.001	-0.013***	-0.000
	(0.006)	(0.003)	(0.004)	(0.003)
Age Q4	-0.005	-0.003	-0.008*	-0.005*
	(0.003)	(0.002)	(0.004)	(0.003)
Size Q1	0.105***	0.090***	0.093***	0.082***
	(0.022)	(0.013)	(0.019)	(0.019)
Size Q2	0.054**	0.046***	0.052***	0.040***
	(0.018)	(0.009)	(0.015)	(0.012)
Size Q3	0.033**	0.026***	0.030**	0.024***
	(0.012)	(0.006)	(0.010)	(0.007)
Size Q4	0.012*	0.009***	0.012**	0.007*
	(0.006)	(0.002)	(0.005)	(0.003)
N	15,179	15,179	15,179	15,179
R^2	0.21	0.21	0.21	0.21

Note: The Table reports estimates analogous to the ones in Table 6-A except that we now use financial development measures averaged over the 1995-1998 period. Accounting Standards is omitted as the results are identical to the ones in Table 6-A. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A.2-B
Financial Development Measured over 1995-1998

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded
	Within-Industry Comparisons			
FD * Age Q1	0.006	0.010***	0.006*	0.013*
	(0.008)	(0.003)	(0.003)	(0.006)
FD * Age Q2	0.015	0.013***	0.010***	0.021***
	(0.009)	(0.002)	(0.003)	(0.005)
FD * Age Q3	0.029**	0.023***	0.019***	0.029**
	(0.010)	(0.004)	(0.003)	(0.011)
FD * Age Q4	0.016***	0.008**	0.010***	0.016***
	(0.003)	(0.003)	(0.003)	(0.004)
FD * Size Q1	-0.032	-0.014	-0.010	-0.006
	(0.026)	(0.017)	(0.012)	(0.030)
FD * Size Q2	-0.018	-0.010	-0.008	-0.000
	(0.016)	(0.010)	(0.007)	(0.018)
FD * Size Q3	-0.015	-0.003	-0.006	-0.005
	(0.013)	(0.007)	(0.007)	(0.011)
FD * Size Q4	-0.003	-0.000	-0.001	-0.002
	(0.004)	(0.001)	(0.002)	(0.004)
Age Q1	0.020***	0.019***	0.016***	0.020***
	(0.006)	(0.002)	(0.004)	(0.002)
Age Q2	0.007	0.011***	0.004	0.010***
	(0.006)	(0.002)	(0.004)	(0.002)
Age Q3	-0.012	-0.002	-0.015***	-0.000
	(0.007)	(0.003)	(0.004)	(0.004)
Age Q4	-0.010***	-0.002	-0.011**	-0.004
	(0.003)	(0.002)	(0.004)	(0.003)
Size Q1	0.107***	0.089***	0.096***	0.084***
	(0.020)	(0.012)	(0.018)	(0.017)
Size Q2	0.051***	0.042***	0.048***	0.037***
	(0.014)	(0.007)	(0.012)	(0.010)
Size Q3	0.034***	0.023***	0.030**	0.024***
	(0.010)	(0.006)	(0.010)	(0.006)
Size Q4	0.008**	0.006***	0.007**	0.006**
	(0.004)	(0.002)	(0.003)	(0.002)
N	15,179	15,179	15,179	15,179
R^2	0.21	0.21	0.21	0.21

Note: The Table reports estimates analogous to the ones in Table 6-B except that we now use financial development measures averaged over the 1995-1998 period. Accounting Standards is omitted as the results are identical to the ones in Table 6-B. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A.3-A
Removing Greece

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Age Q1	-0.009	0.009**	0.003	0.010	0.002
	(0.008)	(0.003)	(0.003)	(0.008)	(0.026)
FD * Age Q2	0.018***	0.019***	0.011***	0.038***	0.055**
	(0.005)	(0.003)	(0.002)	(0.005)	(0.020)
FD * Age Q3	0.020**	0.022***	0.017***	0.040***	0.084***
	(0.007)	(0.005)	(0.003)	(0.009)	(0.018)
FD * Age Q4	0.010***	0.008**	0.007***	0.016**	0.040***
	(0.002)	(0.003)	(0.002)	(0.006)	(0.007)
FD * Size Q1	-0.021	-0.008	-0.008	0.012	-0.034
	(0.041)	(0.022)	(0.016)	(0.040)	(0.105)
FD * Size Q2	-0.024	-0.011	-0.011	-0.012	-0.065
	(0.021)	(0.012)	(0.009)	(0.020)	(0.059)
FD * Size Q3	-0.020	-0.007	-0.007	-0.009	-0.044
	(0.013)	(0.008)	(0.006)	(0.014)	(0.039)
FD * Size Q4	-0.008	-0.003	-0.003	-0.003	-0.022
	(0.007)	(0.003)	(0.002)	(0.006)	(0.019)
Age Q1	0.031***	0.020***	0.020***	0.022***	0.022
	(0.005)	(0.003)	(0.004)	(0.002)	(0.017)
Age Q2	0.003	0.010***	0.001	0.011***	-0.020
	(0.003)	(0.002)	(0.003)	(0.002)	(0.012)
Age Q3	-0.010*	-0.001	-0.017***	0.000	-0.050***
	(0.005)	(0.003)	(0.004)	(0.002)	(0.012)
Age Q4	-0.009***	-0.004*	-0.010***	-0.003*	-0.027***
	(0.002)	(0.002)	(0.003)	(0.001)	(0.005)
Size Q1	0.101**	0.086***	0.095***	0.082***	0.106
	(0.039)	(0.014)	(0.026)	(0.015)	(0.074)
Size Q2	0.059**	0.043***	0.056***	0.041***	0.083*
	(0.019)	(0.008)	(0.015)	(0.008)	(0.041)
Size Q3	0.038***	0.024***	0.032**	0.023***	0.052*
	(0.012)	(0.006)	(0.011)	(0.006)	(0.027)
Size Q4	0.014*	0.008**	0.012**	0.008**	0.022
	(0.007)	(0.003)	(0.005)	(0.003)	(0.013)
N	14,540	14,540	14,540	14,540	14,540
R^2	0.20	0.20	0.20	0.20	0.20

Note: The Table reports estimates analogous to those in Table 6-A except that we now remove Greece from our sample. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A.3-B
Removing Greece

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
		Within-Industry Comparisons			
FD * Age Q1	-0.001	0.013***	0.006	0.020**	0.017
	(0.008)	(0.003)	(0.004)	(0.007)	(0.025)
FD * Age Q2	0.013	0.019***	0.012***	0.035***	0.050*
	(0.009)	(0.003)	(0.002)	(0.006)	(0.027)
FD * Age Q3	0.033***	0.031***	0.022***	0.058***	0.114***
	(0.008)	(0.006)	(0.003)	(0.010)	(0.026)
FD * Age Q4	0.014***	0.010**	0.009***	0.020**	0.046***
	(0.004)	(0.004)	(0.002)	(0.008)	(0.011)
FD * Size Q1	-0.030	-0.010	-0.009	0.002	-0.056
	(0.035)	(0.021)	(0.015)	(0.036)	(0.096)
FD * Size Q2	-0.017	-0.010	-0.010	-0.009	-0.038
	(0.018)	(0.010)	(0.008)	(0.018)	(0.051)
FD * Size Q3	-0.021*	-0.004	-0.008	-0.010	-0.051
	(0.011)	(0.009)	(0.008)	(0.018)	(0.033)
FD * Size Q4	-0.006	0.003	0.001	0.004	-0.005
	(0.004)	(0.002)	(0.002)	(0.004)	(0.015)
Age Q1	0.026***	0.021***	0.017***	0.022***	0.014
	(0.005)	(0.002)	(0.005)	(0.001)	(0.016)
Age Q2	0.008	0.011***	0.001	0.013***	-0.016
	(0.006)	(0.003)	(0.004)	(0.002)	(0.018)
Age Q3	-0.016***	-0.000	-0.021***	0.002	-0.066***
	(0.005)	(0.003)	(0.003)	(0.003)	(0.018)
Age Q4	-0.008*	-0.000	-0.009**	0.000	-0.028***
	(0.004)	(0.002)	(0.004)	(0.002)	(0.008)
Size Q1	0.105***	0.083***	0.093***	0.079***	0.118
	(0.032)	(0.012)	(0.025)	(0.013)	(0.067)
Size Q2	0.050**	0.040***	0.050***	0.037***	0.061
	(0.017)	(0.006)	(0.012)	(0.007)	(0.037)
Size Q3	0.039***	0.022***	0.033**	0.022***	0.055**
	(0.010)	(0.006)	(0.012)	(0.005)	(0.022)
Size Q4	0.010***	0.004**	0.004	0.004**	0.008
	(0.003)	(0.002)	(0.003)	(0.001)	(0.010)
N	14,540	14,540	14,540	14,540	14,540
R^2	0.20	0.20	0.20	0.20	0.20

Note: The Table reports estimates analogous to those in Table 6-B except that we now remove Greece from our sample. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A.4-A
Median Growth as Dependent Variable

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Age Q1	-0.009	0.006	-0.000	0.006	-0.019
	(0.007)	(0.005)	(0.005)	(0.011)	(0.026)
FD * Age Q2	0.005	0.016***	0.007	0.030***	0.019
	(0.008)	(0.004)	(0.005)	(0.009)	(0.029)
FD * Age Q3	0.015	0.026***	0.016***	0.049***	0.059
	(0.015)	(0.004)	(0.004)	(0.008)	(0.043)
FD * Age Q4	0.005	0.010***	0.008**	0.018**	0.033
	(0.007)	(0.003)	(0.003)	(0.006)	(0.021)
FD * Size Q1	-0.019	-0.009	-0.008	0.002	-0.029
	(0.025)	(0.015)	(0.009)	(0.027)	(0.073)
FD * Size Q2	-0.005	0.002	-0.002	0.013	-0.001
	(0.017)	(0.009)	(0.008)	(0.016)	(0.044)
FD * Size Q3	-0.010	-0.002	-0.003	-0.003	-0.016
	(0.011)	(0.006)	(0.005)	(0.012)	(0.032)
FD * Size Q4	-0.001	0.003	0.001	0.005	0.017
	(0.005)	(0.002)	(0.002)	(0.005)	(0.011)
Age Q1	0.027***	0.018***	0.020**	0.019***	0.032*
	(0.005)	(0.004)	(0.007)	(0.003)	(0.017)
Age Q2	0.011*	0.009**	0.005	0.010***	0.002
	(0.006)	(0.003)	(0.007)	(0.002)	(0.019)
Age Q3	-0.004	-0.001	-0.015*	0.000	-0.031
	(0.010)	(0.003)	(0.007)	(0.003)	(0.027)
Age Q4	-0.003	-0.003	-0.011	-0.002	-0.021
	(0.006)	(0.003)	(0.006)	(0.003)	(0.014)
Size Q1	0.086***	0.073***	0.081***	0.070***	0.090*
	(0.022)	(0.008)	(0.014)	(0.009)	(0.050)
Size Q2	0.039**	0.035***	0.038**	0.033***	0.036
	(0.015)	(0.006)	(0.012)	(0.006)	(0.030)
Size Q3	0.026**	0.018***	0.022**	0.018***	0.028
	(0.010)	(0.005)	(0.009)	(0.005)	(0.022)
Size Q4	0.008*	0.006**	0.006	0.007***	-0.004
	(0.004)	(0.002)	(0.004)	(0.002)	(0.008)
N	15,263	15,263	15,263	15,263	15,263
R^2	0.17	0.17	0.17	0.17	0.17

Note: The Table reports estimates analogous to those in Table 6-A except that we now use the median of annual firm-level real value-added growth rates of manufacturing firms in the period 1995-2003 as the dependent variable. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A.4-B
Median Growth as Dependent Variable

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
			Within-Industry Comparisons		
FD * Age Q1	-0.003	0.006	-0.000	0.007	-0.002
	(0.006)	(0.004)	(0.004)	(0.009)	(0.020)
FD * Age Q2	0.007	0.017***	0.008*	0.032***	0.024
	(0.010)	(0.004)	(0.005)	(0.008)	(0.036)
FD * Age Q3	0.027***	0.030***	0.018***	0.057***	0.085**
	(0.009)	(0.004)	(0.003)	(0.006)	(0.033)
FD * Age Q4	0.015***	0.012**	0.011***	0.020***	0.053***
	(0.004)	(0.004)	(0.003)	(0.006)	(0.015)
FD * Size Q1	-0.021	-0.008	-0.007	0.000	-0.033
	(0.021)	(0.014)	(0.008)	(0.023)	(0.067)
FD * Size Q2	-0.013	-0.005	-0.004	-0.000	-0.022
	(0.018)	(0.010)	(0.007)	(0.017)	(0.055)
FD * Size Q3	-0.011	0.001	-0.002	0.002	-0.016
	(0.010)	(0.007)	(0.005)	(0.014)	(0.030)
FD * Size Q4	0.004	0.006***	0.004**	0.011***	0.031***
	(0.004)	(0.002)	(0.002)	(0.003)	(0.008)
Age Q1	0.022***	0.018***	0.020***	0.019***	0.021
	(0.004)	(0.003)	(0.005)	(0.002)	(0.013)
Age Q2	0.010	0.009***	0.004	0.011***	-0.001
	(0.007)	(0.002)	(0.006)	(0.002)	(0.023)
Age Q3	-0.010*	0.000	-0.014***	0.002	-0.046*
	(0.006)	(0.002)	(0.004)	(0.002)	(0.022)
Age Q4	-0.011**	-0.004*	-0.015***	-0.003	-0.035***
	(0.004)	(0.002)	(0.004)	(0.002)	(0.010)
Size Q1	0.087***	0.073***	0.079***	0.070***	0.092*
	(0.018)	(0.007)	(0.012)	(0.007)	(0.045)
Size Q2	0.044**	0.035***	0.040***	0.033***	0.048
	(0.015)	(0.005)	(0.011)	(0.006)	(0.037)
Size Q3	0.028***	0.018***	0.022**	0.018***	0.029
	(0.008)	(0.004)	(0.008)	(0.004)	(0.020)
Size Q4	0.006*	0.007***	0.004	0.007***	-0.011*
	(0.003)	(0.001)	(0.003)	(0.001)	(0.005)
N	15,263	15,263	15,263	15,263	15,263
R^2	0.17	0.17	0.17	0.17	0.17

Note: The Table reports estimates analogous to those in Table 6-B except that we now use the median of annual firm-level real value-added growth rates of manufacturing firms in the period 1995-2003 as the dependent variable. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions with outliers removed (using the 5-to-95 percentile range of the dependent variable). We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A.5-A
Median Regressions

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Age Q1	-0.004	0.008	-0.003	0.008	0.015
	(0.018)	(0.030)	(0.015)	(0.077)	(0.040)
FD * Age Q2	0.022	0.027	0.012	0.056	0.077*
	(0.015)	(0.023)	(0.013)	(0.052)	(0.042)
FD * Age Q3	0.016	0.018	0.012*	0.030	0.081***
	(0.011)	(0.024)	(0.007)	(0.024)	(0.025)
FD * Age Q4	0.007	0.008	0.005	0.010	0.048**
	(0.008)	(0.024)	(0.005)	(0.026)	(0.020)
FD * Size Q1	-0.004	0.012	0.002	0.046	0.027
	(0.045)	(0.114)	(0.036)	(0.141)	(0.114)
FD * Size Q2	-0.004	0.007	0.000	0.025	-0.010
	(0.024)	(0.067)	(0.021)	(0.084)	(0.069)
FD * Size Q3	-0.010	0.004	0.000	0.010	-0.004
	(0.016)	(0.043)	(0.014)	(0.061)	(0.050)
FD * Size Q4	0.010	0.013	0.005	0.021	0.049*
	(0.010)	(0.018)	(0.007)	(0.028)	(0.027)
Age Q1	0.030*	0.024**	0.031	0.025***	0.016
	(0.016)	(0.010)	(0.021)	(0.009)	(0.028)
Age Q2	-0.001	0.008	0.000	0.009*	-0.035
	(0.012)	(0.006)	(0.018)	(0.005)	(0.026)
Age Q3	-0.003	0.004	-0.007	0.005**	-0.044**
	(0.008)	(0.007)	(0.011)	(0.002)	(0.017)
Age Q4	-0.003	-0.001	-0.005	0.001	-0.030**
	(0.006)	(0.007)	(0.007)	(0.003)	(0.014)
Size Q1	0.100**	0.092***	0.094*	0.089***	0.079
	(0.041)	(0.030)	(0.051)	(0.019)	(0.078)
Size Q2	0.047**	0.042**	0.043	0.040***	0.050
	(0.022)	(0.019)	(0.031)	(0.011)	(0.046)
Size Q3	0.031**	0.022*	0.023	0.022***	0.026
	(0.015)	(0.013)	(0.020)	(0.008)	(0.033)
Size Q4	0.004	0.008	0.005	0.008**	-0.020
	(0.008)	(0.006)	(0.012)	(0.004)	(0.018)
N	16,494	16,494	16,494	16,494	16,494
Pseudo R^2	0.09	0.09	0.09	0.09	0.09

Note: Data and equation specification are the same as in Table 6-A. All specifications are median regressions. We include the value-added-growth outliers, which were not used in the previous tables (i.e., observations outside 5-to-95 percentile range of the dependent variable). See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. We remove firms with less than 5 years of value-added data available. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively, based on bootstrapped standard errors (reported in parentheses) clustered at the country level.

Table A.5-B
Median Regressions

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
		Within-Industry Comparisons			
FD * Age Q1	0.000	0.007	-0.005	0.013	0.034
	(0.019)	(0.026)	(0.014)	(0.068)	(0.039)
FD * Age Q2	0.014	0.024*	0.009	0.044	0.058
	(0.014)	(0.013)	(0.010)	(0.042)	(0.039)
FD * Age Q3	0.023*	0.023*	0.014**	0.041	0.097***
	(0.012)	(0.014)	(0.007)	(0.034)	(0.025)
FD * Age Q4	0.014*	0.009	0.008	0.015	0.058***
	(0.007)	(0.021)	(0.005)	(0.027)	(0.021)
FD * Size Q1	-0.017	0.007	0.000	0.048	-0.018
	(0.042)	(0.094)	(0.026)	(0.125)	(0.108)
FD * Size Q2	-0.002	0.000	-0.001	0.020	-0.005
	(0.021)	(0.039)	(0.014)	(0.064)	(0.059)
FD * Size Q3	-0.005	0.012	0.002	0.038	-0.005
	(0.017)	(0.031)	(0.014)	(0.072)	(0.057)
FD * Size Q4	0.009	0.009	0.006	0.027	0.026
	(0.009)	(0.012)	(0.006)	(0.035)	(0.024)
Age Q1	0.026	0.024***	0.033*	0.025***	0.004
	(0.017)	(0.008)	(0.017)	(0.008)	(0.028)
Age Q2	0.007	0.011***	0.006	0.013***	-0.021
	(0.010)	(0.003)	(0.012)	(0.004)	(0.025)
Age Q3	-0.007	0.004	-0.008	0.006*	-0.052***
	(0.009)	(0.004)	(0.008)	(0.003)	(0.016)
Age Q4	-0.007	0.001	-0.008	0.002	-0.034**
	(0.006)	(0.006)	(0.007)	(0.003)	(0.014)
Size Q1	0.107***	0.091***	0.094**	0.087***	0.106
	(0.036)	(0.024)	(0.036)	(0.017)	(0.073)
Size Q2	0.041**	0.039***	0.041*	0.036***	0.043
	(0.019)	(0.011)	(0.021)	(0.009)	(0.040)
Size Q3	0.028*	0.020**	0.021	0.019**	0.027
	(0.014)	(0.010)	(0.019)	(0.009)	(0.037)
Size Q4	0.001	0.005	0.000	0.004	-0.009
	(0.008)	(0.005)	(0.008)	(0.004)	(0.016)
N	16,494	16,494	16,494	16,494	16,494
Pseudo R^2	0.09	0.09	0.09	0.09	0.09

Note: Data and equation specification are the same as in Table 6-A. All specifications are median regressions. We include the value-added-growth outliers, which were not used in the previous tables (i.e., observations outside 5-to-95 percentile range of the dependent variable). See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. We remove firms with less than 5 years of value-added data available. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively, based on bootstrapped standard errors (reported in parentheses) clustered at the country level.

Table A.6-A
Two-Stage Method

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
	Across- and Within-Industry Comparisons				
FD * Age Q1	-0.006	0.014	0.001	0.013	-0.020
	(0.012)	(0.013)	(0.010)	(0.026)	(0.050)
FD * Age Q2	0.002	0.015**	0.000	0.031**	0.009
	(0.009)	(0.006)	(0.007)	(0.014)	(0.024)
FD * Age Q3	-0.012	0.018	0.006	0.026	0.050
	(0.014)	(0.017)	(0.009)	(0.033)	(0.042)
FD * Age Q4	0.016***	0.009	0.007*	0.016	0.045***
	(0.005)	(0.008)	(0.004)	(0.016)	(0.009)
FD * Size Q1	0.001	0.000	-0.001	0.036	0.032
	(0.031)	(0.021)	(0.017)	(0.045)	(0.081)
FD * Size Q2	0.003	0.006	-0.005	0.016	-0.042
	(0.028)	(0.017)	(0.006)	(0.032)	(0.037)
FD * Size Q3	-0.011	-0.001	-0.004	-0.001	-0.016
	(0.009)	(0.010)	(0.004)	(0.018)	(0.027)
FD * Size Q4	-0.007	0.007	-0.004	0.015	-0.008
	(0.018)	(0.016)	(0.010)	(0.029)	(0.043)
Age Q1	0.026**	0.016**	0.020	0.019***	0.034
	(0.012)	(0.008)	(0.016)	(0.007)	(0.035)
Age Q2	0.014*	0.011***	0.016	0.012***	0.010
	(0.008)	(0.004)	(0.010)	(0.004)	(0.015)
Age Q3	0.017*	0.002	-0.000	0.004	-0.024
	(0.010)	(0.008)	(0.013)	(0.007)	(0.030)
Age Q4	-0.010**	0.001	-0.006	0.001	-0.026***
	(0.005)	(0.004)	(0.006)	(0.003)	(0.005)
Size Q1	0.076**	0.077***	0.079***	0.073***	0.057
	(0.029)	(0.012)	(0.027)	(0.013)	(0.054)
Size Q2	0.035*	0.036***	0.045***	0.036***	0.065***
	(0.020)	(0.006)	(0.007)	(0.006)	(0.024)
Size Q3	0.025***	0.016***	0.022***	0.016***	0.026
	(0.008)	(0.006)	(0.008)	(0.005)	(0.018)
Size Q4	0.011	0.003	0.011	0.003	0.011
	(0.015)	(0.008)	(0.015)	(0.007)	(0.029)
N	293	293	293	293	293
R^2	0.61	0.61	0.61	0.61	0.61

Note: Data and equation specification are the same as in Table 6-A. Here, however, we apply an alternative estimation procedure, where we first regress firm growth rates on all firm-level controls, industry dummies, and a full set of country-age quintile-size quintile fixed effects. In the second stage, we then regress these fixed effects on age/size quintile indicators, age/size quintile indicators interacted with financial development measures, and country dummies. All reported coefficients come from the second-stage regression, which is weighted by the inverse of the variance of the country fixed effects estimated in the first stage. See Wooldridge (2003) for a discussion of this estimation approach. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions. We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A.6-B
Two-Stage Method

	Private Bank Credit	Market Capitalization	Total Capitalization	Market Value Traded	Accounting Standards
		Within-Industry Comparisons			
FD * Age Q1	-0.009	0.012	-0.002	0.012	-0.006
	(0.008)	(0.010)	(0.008)	(0.025)	(0.040)
FD * Age Q2	-0.007	0.013	-0.000	0.030*	0.001
	(0.009)	(0.010)	(0.009)	(0.018)	(0.026)
FD * Age Q3	0.009	0.032***	0.009	0.048**	0.062
	(0.012)	(0.011)	(0.009)	(0.020)	(0.042)
FD * Age Q4	0.020***	0.009	0.009**	0.036	0.028***
	(0.005)	(0.008)	(0.004)	(0.025)	(0.007)
FD * Size Q1	-0.006	-0.010	-0.001	0.013	0.004
	(0.024)	(0.019)	(0.009)	(0.032)	(0.064)
FD * Size Q2	-0.000	-0.005	0.005	0.019	0.008
	(0.016)	(0.012)	(0.007)	(0.024)	(0.049)
FD * Size Q3	-0.008	0.003	-0.001	-0.002	-0.004
	(0.007)	(0.007)	(0.005)	(0.016)	(0.012)
FD * Size Q4	-0.001	0.007	0.006	0.010	0.024
	(0.006)	(0.007)	(0.004)	(0.014)	(0.018)
Age Q1	0.030***	0.019***	0.025**	0.021***	0.026
	(0.007)	(0.006)	(0.012)	(0.005)	(0.028)
Age Q2	0.025***	0.015***	0.020	0.015***	0.018
	(0.008)	(0.005)	(0.013)	(0.004)	(0.018)
Age Q3	0.003	0.000	-0.001	0.004	-0.029
	(0.009)	(0.006)	(0.013)	(0.005)	(0.029)
Age Q4	-0.009*	0.004	-0.005	0.002	-0.011
	(0.005)	(0.004)	(0.005)	(0.003)	(0.006)
Size Q1	0.082***	0.080***	0.079***	0.075***	0.074*
	(0.021)	(0.009)	(0.015)	(0.010)	(0.041)
Size Q2	0.034**	0.036***	0.028**	0.032***	0.029
	(0.014)	(0.007)	(0.012)	(0.006)	(0.032)
Size Q3	0.025***	0.018***	0.020**	0.019***	0.021**
	(0.007)	(0.004)	(0.008)	(0.003)	(0.008)
Size Q4	0.005	0.002	-0.004	0.003	-0.011
	(0.007)	(0.004)	(0.006)	(0.004)	(0.013)
N	295	295	295	295	295
R^2	0.68	0.68	0.67	0.67	0.68

Note: Data and equation specification are the same as in Table 6-B. Here, however, we apply an alternative estimation procedure, where we first regress firm growth rates on all firm-level controls, industry dummies, and a full set of country-age quintile-size quintile fixed effects. In the second stage, we then regress these fixed effects on age/size quintile indicators, age/size quintile indicators interacted with financial development measures, and country dummies. All reported coefficients come from the second-stage regression, which is weighted by the inverse of the variance of the country fixed effects estimated in the first stage. See Wooldridge (2003) for a discussion of this estimation approach. See Table 3 notes for a list of additional control variables and the Data Appendix for definitions of variables. All specifications are linear regressions. We also remove firms with less than 5 years of value-added data available. Robust standard errors (clustered at country level) are reported in parentheses; *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

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