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Firm Growth and Stock Market Regulation in Different Financial Systems

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Abstract

This article aims at testing whether firm growth processes differ across countries characterized by different financial systems and varieties of capitalism, as well as across stock market segments with different listing requirements and information standards. We estimate Gibrat regressions of firm growth through dynamic panel methods on datasets of manufacturing firms listed on the stock exchanges in two polar types of capitalism, namely Japan and the United Kingdom, along with statistics on Germany, France, and Sweden. The difference in growth patterns between the main segment, i.e. the market dedicated to bigger and mature companies, and the junior segment, i.e. the market dedicated to smaller and younger companies, is wider in the London stock market than in Japan. The main segment firms are closer to satisfy Gibrat's Law, which is violated on the junior market, validating the evidence of long-run regularity for mature firms and the influence of learning processes (Lotti et al., 2009). The absence of correlation with age on the Japanese market for both segments reflects the institutional design of the junior market and might illustrate the role of cumulative learning and of voice mechanisms in credit-based capitalism. These results hold once we consider different size proxies (employees, value added, total assets, net sales) and when we control for the availability of internal and external financial resources. In particular, profitability is not a driver of firm growth even in a market-based system as the UK, casting doubts on the effectiveness of market selection dynamics. Labor productivity and firm-level capitalization are less persistent as compared to the firm size variables, the latter reflecting firm riskiness.

Keywords: firm growth, financial systems, junior stock markets, dynamic panel analysis.

JEL Classification : L11 Size distribution of firms, P12 Capitalist enterprises, P51 Comparative analysis of economic systems

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1. Introduction

Financialisation and short-termism are increasingly disconnecting the dynamic efficiency of manufacturing firms from the determinants of their financial market performance (Dosi, Revest and Sapio 2016). It is far from surprising for this to occur in market-based financial systems, such as in the Anglo-Saxon world. Yet, the finance-industry nexus has been exposed to financialisation even in credit-based systems, e.g. Germany (Vitols 2005), Denmark (Campbell and Pedersen 2007), and Japan (Aoki et al., 2007).

Financialisation has also brought about the expansion of trading volumes in lightly regulated stock market segments, such as the "junior" or "second-tier" segments established by major stock exchanges (Posner 2009, Vismara et al. 2012). Markets such as the pioneering Alternative Investment Market (AIM, London) and the more recent Entry Standard (Deutsche Boerse) or Mothers (Japan) are characterised by low listing requirements and by customised regulation, allowing even the shares of very small and young companies to be publicly traded. The macroeconomic crises occurred in the last 15 years and banking directives, such as Basel accords and MiFID, have determined credit rationing by increasingly risk-averse banks (Amini et al. 2010, Ivashina and Scharfstein 2009), further pushing SMEs to resort to market-based equity even in countries with credit-based financial architectures.

In a companion paper (Granier et al. 2017), we show that the set up of junior stock markets inspired by the AIM in different countries is consistent with a hybridisation process (Boyer 2005). The adaptation of the AIM model to the financial systems of coordinated market economies (in the sense of Hall and Soskice 2001) has relied upon path dependent features (namely the centralisation of admissions and oversight) but also on "impersonal" finance allocation mechanisms that are atypical in those capitalist varieties, such as formal listing requirements. We thus find a spectrum of junior stock markets ranging from the most deregulated and decentralised, with the lowest listing barriers (AIM) to the most centralised with formal listing requirements, even involving corporate governance and firm performance assessments prior to admission (in Japan). AIM, Mothers and Jasdaq represent the largests junior markets, taking into account the number of companies, the market capitalization and the amounts raised. The junior markets in Italia and in Nordic countries are the less developed ones, Germany and France lying between these two extreme categories.

Building upon Dosi's (1990) evolutionary taxonomy of financial systems, its update in Dosi et al. (2016), and the above mentioned evidence, we conjecture that the specific combinations of financing channels and stock market architectures in different varieties of capitalism, as determined by the spread of lightly regulated equity market segments, map into different firm growth processes.

By means of panel data analysis we estimate Gibrat regressions of various measures of firm growth on samples of listed manufacturing companies in the UK and Japan, comparing how firm growth responds to initial size, age, profitability, and capital structure across stock market segments belonging to different varieties of capitalism and characterised by different admission and regulatory oversight rules. Specifically, UK is representative of a market-based financial system in a liberal market economy (LME), whereas Japan is considered a coordinated market economy (CME) whose financial system is closer to the credit-based archetype, although it has been moving towards a more hybrid configuration in the last decades. We compare the evidence on firm growth across countries and, within each country, between the official list and the junior segment.

Data for our samples is extracted from Eikon (Thomson Reuters) that aggregates databases such as Worldscope and Thomson Deals. Firm growth is alternatively measured as growth in sales, total assets, value added, employees, and labor productivity, on a yearly horizon. Aside from these real performance indicators, we also use market capitalisation as a proxy for size, based on the insight that if market value faithfully reflects fundamentals, it should follow the same growth pattern as other proxies. The regression analysis is performed separately for each country (UK, Japan) and for each market segment (main market, junior market). We rely on estimators that take care of the lagged dependent variable bias, such as the Quasi Maximum Likelihood estimator with fixed effects (Hsiao et al. 2002), LSDVC (Bruno 2005a, 2005b), and System GMM (Blundell and Bond 2000).

Our estimates highlight interesting heterogeneity in firm growth patterns across varieties of capitalism and market segments. London is the financial centre where we spot the widest difference in growth processes between the junior segment and the official list: firms in the latter are closer to satisfying Gibrat's law, consistent with previous evidence (e.g. Lotti et al. 2009) that violations of Gibrat's law are more common in samples of smaller firms. Japanese companies differ less across segments, with junior companies growing almost according to Gibrat's law. This is consistent with the fact that the average age of companies listed on the Japanese junior markets is higher than for companies listed on the European junior market and thus in line with Lotti et al. (2009). Perhaps it is also related to the stronger role in credit-based systems of cumulative learning within experienced incumbents and of "voice" mechanisms. A negative relationship is instead detected in the UK, where "exit" mechanisms exemplified by spinoffs would be more relevant, albeit this result is not robes to endogeneity controls via GMM. Generally, growth in employment is found to be less sensitive to initial size than growth in sales; and productivity is everywhere less persistent than the other variables of interest.

In the UK, the relationship between firm growth and internal resources (cash flow and profitability) seems rather noisy, at least in such a short horizon. Instead, both in the Japanese main and junior segments, cash flow and profitability seem to map into slower sales and productivity growth, as if market selection works against the most efficient firms. As a common feature of UK and Japanese markets, business opportunities proxied by Tobin's Q are positively and significantly correlated with firm growth in nearly all econometric specifications.

Lastly, the growth of firm-level capitalisation does not follow the same pattern as other size variables, consistent with its ambiguous nature (reflecting also firm riskiness), and possibly confirming that the conditions behind the information efficiency hypothesis fail to materialise even in a market-based system such as the UK.

Taken together, these pieces of evidence confirm, as summarised by Dosi et al. (2016), that market selection works very imperfectly in both the archetypical financial systems, against expectations that market-based systems are more efficient "selectors". Quite expectedly, instead, young and small firms display a stronger competitive edge with respect to larger and older incumbents in the market-based system.

Also importantly, the more informal admission process in the AIM seems to imply a stronger segmentation of firm types between AIM and the LSE main market, much less so in Japan. Yet, the borders between financial system archetypes are blurred: liquidity constraints seem to bite on young firms both in Japan and in the UK; and Germany is harder to classify. Further research will be devoted to a deeper exploration of such patterns.

The paper is structured as follows. Section 2 offers information on the institutional architecture of the stock markets included in our sample. The hypotheses are illustrated in Section 3, based on the existing evidence on firm growth under different financial systems and stock market regulatory frameworks, whereas Section 4 presents the data, variables, and the econometric model. The results are described and commented in Section 5. Section 6 concludes.

2. The stock markets in our sample

The deregulation of the stock market listing process and the outsourcing of the regulatory responsibilities can be counted among the main institutional innovations in finance occurred in the recent decades. The so-called junior stock markets or second-tier stock markets are characterised by simplified listing processes and customised information standards, hence they cater to companies that are wishing to do an IPO but do not satisfy the listing requirements of the main stock exchanges. Junior markets may enhance the exit opportunities for venture-backed companies, as advocated by Black and Gilson (1999), as well as stimulate the recycling function (Michelacci and Suarez 2004) and the creation function (Lazonick 2007) performed by stock markets.

In Revest and Sapio (2012, 2014a, 2014b) we have summarised the historical evolution of junior stock markets, based on Davies (2008), Posner (2009), Degryse (2009), Vismara et al. (2012), Nielsson (2013), Hornok (2014) and have discussed how this evolution has been shaped by supranational regulations in Europe, such as the Investment Services Directive (1993), Financial Services Action Plan (1999), the Lamfalussy process, and the Markets for Financial Intermediaries Directive (MiFID, 2004)[1]. Prominent examples include the Alternative Investment Market, a segment of the LSE established in 1995, and some "followers" set up in the last 15 years, such as Alternext belonging to the Paris Bourse; Entry Standard (Deutsche Boerse); OMX First North (Nordic countries); and some Japanese

1 A revised Directive (MiFID2) and a new regulation (MiFIR) have been adopted by the European Parliament on April 2014, in order to take into account new developments in trading and the consequences of the last financial crisis. MiFID2 and MiFIR will apply within member states the 3 January 2018.

markets (Mothers, Tokyo AIM). While Tokyo AIM (called now Tokyo Pro Market) is a "replica" of the UK AIM, the two other markets have been influenced by the Nasdaq's architecture[2].

Vismara et al. (2012) offered an excellent comparison among junior markets.[3] The creation of junior stock market segments can be seen as the spread of market-led financial architectures to economies traditionally characterised by credit-based financial systems, according to the evolutionary taxonomy outlined by Dosi (1990) (see also Dosi et al. 2016), or to coordinated market economies (CMEs, Hall and Soskice 2001).

In Granier et al. (2017), we have performed a comparative analysis focused on similarities and specificities in admission criteria, listing costs, transparency standards, and the regulatory framework, including the roles and admission requirements of the "sponsors" assisting issuers in their quotation process and in compliance with the on-going obligations towards the market. Such comparison encompassed the junior markets of interest for our present work, namely AIM London (UK) and the Japanese markets Mothers, Tokyo AIM, and JASDAQ. In that paper we find that while the « new » junior stock markets were inspired by the AIM London model, namely an exchange-regulated market in which oversight is delegated by the exchange to the sponsor (the Nominated Adviser, or Nomad), country specificities persist in a way that is consistent with Boyer's (2005) theorising of hybridisation, namely, that importing in one country an institution from another context will result in an original configuration, reflecting an adaptation to the local institutional framework.

Specifically, the Japanese financial market for SME's appears as a fragmented system, including different markets and different architectures. Inside this system, Jasdaq and Mothers, arise as the farthest from the AIM model, but they were not modelled on it : the stock exchange operator remains the key decision-maker regarding the admission process as well as monitoring compliance with on-going obligations, and there are no sponsors. Accordingly, admission procedures are longer and listing costs higher. The AIM Japan (Tokyo Pro Market) has been directly influenced by the UK AIM, but it has also been adapted, because it remains only reserved for professional investors, and not opened to the public.

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2 It is worth noting that JASDAQ in Japan was first an over-the-counter market (1960s) and became a securities exchange in 2004.

3 This wave of markets is not unprecedented, as shown by the now defunct "new markets" operating between the mid-Nineties and the dot-com bubble crash (see Giudici and Roosenboom 2004).

The European junior markets, while modelling according to AIM, still presents national specificities. The German Entry Standard is characterised both by a strengthened regulation and a more centralised admission process than AIM. Another peculiar feature is represented by the coexistence in Germany of two intermediaries, with different roles in the listing process of new issuers. The French and the Nordic markets seem to be situated between the German market architecture and the AIM benchmark, while AIM Italy is a « copy » of the UK model, following the merger between the LSE and the Italian Stock Exchange in 2007.

In addition of institutional adaptation, one finds also subtles overlapping mecanisms. While AIM's reliance on principles-based regulation through Nomads is in line with the decentralised nature of LMEs and market-based financial systems, the wide discretionary power entrusted to Nomads is rather consistent with the description of credit-based systems as allocating finance through discretionary means (see Dosi et al. 2016). This also applies to admission routes, such as through private placements, which are very diffused on the AIM and that by definition rely on insider networks of relationships rather than on transparent market transactions.

Conversely, junior markets in CMEs tend to mandate more general and thus "impersonal" admission rules, in spite of the traditional role played by networks of relationships in those economies. Notably, the Japanese markets (Mothers and Jasdaq) are the only ones mandating a formal assessment of the real performance of the prospective issuers prior to admission, as well as strict rules on corporate governance. Though, the higher centralisation of admission processes and regulatory oversight in Germany and Japan underlines a continuity in the structure of financial relationships, which in credit-based CMEs are typically more centralised and institutionalised, as confirmed by recent evidence on Germany and Japan (Meier and Meier 2014). Accordingly, the regulatory style in junior markets in those countries is closer to the rules-based style, departing from the AIM model. But at the same time, it gets some distance with other features of credit-based CMEs, such as discretionary allocative rules and voice mechanisms (exchange information and negociation).

3. Model and hypotheses

Our research questions involve validating the empirical results about the Gibrat's Law and comparing the firm growth processes across financial systems (market-based vs. credit-based) and across regulatory styles (first-tier vs. second-tier markets). We build two sets of hypotheses accordingly, after presenting the econometric model (subsection 3.1). The hypotheses on financial systems (subsection 3.2) will be appraised by comparing the firm growth model coefficients across countries. The hypotheses on stock market regulation (subsection 3.3) will instead be assessed through the comparison between the estimates obtained on the main segment and on the junior segment in each country. Because of data limitations related to the different structures and compositions of the stock exchanges, this assessment is only done on markets in Japan and London, which represents the "polar" examples of financial systems and varieties of capitalism. We nonetheless compare and comment also descriptive statistics for firms listed in France, Germany and Sweden.

3.1 The model

In line with a traditional approach in industrial dynamics, hereby we model firm size as a log-linear function of its lag and of firm age, plus a vector of control variables, X:

$$s_{it} = \alpha_1 s_{it-1} + \theta\ age_{it} + \gamma X_{it-1} + u_{it} \qquad (1)$$

where the error term $u_{it} = \mu_i + v_{it.}$ is decomposed into μ_i, an unobservable firm-invariant effect, and an idiosyncratic error v_{it}.

As it is well known, the autoregressive size coefficient α_1 is equal to 1 if the growth process satisfies Gibrat's law (see Dosi 2007, Caves 1998, Sutton 1997). $\alpha_1 < 1$ would suggest mean reversion in firm growth, namely smaller firms growth faster, ceteris paribus.

The number of employees and sales are the most common measures for firm size. While sales are influenced by input prices and can be subject to report manipulation, employment to be misleading for firm growth, especially in the case of the smallest firms, as it measured in integers (Coad and Hölzl, 2012; Capasso et al., 2013). Besides, those variables account for different dimensions of growth: while employees is mainly a measure of 'physical growth', sales account for 'market growth' or market shares growth (Coad et al., 2011) once normalised with respect to its sectoral mean. Among other size indicators, total assets growth is the outcome of investments in capital goods and in knowledge protected by intellectual property rights. Using total assets as a proxy of firm size has the main disadvantage of being sensitive to capital intensities and to the measurement of intangible assets, both depending on the firms' sector (Coad et al., 2011). Value added is another way of measuring the market growth of the firm but it suffers also from prices effects. Lastly, labour productivity is sometimes used in firm growth econometrics, as a proxy for dynamic efficiency, albeit not being a size indicator as such.

It has been shown that firm size measures are dynamically interrelated, hence they are not fully interchangeable. Specifically, Coad et al. (2011) show the importance of the timing structure in firm dynamics: a higher productivity in t generates lower prices and consequently higher profits and market shares in t+1. An increase in profits, when they are used for investment, can boost growth. Higher sales can be used to gather resources for increasing the number of employees or for investments that could lead to higher profits. But the relationship between employees and net sales is not so obvious as it depends on costs of labour and how adjustments in labour are leaded. According to the empirical results in Coad et al. (2011), employment growth precedes sales growth and profit growth, sales growth precedes profits growth. But there is no significant relationship between sales and profits on employment growth the period after, nor any dynamic effect of employees/sales/profit growth on labour productivity. Whether or not this timing structure is confirmed on our data, because of such dynamic interrelations we expect to find differences in tests of the Gibrat's Law for different proxies of firm size. Though, we leave investigations of dynamic relationships between employment, sales, productivity and profitability for future research.

Focusing on listed companies constitutes an opportunity to examine the pattern of growth in the stock markets through the use of the market capitalisation as an indicator of firm size. According to Beck (1997), and only if markets are informationally efficient, the market capitalisation accounts for the discounted value of the firm's expected stream of future cash flow. A firm's market capitalisation can be considered as a proxy for size if it correlates positively with current assets. In this case, we expect to find the same pattern of growth as the one estimated with assets.

Nonetheless, market capitalisation also reflects a firm's risk: if there is a high uncertainty on a firm's future cash flow, the firm has a relatively high discount rate (i.e. return rate used to compute the present value of future cash flows) and its market value will be low (Beck, 1997). Consequently, a high firm's market capitalisation also means a low uncertainty about its expected cash flows. As a firm's market capitalization conveys information not only about the operating size but also about riskiness[4], it is an imperfect substitute for firm size; hence finding different patterns as compared to the growth in assets or employees could be due to how the market values risk.[5] Moreover, capitalization is intrinsically linked the concept of liquidity which represents one of the key targets of the stock exchanges, but at the same which is criticized because supporting and encouraging speculative behaviours, and feeding financialisation' process (Keynes, 1936)[6].

Considering that firm growth is multidimensional, we estimate Gibrat regressions on different proxies of firm size and interpret the picture painted by the whole set of results in order to learn about how growth processes vary across varieties of capitalism and regulatory settings.

3.2 Hypotheses on financial systems

As discussed in Dosi et al. (2016), building upon Dosi (1990), the set of opportunities and constraints that define the architecture of a financial system can powerfully moderate the effect of firm undertakings on its ability to penetrate markets and create jobs. Thus, we formulate hypotheses on how firm growth processes differ across financial systems (credit-based vs. market-based), based on Dosi's (1990) evolutionary taxonomy of financial systems. One can conjecture that in credit-based systems, such as Japan, learning and the search for the new products and processes occurs mainly within large and mature companies, and along technological trajectories in the existing paradigm. This would present large and old companies with stronger and long-term opportunities for growth. Conversely, market-led systems are supposed to be more open to the exploration of new technological paradigms by new firms. Using Hirschman's (1970) exit-voice approach, it may be argued that "exit" mechanisms are more diffused in market-based systems and, through spin-off processes, can lead to the emergence of a thriving population of start-ups.

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4 The fact that the market capitalization is not only a measure of firm size explains why usually we observe a negative relationship between market capitalization and returns, i.e. small firms have higher returns. When size is measured with employees, sales or assets, this relationship does not hold any more (Beck, 1997). Consequently, the market capitalization is likely to be a poor predictor of stock returns and the book value of equity (depreciated past investment) might be a better proxy for future cash flow.

5 This exercise involving market capitalisation is rather exploratory in nature. Yet, it is worth noting how Bravo-Biosca et al. (2013) unveiled a correlation between country-level financial development (stock market capitalisation over GDP) and the variance in firm growth performances, a measure of real-side riskiness. Along similar lines, Abbate and Sapio (2016) through quantile regression analysis find that listing on AIM exacerbates the performance difference between fast growers and decliners, controlling for age, sector, and capital structure variables, in comparison with non-listed firms.

6 "Of the maxims of orthodox finance none, surely, is more antisocial than the fetish of liquidity" (Keynes, 1936, p. 155).

Yet, the dominance of the maximising shareholders value principle in market-based systems (MSV, see Lazonick 2007) may be detrimental to firm growth, and may make it even more sensitive to size and age differences if large incumbents are more aligned to MSV. Brossard et al. (2011) show that firm R&D expenses are negatively influenced by the presence of impatient (or short-termist) institutional investors in their shareholders base. Edmans et al. (2013) find that managerial short-termism leads to a reduction in real investments, including R&D, capital expenditures and advertising expenses. Another illustration is provided by Orhaganzi (2008), who concluded, based on a panel of US firms between 1973 and 2003, that increased financialization affected the real investments of non-financial corporations.[7]

We thus formulate the two following hypotheses:

H1a: In market-based financial systems, the growth gap between small and large firms is wider and more favourable to small firms, than in credit-based systems.

H2a: In market-based financial systems, if existing, the growth gap between young and mature firms is wider and more favourable to young firms, than in credit-based systems.

Operationally, we expect H1a to be satisfied if α_1 (in Eq. 1) in a sample of UK listed companies, a market-based economy, is larger than in samples from credit-based economies (Japan). α_1 is in any case expected to be positive and not above 1, as customary in the literature.

As to H2a, θ is expected negative in market-based systems and null (or possibly positive) in credit-based systems. Often in the literature one finds negative estimates of θ, suggesting that all else being given, younger firms grow faster than the older ones. With its broader array of financing channels, including some specialised for the needs of startups, and with more reliance on “exit” mechanisms such as spinoffs, market-based systems may better help young and small firms grow faster by allowing them to collect financial resources and technological competences that in credit-based systems are more accessible to experienced incumbents.

7 American surveys tend to exhibit that the vast majority of top executives are ready to cut or delay investment to meet short term targets in the same quarter (Graham et al., 2005).

3.3 Hypotheses on stock market regulation

Previous research has explored, from various theoretical angles, the likely influence of stock market regulation on firm growth, with contrasting predictions. According to Chemmanur and Fulghieri (1999) and Pagano et al. (1998), after an IPO, wider analyst coverage reduces the cost of collecting information for outsiders, hence allowing for lower cost of borrowing and easier access to credit from a larger number of banks. Relatedly, the regulatory bonding hypothesis argues that stock market quotation signals higher quality, as a firm shows it is ready to comply with strict regulatory requirements (Coffee 1999, Stulz 1999). Preference for scale by imperfectly monitored managers, more likely in first-tier markets requiring ownership-control separation, may push managers to grow faster than it is optimal for shareholders (Baumol 1959, Jensen 1986). Short-termism related to the MSV (Lazonick 2007) and the quiet life hypothesis (Bertrand and Mullainathan 2003) would rather put a brake on a firm's expansion. Consistently, Asker et al. (2014) show that investments by listed companies are on average below those made by their privately-held counterparts and less responsive to growth opportunities. Bernstein (2015) who examined the impact on innovative firms of being listed on the Nasdaq, found that innovation's practices (measured through the number of patents filed) declined after the Nasdaq IPO, compared with otherwise similar private firms. Nasdaq listed firms engage more easily in external innovation than privately-held firms.

While these insights hint at differences in average firm growth across stock market segments, our focus is on how the determinants of firm growth - and their weights - change depending on regulatory set-ups. In this respect, our institutional comparison among junior stock markets (Granier et al. 2017 and Section 2) hints at the role of firm selection or self-selection into stock market segments. Specifically, outsourcing oversight responsibilities to Nomads and performing discretionary assessments prior to admission may induce a clearer segmentation between the LSE Main Market and the AIM in terms of firm profiles. Instead, differences in firm types across segments in Japan may be less dramatic due to the adoption of formal preliminary assessments of corporate governance and firm performance. If so, wider differences in growth processes would be observed across market segments in the UK than in Japan.

Indeed, the expected results about size and age can be influenced by the sample of firms considered. As Lotti et al. (2009) underline, the negative relationship between age and growth is more commonly detected in large samples, when the entire population of firms is considered. If we focus on mature and large firms, i.e. the ones that survive in the long run and that have already reached a stable growth path, the Gibrat's Law is often confirmed. This profile corresponds to companies listed on the main segments of stock exchanges. Therefore we propose the following hypotheses:

H1b: In the junior segment, the growth gap between small and large firms is wider and more favourable to small firms, than in the main market.

H2b: In the junior segment, the growth gap between young and mature firms is wider and more favourable to young firms, than in the main segment.

3.4 Hypotheses on financing channels

Financial constraints have been scrutinized among the main influences on growth processes, aside from stock market listing (Revest and Sapio 2013) and innovation (Coad and Rao, 2008; Cassia et al. 2009; Bianchini et al., 2016 among others). Indeed, policy-oriented research (Mason and Brown, 2011) acknowledges that finance is on the same ground as R&D as a critical resource for firm growth, as it could turn episodic expansions of market shares into a sustained advantage over competitors.

Financial constraints interact with firm growth by preventing investment opportunities from being seized. Bottazzi et al. (2014) show on a sample of Italian manufacturing firms that the negative relationship between growth and size is exacerbated when firms are credit-constrained. Liquidity constraints, as evidenced by cash flow sensitivities in the tradition of Fazzari et al. (1988), also affect negatively Italian firm growth and exacerbate the effect of size on growth (Fagiolo and Luzzi, 2006). Debt leverage has two opposite effects on firm growth according to its level. Only low leverage impacts positively on growth; as soon as it becomes high, it stops enlarging the resources of the firms since firms highly leveraged have less internal resources for financing growth, notably less cash flow (Lang et al., 1995; Molinari, 2013).

As we underline above, access to financial resources depends on the architecture of the national financial system. In other words, the mix of financial resources (equity, loans, cash flow) used simultaneously by firms and revealed by their capital structure depend on the availability of financial channels in their country. On the one hand, market-based systems rely on a rather diversified set of institutional mechanisms to allocate financial resources, including specialised intermediaries such as venture capital and business angels. Such intermediaries in principle cater to firms that are not endowed with enough track record and collateral to access the ordinary credit channels (Maier, 1987 among others). In credit-based systems, on the other hand, the allocation of financial resources has been historically more concentrated in the banking channel. Hence, firms growth in credit-based systems are more likely to be influenced by access to loans than the ones located in market-based countries. An easier access to loans favours investments and growth and could lower the influence of the stock market on growth in these countries. Lastly, controlling for firm debt leverage questions its use as a tool to monitor managers (Jensen, 1986) and thus to satisfy shareholders. This practice could influence firm growth in market-based systems that are driven by the maximisation of shareholder value.

As argued in Dosi et al. (2016), though, market selection forces do operate across firms, but relatively weakly and with much noise, both in market-oriented systems and in credit-based ones. The existing evidence seems to support this argument. For instance, Coad (2007, 2010) examined French firms, through panel data analyses, and showed that while employment growth and sales growth increases before the growth of profits, higher profits do not translate into faster growth. Similarly, Bottazzi et al. (2010) fail to establish a clear link between profitability and firm growth on samples of French and Italian companies.

4. Econometric modelling

4. 1 Data and variables

For the purposes of this article, we have collected data on limited liability manufacturing firms listed on the following first-tier stock markets: London Stock Exchange Main Market, Euronext Paris, Nasdaq OMX Sweden, General Standard/Prime Standard (Germany), First and Second Section (Japan) and the following second-tier stock markets: Alternative

Investment Market (London), Alternext Paris, First North Sweden, Entry Standard (Germany), Mothers/Jasdaq (Japan). We build a longitudinal dataset for UK and Japan for which we have more data available. Each dataset includes information on companies listed on the main stock market (or first-tier market) and companies listed on the junior stock market (or second-tier market), observed for different time periods. For UK companies, the sample is built between 1999 and 2015. The availability of data is a constraint only for the Japanese market, which is examined during the period 2012-2015[8]. The frequency of observations is annual and the panels are unbalanced because of entry, firm mortality, decisions to delist and takeovers. Only units with no gaps are used.

As we use Thomson Reuters, the sample gathers all the manufacturing companies according to the SIC classification, i.e. SIC codes 2000-3999. As no deflators are defined according to this industrial classification[9], we then use a standardisation by sector and time instead of a year-standardisation to wash away common trends, specifically due to inflation and to demand effects.

As proxies for size, in order to estimate Eq. 1, we alternatively use employees, total assets, net sales, productivity, and value added. In line with the literature on firm growth, we consider age as an explanatory variable, hereby defined as the number of years elapsed from the incorporation date.

Moreover, to control for financial constraints (i.e. access to internal and external resources), we use two main specifications. In the first one, we use the fixed assets as a proxy for collateral and ebitda for internal resources. Following Bottazzi, Secchi and Tamagni (2014) and Revest and Sapio (2013), we impute a null value whenever ebitda is negative, and then add 1 before taking logs. Since we wish to account for internal resources, companies with negative ebitda are companies that do not have internal resources, whatever the exact amount of ebitda.

In a second specification, cash flow over sales is used to measure liquidity. In order to specifically account for the availability of internal resources for investments, Carpenter and

8 In order to collect data, we first build the list of quoted companies either from the information given by the stock exchange websites in terms of companies' listings, delistings and transfers or in the case of London and Italy, we directly contact the stock exchange. In the case of Japan, no data about delistings were available before 2012.

9 We cannot use the deflators defined by Eurostat for example because it uses the NACE classification and it does not exist a one-to-one correspondence between the two classifications.

Guariglia (2008) and D'Espallier and Guariglia (2015) propose to control for investment opportunities (Tobin Q and capital expenditures). While the Tobin Q is a measure of opportunities available to outsiders, capital expenditures, i.e. funds used to acquire fixed assets, control for opportunities available to insiders. Leverage is the measure of external finance in this specification.

4.2 Econometric methods

We apply standard regression techniques focusing on the average firm size in dynamic panel framework. Because of data limitations related to differences in sample composition, we focus on firms listed on the London and Japan stock exchanges in our econometric analysis while we only discuss descriptive statistics on the other markets.

To tackle the lagged dependent variable bias, we estimate our dynamic panel model for the UK by means of the LSDVC estimator (Kiviet, 1999; Judson and Owen, 1999; Bun and Kiviet, 2003) adapted by Bruno (2005a, 2005b) to unbalanced datasets and notably used by Bogliacino et al. (2012). The purpose of the LSDVC estimator is to approximate the bias in the LSDV estimator and then to remove the bias from it. We use the GMM-system estimator as the consistent estimator for initializing the bias correction for approximating the bias as our dependent variable is highly persistent.

The Quasi Maximum Likelihood (QML) estimator with fixed effects (Hsiao, Pesaran and Tahmiscioglu, 2002) allows to deal with the lagged dependent variable bias in a short-T panels, such as Japan while considering all other regressors as exogenous. The estimator is a special case of a Structural Equation Model (SEM) since period-by-period equations are estimated. More specifically, the system of equations is composed by first-differenced equations for $t > 1$ and by an equation for $t = 1$ specifying the joint distribution of the first-difference of s_{i1} on the exogenous regressors. The system is required because in the first-differenced model, the correlation between the first-difference of s_{i1} and the transformed error term makes the maximum likelihood estimation inconsistent. The model assumes that the same data generating process drives both the initial observations and the subsequent ones. This estimator is suitable with unbalanced panel data as it accounts for differences in initial periods among individuals.

We also run pooled OLS and LSDV estimators in order to check the validity of our estimates, as it is known (Roodman 2009) that the first-order autoregressive coefficient estimated via QML, LSDVC and system GMM should lie inside the interval between pooled OLS and LSDV estimates. The Hausman test is run by taking into consideration heteroscedasticity (Kaiser, 2014).

To go beyond and consider the potential endogeneity of our control variables, we also run the system GMM estimator relying on lagged variables as instruments, for the two sub-samples in the London stock exchange (main market and AIM).[10] Endogeneity can arise because of the inclusion of the financial variables as they can jointly influence growth and age. Also, time-varying unobserved heterogeneity (lagged dynamic unobserved factors) can affect both growth and age. The sample composition and omitted variables are other potential sources of bias.

As our panel is unbalanced and in order not to remove too many observations, we use forward orthogonalization (Arellano and Bover, 1995) instead of the first differences transformation (i.e. it subtracts the average of all available future observations from the current value instead of subtracting the previous value from the current value). In the case of finite sample, either the one-step system-GMM can be used or the two-step system-GMM estimator has to be corrected with Windmeijer's method (2005). Following Roodman (2009), we use less instruments than individual units. We choose to reduce the number of instruments to one lag or 2 lags since a large number of instruments can result in imprecise estimates. Indeed, the GMM-system method generates a number of instruments that are quadratic in T and that also increases when we add endogenous variables. In the case of finite samples, it could become difficult to estimate the variance matrix of the moments and the matrix become singular, forcing the use of a generalized inverse matrix, that still allows consistency of the estimator but moves it away from the asymptotic and efficient one. The Hansen test is also weakened by a large number of instruments.

The choice of the instruments depends on the nature of the explanatory variables: exogenous, predetermined (depending on past size), endogenous (depending on current size). The lagged dependent variables are predetermined variables; the usual instrument for this type of

10 We do not run system GMM on Japanese data due to their shorter time period.

variables is lag 1 and longer of the instrumenting variable in differenced equations and lag 0 of the instrumenting variable in differences for the equations in levels. In our case, when we also include the lag 2 of the size as a regressor, the instrument for size in the differenced equation is the lagged size value in t-3. We consider the market dummy either as endogenous or predetermined. For strictly endogenous variables, we use lag 2 of the instrument variable in differenced equations and lag 1 for the equation in levels. Exogenous variables instrument themselves. We also use a "collapsed" matrix of instruments in some estimations that reduces the number of moment conditions (i.e. we do not have for each instrument one column for each time period).

To check the consistency of our instruments, we rely on the Hansen test of over-identifying restrictions that takes the correction for heteroscedasticity into consideration. A high p-value means that our instruments are not correlated with the error terms and can be considered as exogenous. The Arellano-Bond tests are performed in order to verify the presence of first-order autocorrelation of the differenced residuals and the absence of second-order autocorrelation.

5. Results

5.1 Overview of the stock exchanges and summary statistics

Overall, the London Stock Exchange is characterized by the highest market capitalisation in 2015 while the number of listed companies is higher on the Japanese stock exchange (Table 1, Appendix). Among the continental European stock exchange, Euronext dominates the other markets both in terms of number of listed companies and of market capitalisation. Concerning the junior markets, we observe the same ranking, the Alternative Investment Market and the Japanese markets on one side and the continental European stock exchanges on the other side.

Overall, we observe a low dynamism in segment transfers in absolute terms except in the Nordic countries. In other words, few companies "jump" from one market to another one. In particular, the junior market does not help companies to get access to the main segment, raising doubt about the stock market function as a springboard for firms that want to be listed but do not meet the admission criteria on the main segment. This evidence has already been underlined by Revest and Sapio (2014).

The sectoral composition of the stock exchange is driven by the larger number of service firms. Besides, if we consider the follow-on offerings (Table 2, Appendix), we can see that on the main segment, the biggest amounts are raised by the banking sector over the period 2010-2015 and are almost comparable across countries. Nonetheless on the junior segment, there is a bigger difference across junior markets. The raised amounts are quite higher on the AIM while First North and the new AIM Italia are characterized by lowest values.

Considering the size of the Japanese and UK markets and the fact that they represents the two archetypes of financial systems, we thus perform econometrics on these markets and on manufacturing companies.

Our subsamples of manufacturing companies are presented in Tables 3a and 3b (Appendix). Overall, the examination of the average size and age in each market segment confirms that manufacturing companies listed on the main market are larger and older than companies listed on the junior segment. Interestingly, Japanese companies on Mothers and Jasdaq are comparable in terms of the average age to UK companies belonging to the main segment, reflecting the fact that Jasdaq is an old market segment. In Table 3b, we compare the distribution of companies across 2-digit SIC. We observe similarities across segments and across countries. In London, the manufacture of machinery and equipment (SIC 28), the water collection, treatment and supply (SIC 36) and the waste collection, treatment and disposal activities (SIC 38) are the most represented sectors while in Japan companies from the electricity, gas, stream and air sector constitutes also an important share of our sample along with the SIC 36 and the SIC 38. Finally, the sectoral composition reflects mature industries.

5.2 Baseline results

Overall, we observe different growth patterns across countries, reflecting potential institutional differences, partly in line with the evolutionary taxonomy of financial systems (Tables 4-9). Our comments will be mainly focused on the estimates that account for lagged dependent variable biases (LSDVC for UK, QML for Japan).

Our estimates on the London Stock Exchange show that firm size in the main segment is more persistent (α is closer to 1) than in the junior segment, where smaller firms on average grow faster. Finding growth processes closer to Gibrat's law in the main segment is in accordance with the evidence in Lotti et al. (2009), since the main segment houses larger and more mature companies.

Among firm size proxies, employees and assets appear as the most persistent (α respectively between 0.844 and 0.886, 0.758 and 0.807), whereas productivity is more clearly mean-reverting (with α between 0.430 and 0.684).

It is worth noting that the point estimates of alpha when we run the LSDV estimator lie between the pooled OLS and the LSDV estimates, as expected if the latter two estimators provide biased estimates of the first-order autoregressive coefficient.

With few exceptions, both in the main market and in AIM our estimates indicate that younger firms grow faster. The point estimate of the theta coefficient, indeed, is negative and statistically significant in almost all specifications.

Adding control variables (internal and external financial sources) does not change the results on the effects of age and size on growth performance, although the autoregressive coefficients move closer to 1 when we use control variables. Similarly, our results are qualitatively robust after adding a second lag of the size variable to control for serial correlation in the error term (not reported here). Occasionally (employees, productivity) the statistical significance of the age coefficient falls when adding the second lag of size.

The growth of Japanese listed companies follow a different pattern. If we consider employees and value added, the coefficient of the lagged size estimate through QML is close to 1 while for the other size proxies, the coefficient is definitely lower than in the UK, both in the main and in the junior segments. Also interestingly, and opposite to what was found about the UK, growth processes in the Japanese junior market are closer to Gibrat's law than in the main segment. Our results are also consistent with learning occurring within established companies and with "voice" mechanisms, as in the credit-based prototype system. Moreover, as previously mentioned the Japanese junior market authorities perform an ex-ante examination of corporate governance models adopted by prospective issuers and of their real performance.

Such a stricter regulation may explain that junior market companies in Japan display a growth process similar to what is usually found in samples of established companies, departing from the typical SME pattern. One possible reason for this is linked to the relatively high average age on Jasdaq (Table 3a, Appendix), resulting in a junior market populated by relatively mature firms and validating the long-run hypothesis about Gibrat's Law by Lotti et al. (2009). This reason is confirmed by the fact that firm growth in Japanese markets does not correlate with age, even after controlling for differences in financial resources.

No general pattern emerges concerning financial constraints, except for Tobin's Q, a proxy for investment opportunities which in our results correlates positively with firm growth in nearly all specifications, and robustly across market segments and countries. Regarding internal sources of finance, we observe that cash flow has a positive effect on firm-level employment growth on the London main segment while it has a negative effect in Japanese financial markets (Table 4, Appendix). Somewhat consistently, profitability (measured as the ebitda) is a negative correlate for firm growth in Japan, regardless of the segment. Yet, profitability is seldom significant in UK firm size regressions, as highlighted in the empirical survey by Dosi et al. (2016). It looks like market selection is noisy in the market-based system and may even benefit under-performing firms in the credit-based system. Our proxy for collateral (fixed assets) in Japan (main market) has a positive coefficient for employees, not for productivity, which may mean that credit is used primarily for creating new jobs, and value added increases (if any) with some delay. Hence, productivity over a yearly horizon falls. However, leverage results do not easily fit with this story.

Using the market capitalisation as a proxy for size, we find: i) lower coefficients for the lagged dependent variable than with the other proxies for size in London and Tokyo; ii) a negative effect of age on the growth of market capitalisation in London. On the Japanese market, the effect of age is not robust to the inclusion of financial constraints on the main segment and we did not find any effect of age for the junior markets.

We can first interpret this result as the following. Smaller companies grow faster than larger companies and this effect is more pronounced on the junior market. But the 'deviation' from the operating size growth can also be linked to the riskiness of firms valued by the market as the market capitalization is not a perfect substitute of firm size (Beck, 1997). In the case of London, we can affirm that the degree of riskiness is tied to the age of firms, a younger firm is riskier than older ones, leading to a lower market capitalisation. This relationship does not hold for the Japanese market. But both markets allow to decrease the degree of uncertainty for riskier firms over time as the coefficient α is less than 1: we can hypothesize that the listing of SMEs on a stock exchange represents a way to decrease uncertainty largely associated to SMEs activity.

Finally, this result is consistent with the fact that the market capitalisation does not reflect the real performance of the firms as underlined in the financial literature.

5.3 Robustness

To control for endogeneity for our largest sample, i.e. London, we run estimations based on system-GMM (Table 10, Appendix).[11] We do not confirm the results for age on the junior market in productivity and value added equations when we control for financial constraints and endogeneity. Omitted variables such as the firm's internationalization might influence the estimations. This result is also consistent with the fact that all size proxies are not interchangeable, and are differently sensitive to financial constraints.

6. Conclusion

The financialization process has changed the relationships between SMEs and finance. Venture capital funding has been scrutinized early on (since Meier, 1987) but the stock exchanges dedicated to small companies, the so-called junior markets, remain under-studied while currently spreading all over the world. This article explores the consequences of such financing channel for SMEs within the Gibrat regression framework on the grounds of the evolutionary taxonomy of financial systems proposed by Dosi (1990) and Dosi et al. (2016) to better understand regularities and specificities across countries.

By means of panel data methods applied on a sample of manufacturing companies in United Kingdom and Japan, we observe different growth patterns between the two archetypes of financial systems. On the London stock exchange, the Gibrat's Law almost hold on the main

11 The system-GMM may not produce consistent estimates if N is relatively small, that is the case for our samples.

segment, validating the evidence of long-run regularity for mature firms and the existence of learning and selection process (Lotti et al., 2009). In the junior market, populated by smaller and younger companies, firm size seems to be less persistent in accordance with Lotti et al. (2009). We do not observe such differences between market segments on the Japanese markets. There does not exist a relationship between size and age, reflecting both the institutional design of the junior market and the role of cumulative learning and of voice mechanisms in credit-based capitalism. Financial constraints do not affect these results.

Also, in each country, we find different growth pattern according to the size proxy we use, confirming the fact that they are not interchangeable (Coad et al., 2011). More specifically, productivity is less persistent compared to the other variables, reflecting the fact it is an imperfect substitute of firm size.

Lastly, we use a measure of firm size related to stock markets, that is the market capitalization, to explore the relationships between real and financial performances. The growth pattern in both countries differs from the one we found for the other size proxies, reflecting the fact that market capitalization does not reflect perfectly firms' operating activities and takes riskiness into account (Berk, 1997).

Our results validates partly the differences between market-based and credit-based systems. Some scholars suggest that the credit-based vs. market-based divide is too aggregate, and that the priority of financing (equity vs. loans) that is more conducive to fast growth depends on industry-specific and firm-specific traits (Berger and Udell 1998). Consistently, the main capital structure theories, namely the Modigliani-Miller theory and the pecking order hypothesis (POT, Myers, 1984; Myers and Majluf, 1984) have been recently challenged by updated POTs that account for heterogeneous degrees of exposure to asymmetric information and to risk. Nonetheless, we could argue that industry and firm-specific traits also influence the design of the national financial system, thus reducing the consistency of this debate. From our point of view, the comparison we have done in this paper is a way to deal both with micro and macro heterogeneity.

Further empirical analysis can be done in order to better understand the role played by the junior market in SMEs growth performance. First, to better take into account endogeneity problems, we could use the recent method proposed by Moral-Benito, Allison and Williams (2017). The Maximum Likelihood estimator deals with relatively-short N panel, several lagged dependent variables and other predetermined variables; it handles with time-invariant variables under the assumption that they are not correlated with fixed effects and takes into consideration the reverse causality. Like system-GMM, these recent methods allow to consider persistent size. Secondly, we could explore in a more explicit way the dynamic interrelations between various measures of size and profitability, as in Coad et al. (2011). Third and finally, instead of using the market capitalisation as a proxy for financial performance, we might include an analysis of the market-to-book ratio as well as financial returns.

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Appendix I: Tables.

Table 1: Main Characteristics of stock exchanges in 2015 and number of transfers between market segments

	companies in 2015		transfers	
	number	market cap (M euros)	from junior market	from main market
London main segment (UK listed only)	919	2 963 691, 72	133	-
London International Main Market	278	2 297 061,00	(1998-2015)	
London AIM	1044	98 949, 109	-	298
				(1998-2015)
1st section	1947	4 377 380,77	103	-
			(2012-2015)	
2nd section	543	48 533, 5	87	-
			(2012-2015)	
Mothers	218	25 031,82	-	1
				(2012-2015)
Jasdaq standard	739	61 699,30	-	0
Jasdaq growth	44	2 101,27	-	0
Tokyo Pro Market	14	86,52	-	0
Nasdaq OMX	575	1 148 283,00	70	-
			(2005-2015)	
First North	210	9 657,53	-	7
				(2005-2015)
borsa/mta	239	570 676,39	0	-
AIMMA	74	2 925,20	-	0
Euronext	868	3 012 102,00	2	-
			(2005-2015)	
Alternext	200	13 458,00	-	45
				(2005-2015)
Entry Standard	157		-	0
General Standard	156	1 781 586,00	18	-
Prime Standard	316			-

Source: Stock exchanges'website.

Table 2a: Fifth largest follow-on offerings on the main segments over the period 2010-2015

Company name	Follow-on date	SIC sector	Segment	Gross Proceeds (M€)
London Stock Exchange				
Barclays PLC	02/10/2013	6000	London	6630,80
Lloyds Banking Group PLC	26/03/2014	6000	London	5728,18
Sberbank Rossii OAO	18/09/2012	6000	London	3906,90
Lloyds Banking Group PLC	17/09/2013	6000	London	3704,46
National Grid PLC	11/06/2010	4911	London	3400,33
Euronext: Amsterdam, Brussels, Lisbon, Paris				
Numericable Group SA	20/11/2014	4841	Paris	3659,75
ASML Holding NV	13/09/2012	3559	Amsterdam	2969,14
Banco Comercial Portugues SA	18/07/2014	6000	London	2469,92
EADS NV	09/04/2013	3721	Paris	2165,81
EADS NV	17/04/2013	3721	Paris	2136,81
Tokyo Stock Exchange				
Tokyo Electric Power Co Inc	12/10/2010	4911	1st Section	4287,57
Sumitomo Mitsui Financial Group Inc	20/01/2010	6000	1st Section	4138,06
Japan Tobacco Inc	11/03/2013	2111	1st Section	3232,27
Mizuho Financial Group Inc	13/07/2010	6000	1st Section	2567,62
Resona Holdings Inc	24/01/2011	6000	1st Section	2651,67
Italy				
UniCredit SpA	27/01/2012	6000	MTA	6430,77
Banca Monte dei Paschi di Siena SpA	27/06/2014	6000	MTA	5613,59
Intesa Sanpaolo SpA	10/06/2011	6000	MTA	4158,83
UniCredit SpA	29/01/2010	6000	MTA	2878,09
Banca Monte dei Paschi di Siena SpA	12/06/2015	6000	MTA	3085,99
Nasdaq OMX: Copenhagen, Helsinki, Iceland, Stockholm				
Volvo AB	07/10/2010	3711	Stockholm	3165,95
Nordea Bank AB	25/09/2013	6000	Stockholm	2439,49
Nordea Bank AB	19/06/2013	6000	Stockholm	2189,89
Nordea Bank AB	04/02/2011	6000	Stockholm	2265,11
Danske Bank A/S	04/04/2011	6000	Copenhagen	1983,85
Frankfurt Stock Exchange				
Deutsche Bank AG	05/10/2010	6000	Frankfurt	9312,01
Deutsche Bank AG	24/06/2014	6000	Frankfurt	7070,97
Commerzbank AG	13/04/2011	6000	Frankfurt	4764,49
Commerzbank AG	06/06/2011	6000	Frankfurt	4193,48
Volkswagen AG	26/03/2010	3711	Frankfurt	3093,79

Note: we used the exchange rate at year-end for the gross proceeds.

Source: Eikon, Thomson Reuters

Table 2b: Fifth largest follow-on offerings on the junior segments over the period 2010-2015

Company name	Follow-on date	SIC sector	Segment	Gross Proceeds (M€)
London AIM				
Optimal Payments Plc	01/05/2015	7389	London AIM	608,66
Playtech PLC	05/03/2014	7372	London AIM	449,29
General Industries PLC	19/05/2011	6799	London AIM	418,24
London Stock Exchange Grou	23/05/2012	6231	London AIM	354,99
FosAgro OAO	10/04/2013	2873	London AIM	338,38
Alternext: Amsterdam, Brussels, Lisbon, Paris				
Gemalto NV	12/03/2010	7372	Paris	185,21
Ipsen SA	24/03/2010	2834	Paris	138,55
Reims Aviation Industries SA	10/03/2010	3721	Paris	130,82
Genfit SA	25/06/2014	2836	Paris	55,73
Heurtey Petrochem SA	03/06/2014	3433	Paris	39,69
Tokyo Stock Exchange: Jasdaq, Mothers				
Mixi Inc	23/07/2015	7372	Mothers	238,16
Takara Bio Inc	20/08/2013	8071	Mothers	187,60
Leopalace21 Corp	04/12/2013	6513	Mothers	183,52
Skymark Airlines Inc	25/05/2011	4512	Mothers	192,04
Cyberdyne Inc	26/11/2014	8099	Mothers	154,82
AIM Italy				
Digital Magics SpA	29/05/2015	6799	AIM Italy	6,08
TE WIND SA	03/08/2015	4911	AIM Italy	0,80
Societa Editoriale Vita SpA	27/11/2014	2721	AIM Italy	0,63
Lucisano Media Group SpA	15/12/2014	7812	AIM Italy	0,23
Softec SpA	21/07/2015	7372	AIM Italy	0,11
Nasdaq OMX First North: Copenhagen, Helsinki, Iceland, Stockholm				
D Carnegie & Co AB	28/05/2015	6531	Stockholm	62,46
Victoria Park AB	13/03/2014	6798	Stockholm	46,43
Alpcot Agro AB	15/04/2011	6799	Stockholm	40,38
Seamless Distribution AB	05/11/2013	7372	Stockholm	35,59
Alpcot Agro AB	15/01/2010	191	Stockholm	24,97

Note: we used the exchange rate at year-end for the gross proceeds.

Source: Eikon, Thomson Reuters, deals database

Table 3a : Summary statistics of size, productivity and market capitalisation for manufacturing companies listed on London and Tokyo stock exchanges (data are in local currencies)

	London: main segment					London AIM				
	Obs	mean	sd	min	max	Obs	mean	sd	min	max
employees										
size	2062	10174	25480	13	295000	1051	315.7	448.2	4	2918
age		47.68	38.50	1	131		27.69	32.40	1	135
total assets										
size	2194	2.235e+06	7.657e+06	1737	9.960e+07	1285	34873	49317	232	505996
age		47.40	38.06	1	131		27.88	32.68	1	135
productivity										
size	1950	133.9	2227	0.620	69898	967	61.51	74.27	0	1267
age		48.44	38.73	1	131		29.19	33.31	1	135
net sales										
size	2199	1.932e+06	8.345e+06	0	1.550e+08	1274	36930	57649	0	492521
age		47.49	38.07	1	131		28.06	32.76	1	135
va										
size	2039	825941	2.834e+06	117	2.930e+07	1184	13705	19055	0	132502
age		47.67	38.24	1	131		28.97	33.10	1	135
Market cap										
size		2.916e+06	1.060e+07	278	1.090e+08		43716	103311	247	1.275e+06
age	2120	47.86	37.86	1	131	1167	29.24	33.13	1	135

	Japan: 1st and 2nd Sections					Japan: Mothers and Jasdaq				
	Obs	mean	sd	min	max	Obs	mean	sd	min	max
employees										
size	2869	8346	25959	20	344109	716	682.7	1266	6	11858
age	2869	67.54	27.17	2	337	716	46.27	18.07	2	108
total assets										
size	3215	3.440e+08	1.660e+09	1.168e+06	4.760e+10	809	1.610e+07	2.120e+07	374998	1.920e+08
age	3215	66.88	26.67	2	337	809	45.03	18.43	2	108
productivity										
size	2869	12538	9065	268.8	102726	716	11129	11826	547.8	198119
age	2869	67.54	27.17	2	337	716	46.27	18.07	2	108
net sales										
size	3218	2.950e+08	1.190e+09	187317	2.720e+10	812	1.560e+07	2.550e+07	420078	2.510e+08
age	3218	66.84	26.70	2	337	812	44.93	18.46	2	108
value added										
size	3218	8.460e+07	3.060e+08	42000	6.800e+09	812	4.293e+06	5.895e+06	40660	5.330e+07
age	3218	66.84	26.70	2	337	812	44.93	18.46	2	108
market cap										
size	3196	1.960e+08	8.060e+08	673584	2.640e+10	803	7.581e+06	1.560e+07	310570	2.430e+08
age	3196	67.02	26.57	2	337	803	45.10	18.36	2	108

Table 3b : Sectoral composition of samples (weight of the sector in the distribution for each dependent variable)

	London : main segment						London : AIM					
SIC	employees	total assets	productivity	net sales	value added	market cap	employees	total assets	productivity	net sales	value added	market cap
20	7,18	7,66	7,54	7,62	7,21	6,97	6,77	6,83	7,32	6,88	6,76	6,77
21	0,96	1,35	1,01	1,35	1,44	1,49	0,00	0,00	0,00	0,00	0,00	0,00
22	3,35	3,15	3,02	3,14	2,88	3,48	0,00	0,00	0,00	0,00	0,00	0,00
23	1,44	1,35	1,51	1,79	1,44	1,00	1,50	1,24	1,63	1,25	1,35	1,50
25	0,00	0,00	0,00	0,00	0,00	0,00	3,01	3,11	3,25	3,13	3,38	3,01
26	2,87	2,70	3,02	2,69	2,88	2,99	4,51	3,73	4,88	3,75	4,05	4,51
27	10,53	9,91	11,06	9,87	10,58	10,45	3,76	3,73	4,07	3,75	4,05	4,51
28	13,88	13,96	12,56	13,90	13,46	13,43	18,80	19,25	15,45	19,38	16,22	15,79
29	0,96	0,90	1,01	0,90	0,96	1,00	1,50	1,24	1,63	1,25	1,35	1,50
30	2,39	2,25	2,51	2,24	2,40	2,49	2,26	2,48	2,44	2,50	2,70	3,01
32	5,26	4,95	5,03	4,93	4,81	4,98	4,51	3,73	4,07	3,75	3,38	3,76
33	2,87	2,70	2,51	2,69	2,40	2,49	0,00	0,00	0,00	0,00	0,00	0,00
34	3,35	3,60	3,02	3,59	3,37	3,48	3,76	3,73	4,07	3,75	4,05	3,76
35	12,44	12,61	12,56	12,56	12,98	13,43	9,77	10,56	9,76	10,63	10,81	10,53
36	11,48	11,71	11,56	12,11	11,54	9,95	18,05	18,63	18,70	18,13	19,59	18,80
37	6,70	6,76	6,53	6,73	6,73	6,97	0,00	1,86	0,00	1,88	2,03	2,26
38	12,44	12,61	13,07	12,11	12,98	13,43	17,29	16,15	17,07	16,25	15,54	15,79
39	1,91	1,80	2,51	1,79	1,92	1,99	3,76	3,11	4,88	3,13	3,38	3,76
Total	100	100	100	100	100	100	100	100	100	100	100	100

	Japan: 1st and 2nd Sections						Japan: Mothers and Jasdaq					
SIC	employees	total assets	productivity	net sales	value added	market cap	employees	total assets	productivity	net sales	value added	market cap
20	7,92	7,72	7,92	7,69	7,69	7,78	7,92	7,72	7,92	7,69	7,69	7,78
23	0,00	1,10	0,00	1,10	1,10	1,11	0,00	1,10	0,00	1,10	1,10	1,11
24	0,83	0,74	0,83	0,73	0,73	0,74	0,83	0,74	0,83	0,73	0,73	0,74
26	2,92	2,94	2,92	2,93	2,93	2,96	2,92	2,94	2,92	2,93	2,93	2,96
27	6,67	7,35	6,67	7,33	7,33	7,41	6,67	7,35	6,67	7,33	7,33	7,41
28	6,67	7,72	6,67	7,69	7,69	7,41	6,67	7,72	6,67	7,69	7,69	7,41
30	2,92	2,94	2,92	2,93	2,93	2,96	2,92	2,94	2,92	2,93	2,93	2,96
31	1,25	1,10	1,25	1,10	1,10	1,11	1,25	1,10	1,25	1,10	1,10	1,11
32	3,33	3,68	3,33	3,66	3,66	4,07	3,33	3,68	3,33	3,66	3,66	4,07
33	4,58	4,04	4,58	4,03	4,03	4,07	4,58	4,04	4,58	4,03	4,03	4,07
34	6,25	6,25	6,25	5,86	5,86	5,93	6,25	6,25	6,25	5,86	5,86	5,93
35	18,33	18,38	18,75	18,68	18,68	18,15	18,33	18,38	18,75	18,68	18,68	18,15
36	14,58	13,24	14,17	13,55	13,55	13,33	14,58	13,24	14,17	13,55	13,55	13,33
37	5,83	5,51	5,83	5,49	5,49	5,56	5,83	5,51	5,83	5,49	5,49	5,56
38	13,33	12,87	13,33	12,82	12,82	12,96	13,33	12,87	13,33	12,82	12,82	12,96
39	4,58	4,41	4,58	4,40	4,40	4,44	4,58	4,41	4,58	4,40	4,40	4,44
Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4 : Estimates of standardized employees models with pooled OLS, LSDV, LSDVC, QML for London and Japanese markets

employees	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.975***	0.752***	0.886***	0.954***	0.700***	0.884***	0.995***	0.159	0.672***	0.987***	0.334***	0.552***
	(0.00637)	(0.0483)	(0.0178)	(0.0104)	(0.0271)	(0.0232)	(0.00279)	(0.120)	(0.0520)	(0.00573)	(0.0921)	(0.0406)
LogAge(t)	-0.00148	-0.101***	-0.0725***	-0.0338***	-0.0770*	-0.117***	-0.00673*	-0.0333	-0.0385	0.0385	0.0630	0.265**
	(0.00513)	(0.0220)	(0.0180)	(0.00984)	(0.0417)	(0.0289)	(0.00402)	(0.0555)	(0.0653)	(0.0364)	(0.210)	(0.120)
Constant	-0.0186	0.330***		0.102***	0.226*		0.0252	0.136		-0.144	-0.237	
	(0.0182)	(0.0767)		(0.0292)	(0.117)		(0.0171)	(0.228)		(0.140)	(0.791)	
Observations	2,062	2,062	2,062	1,051	1,051	1,051	2,869	2,869	2,869	716	716	716
R-squared	0.959	0.615		0.892	0.522		0.988	0.027		0.979	0.201	
Number of companies		208	208		131	131		962	962		239	239
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

employees	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.975***	0.763***	0.891***	0.955***	0.698***	0.886***	0.992***	-0.257	0.0324	0.994***	0.229	0.898***
	(0.00757)	(0.0468)	(0.0194)	(0.0112)	(0.0250)	(0.0273)	(0.00376)	(0.172)	(0.0325)	(0.00746)	(0.142)	(0.190)
LogAge(t)	-8.07e-05	-0.0933***	-0.0666***	-0.0277***	-0.0231	-0.0732**	0.00275	0.0877	0.124	0.00490	-0.0396	0.0500
	(0.00481)	(0.0208)	(0.0192)	(0.0105)	(0.0462)	(0.0328)	(0.00428)	(0.115)	(0.103)	(0.0139)	(0.200)	(0.286)
CashFlow/Sales(t-1)	0.0114**	0.0105	0.00861	0.0391***	0.0511**	0.0454**	3.72e-05	0.00275	-0.00101	0.0212**	0.0114*	0.0133
	(0.00528)	(0.00803)	(0.00603)	(0.0114)	(0.0201)	(0.0212)	(0.00757)	(0.00464)	(0.00363)	(0.00880)	(0.00649)	(0.00970)
Q(t-1)	0.0160***	0.0108	0.0114	0.0115	0.0274	0.0331*	0.00755	0.00115	0.00519	0.0119	0.00285	0.0135
	(0.00420)	(0.00701)	(0.00746)	(0.0120)	(0.0185)	(0.0171)	(0.00466)	(0.00596)	(0.00618)	(0.00767)	(0.0190)	(0.0175)
CapExp/FixedAssets(t-1)	0.00900**	0.00504	0.00596	0.0186	0.0243*	0.0236*	0.00144	-0.00870**	-0.00879	-0.00181	0.00747	-0.00716
	(0.00444)	(0.00641)	(0.00598)	(0.0121)	(0.0139)	(0.0126)	(0.00147)	(0.00369)	(0.00669)	(0.00472)	(0.00884)	(0.0197)
Totaldebt/TotalAssets(t-1)	-0.00178	0.0123	0.00256	-0.0169	-0.00513	-0.0108	-0.00477	0.0105	-0.0158	-0.000314	-0.000959	-0.0389
	(0.00568)	(0.0121)	(0.00738)	(0.0103)	(0.0183)	(0.0142)	(0.00387)	(0.0175)	(0.0116)	(0.00601)	(0.0434)	(0.0330)
Constant	-0.0235	0.305***		0.0835***	0.0731		-0.0114	-0.360		-0.0174	0.159	
	(0.0171)	(0.0727)		(0.0309)	(0.131)		(0.0177)	(0.474)		(0.0536)	(0.757)	
Observations	2,036	2,036	2,036	1,004	1,004	1,004	1,858	1,858	1,858	456	456	456
R-squared	0.962	0.629		0.891	0.523		0.986	0.123		0.985	0.067	
Number of companies		205	205	Yes	126	126		929	929	Yes	228	228
OLS	Yes						Yes					
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

employees	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.935***	0.652***	0.882***	0.901***	0.592***	0.844***	0.983***	-0.231	0.0670**	0.984***	0.193	0.846***
	(0.0241)	(0.0607)	(0.0167)	(0.0192)	(0.0563)	(0.0327)	(0.00459)	(0.161)	(0.0339)	(0.00845)	(0.169)	(0.186)
LogAge(t)	-0.00103	-0.0938***	-0.0779***	-0.0342***	-0.0708	-0.0863*	-0.00256	0.151	0.176	0.00254	0.0235	0.111
	(0.00471)	(0.0202)	(0.0168)	(0.0105)	(0.0480)	(0.0446)	(0.00422)	(0.130)	(0.110)	(0.0139)	(0.212)	(0.286)
LogFixedAssets(t-1)	0.00973	0.101**	-0.0101	0.0351*	0.0946*	-0.00276	0.000590	0.0656**	0.0721***	-0.00661	-0.0210	-0.0230
	(0.0200)	(0.0425)	(0.00620)	(0.0208)	(0.0537)	(0.0130)	(0.00212)	(0.0307)	(0.0201)	(0.00769)	(0.0219)	(0.0414)
LogEbitda(t-1)	0.0455***	0.0211**	0.00377	0.0683***	0.0927***	0.00589	0.0166***	0.000465	0.000109	0.0166**	0.0206*	0.0228**
	(0.00903)	(0.0104)	(0.00658)	(0.0132)	(0.0183)	(0.0149)	(0.00393)	(0.00330)	(0.00387)	(0.00724)	(0.0115)	(0.00957)
Constant	-0.0211	0.306***		0.101***	0.210		0.0108	-0.625		-0.00807	-0.0779	
	(0.0166)	(0.0703)		(0.0304)	(0.137)		(0.0175)	(0.537)		(0.0541)	(0.800)	
Observations	2,047	2,047	2,046	973	973	975	1,786	1,786	1,786	422	422	422
R-squared	0.958	0.616		0.894	0.498		0.986	0.111		0.985	0.071	
Number of companies		208	208		127	129		893	893		211	211
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5 : Estimates of standardized total assets models with pooled OLS, LSDV, LSDVC, QML for London and Japanese markets

total assets	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.979***	0.769***	0.911***	0.921***	0.578***	0.758***	0.998***	0.434***	0.789***	0.987***	0.450***	0.738***
	(0.00519)	(0.0317)	(0.0146)	(0.0120)	(0.0325)	(0.0252)	(0.00175)	(0.0398)	(0.0298)	(0.0100)	(0.0930)	(0.0481)
LogAge(t)	-0.00170	-0.0931***	-0.0605***	-0.0310***	-0.0301	-0.0753	-0.00841**	-0.0534*	-0.0889***	-0.0148	0.299	0.221
	(0.00539)	(0.0217)	(0.0163)	(0.0109)	(0.0454)	(0.0484)	(0.00363)	(0.0311)	(0.0331)	(0.0235)	(0.252)	(0.143)
Constant	-0.0195	0.302***		0.0902***	0.0898		0.0327**	0.219*		0.0570	-1.115	
	(0.0201)	(0.0755)		(0.0340)	(0.128)		(0.0153)	(0.128)		(0.0926)	(0.940)	
Observations	2,194	2,194	2,194	1,285	1,285	1,285	3,215	3,215	3,215	809	809	809
R-squared	0.961	0.657		0.833	0.379		0.996	0.231		0.971	0.285	
Number of companies		221	221		159			1078	1078		271	271
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

total assets	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.947***	0.667***	0.907***	0.828***	0.534***	0.779***	0.991***	0.158***	0.573***	0.989***	0.176***	0.346***
	(0.0168)	(0.0472)	(0.0165)	(0.0209)	(0.0381)	(0.0309)	(0.00212)	(0.0330)	(0.0438)	(0.0121)	(0.0415)	(0.0437)
LogAge(t)	-0.00258	-0.0812***	-0.0630***	-0.0395***	-0.0160	-0.0294	-0.00710*	0.0290	-0.0161	-0.0380	-0.201	-0.292
	(0.00478)	(0.0209)	(0.0201)	(0.0112)	(0.0552)	(0.0536)	(0.00382)	(0.0595)	(0.0645)	(0.0278)	(0.236)	(0.213)
LogFixedAssets(t-1)	0.00267	0.103**	0.00636	0.0751***	0.0645	-0.0169	0.000422	0.00760	0.00775	-0.0247*	0.0156	0.0323
	(0.0161)	(0.0405)	(0.00608)	(0.0198)	(0.0522)	(0.0141)	(0.00154)	(0.0105)	(0.00973)	(0.0148)	(0.0462)	(0.0546)
LogEbitda(t-1)	0.0428***	0.0283***	-0.00110	0.0997***	0.0866***	-0.00867	0.0107***	-0.00214	-0.00554**	0.0143	0.000483	-0.000325
	(0.00570)	(0.00749)	(0.00689)	(0.0137)	(0.0184)	(0.0149)	(0.00265)	(0.00221)	(0.00230)	(0.0103)	(0.00812)	(0.00737)
Constant	-0.0178	0.260***		0.103***	0.0409		0.0293*	-0.122		0.140	0.755	
	(0.0179)	(0.0729)		(0.0356)	(0.157)		(0.0161)	(0.246)		(0.109)	(0.880)	
Observations	2,169	2,169	2,168	1,188	1,188	1,188	2,004	2,004	2,004	470	470	470
R-squared	0.960	0.657		0.858	0.417		0.996	0.038		0.975	0.093	
Number of companies		221	221		155	157		1,002	1,002		235	235
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

total assets	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.973***	0.776***	0.904***	0.943***	0.635***	0.833***	0.997***	0.148***	0.721***	1.001***	0.200***	0.583***
	(0.00563)	(0.0320)	(0.0157)	(0.0119)	(0.0317)	(0.0256)	(0.00146)	(0.0391)	(0.0638)	(0.00690)	(0.0753)	(0.0801)
LogAge(t)	0.000417	-0.0855***	-0.0555***	-0.0182	0.0536	0.0386	2.10e-05	0.0203	0.0182	-0.00227	-0.166	-0.200
	(0.00485)	(0.0224)	(0.0186)	(0.0119)	(0.0446)	(0.0364)	(0.00278)	(0.0604)	(0.0642)	(0.0134)	(0.214)	(0.214)
CashFlow/Sales(t-1)	0.0265***	0.0280***	0.0228***	0.0457***	0.0288	0.0242	0.000370	-0.00152	-0.0126***	-0.00219	-0.00280	-0.0117
	(0.00654)	(0.00657)	(0.00574)	(0.0117)	(0.0189)	(0.0181)	(0.00507)	(0.00216)	(0.00258)	(0.0107)	(0.00740)	(0.00770)
Q(t-1)	0.0260***	0.0245***	0.0297***	0.0510***	0.0956***	0.108***	0.00911***	0.00970**	0.00878**	0.0300***	0.000906	0.0122
	(0.00543)	(0.00755)	(0.00718)	(0.0111)	(0.0194)	(0.0233)	(0.00304)	(0.00418)	(0.00386)	(0.0111)	(0.0176)	(0.0130)
CapExp/FixedAssets(t-1)	0.00412	-5.23e-05	0.000191	-0.00806	0.0303**	0.0285**	0.000878	0.00253	-0.00258	0.00268	0.00199	-0.00767
	(0.00434)	(0.00572)	(0.00450)	(0.0105)	(0.0146)	(0.0130)	(0.00125)	(0.00219)	(0.00422)	(0.00597)	(0.0105)	(0.0149)
Totaldebt/TotalAssets(t-1)	-0.00222	-0.00892	-0.0163*	-0.0182	-0.0133	-0.00931	-0.00799***	-0.0152*	-0.0564***	-0.0174**	-0.0209	-0.0374
	(0.00486)	(0.0108)	(0.00871)	(0.0165)	(0.0172)	(0.0196)	(0.00202)	(0.00842)	(0.00831)	(0.00843)	(0.0350)	(0.0244)
Constant	-0.0274	0.275***		0.0395	-0.162		-0.000135	-0.0823		0.00698	0.627	
	(0.0177)	(0.0780)		(0.0373)	(0.127)		(0.0114)	(0.250)		(0.0537)	(0.804)	
Observations	2,161	2,161	2,161	1,205	1,205	1,205	2,078	2,078	2,078	508	508	508
R-squared	0.963	0.670		0.854	0.447	150	0.996	0.036		0.985	0.066	
Number of companies		218	218	Yes	150	150		1,039	1,039	Yes	254	254
OLS	Yes						Yes					
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 : Estimates of standardized productivity models with pooled OLS, LSDV, LSDVC, QML for London and Japanese markets

productivity	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.915***	0.532***	0.685***	0.824***	0.374***	0.517***	0.927***	0.0127	0.521***	0.929***	0.145**	0.489***
	(0.0115)	(0.0447)	(0.0223)	(0.0305)	(0.0531)	(0.0327)	(0.0105)	(0.0650)	(0.0492)	(0.0185)	(0.0632)	(0.0607)
LogAge(t)	-0.0144	-0.0795*	-0.0777*	-0.0187	-0.136**	-0.156**	-0.00780	-0.102	-0.130	-0.0798	0.329	-0.193
	(0.00881)	(0.0421)	(0.0426)	(0.0152)	(0.0638)	(0.0634)	(0.0109)	(0.200)	(0.221)	(0.0686)	(0.369)	(0.350)
Constant	0.0438	0.272*		0.0400	0.388**		0.0273	0.416		0.303	-1.238	
	(0.0322)	(0.146)		(0.0488)	(0.182)		(0.0454)	(0.822)		(0.264)	(1.388)	
Observations	1,950	1,950	1,95	967	967	967	2,869	2,869	2,869	716	716	716
R-squared	0.850	0.293		0.684	0.159		0.858	0.000		0.866	0.034	
Number of companies		198	198		121	121		962	962		239	239
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes									
QML						Yes			Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

productivity	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.905***	0.538***	0.685***	0.838***	0.381***	0.514***	0.921***	-0.286**	0.177***	0.959***	-0.107	0.585***
	(0.0129)	(0.0447)	(0.0240)	(0.0286)	(0.0557)	(0.0323)	(0.0158)	(0.112)	(0.0518)	(0.0191)	(0.110)	(0.194)
LogAge(T)	-0.0110	-0.0615	-0.0544	-0.0130	-0.135*	-0.150***	-0.00846	-0.104	-0.0850	-0.00737	0.400	0.677
	(0.00802)	(0.0404)	(0.0455)	(0.0157)	(0.0753)	(0.0559)	(0.0129)	(0.304)	(0.402)	(0.0299)	(0.580)	(0.726)
CashFlow/Sales(t-1)	-0.0167	-0.00361	-0.0147	-0.0390	-0.0392	-0.0549**	-0.0359***	0.0143	-0.0384**	-0.0741***	-0.0142	-0.104***
	(0.0112)	(0.0158)	(0.0150)	(0.0280)	(0.0344)	(0.0275)	(0.0114)	(0.0250)	(0.0153)	(0.0264)	(0.0197)	(0.0352)
Q(t-1)	0.0484***	0.0405**	0.0351**	-0.00135	0.0134	0.00698	0.0434***	0.0463**	0.00781	0.00898	0.0489	-0.0167
	(0.0102)	(0.0167)	(0.0151)	(0.0239)	(0.0275)	(0.0328)	(0.00883)	(0.0195)	(0.0245)	(0.0220)	(0.0402)	(0.0475)
CapExp/FixedAssets(t-1)	-0.00211	-0.00660	-0.0102	-0.0144	-0.0302	-0.0325	0.00411	0.0490***	0.0446*	0.0292**	-0.0529**	-0.0264
	(0.0107)	(0.0159)	(0.0120)	(0.0175)	(0.0231)	(0.0223)	(0.00539)	(0.0182)	(0.0262)	(0.0120)	(0.0236)	(0.0494)
Totaldebt/TotalAssets(t-1)	0.00717	-0.00724	-0.0108	-0.0323	-0.0810*	-0.0793**	0.00299	0.0653	0.133***	0.00514	-0.0741	0.117
	(0.00814)	(0.0199)	(0.0149)	(0.0269)	(0.0430)	(0.0351)	(0.00900)	(0.0480)	(0.0448)	(0.0193)	(0.0843)	(0.0956)
Constant	0.0316	0.209		0.0181	0.381*		0.0344	0.429		0.0252	-1.526	
	(0.0297)	(0.141)		(0.0502)	(0.217)		(0.0540)	(1.256)		(0.114)	(2.193)	
Observations	1,929	1,929	1,929	937	937	937	1,858	1,858	1,858	456	456	456
R-squared	0.857	0.308		0.681	0.175		0.854	0.117		0.893	0.035	
Number of companies		195	195		116	116		929	929		228	228
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes						Yes			
QML						Yes						Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

productivity	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.918***	0.537***	0.688***	0.844***	0.419***	0.559***	0.925***	-0.268**	0.184***	0.950***	-0.123	0.430***
	(0.0112)	(0.0456)	(0.0246)	(0.0274)	(0.0553)	(0.0326)	(0.0157)	(0.109)	(0.0510)	(0.0161)	(0.105)	(0.133)
LogAge(t)	-0.0148	-0.0815*	-0.0812**	-0.00245	-0.102	-0.121*	-0.0192	-0.0148	-0.0612	-0.0142	0.310	0.231
	(0.00923)	(0.0439)	(0.0380)	(0.0149)	(0.0775)	(0.0687)	(0.0139)	(0.342)	(0.421)	(0.0298)	(0.548)	(0.687)
LogFixedAssets(t-1)	0.0139	0.00940	0.0218	-0.0287	-0.0432	0.0104	0.0236***	-0.219***	-0.208***	0.00592	0.0103	0.0543
	(0.0118)	(0.0482)	(0.0133)	(0.0189)	(0.0497)	(0.0211)	(0.00799)	(0.0757)	(0.0766)	(0.0194)	(0.0538)	(0.100)
LogEbitda(t-1)	-0.0191	-0.0121	-0.0107	-0.00391	-0.00285	-0.0205	-0.0290**	0.00137	-0.0555***	-0.0643**	-0.0493*	-0.137***
	(0.0144)	(0.0179)	(0.0132)	(0.0169)	(0.0205)	(0.0210)	(0.0122)	(0.0213)	(0.0161)	(0.0281)	(0.0285)	(0.0313)
Constant	0.0461	0.280*		-0.0206	0.281		0.0783	0.0533		0.0507	-1.186	
	(0.0337)	(0.153)		(0.0483)	(0.225)		(0.0578)	(1.420)		(0.112)	(2.067)	
Observations	1,94	1,94	1,939	912	912	913	1,786	1,786	1,786	422	422	422
R-squared	0.851	0.295		0.718	0.197		0.849	0.107		0.892	0.074	
Number of companies		198	198		117	119		893	893		211	211
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7 : Estimates of standardized net sales models with pooled OLS, LSDV, LSDVC, QML for London and Japanese markets

net sales	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.975***	0.702***	0.844***	0.904***	0.545***	0.709***	0.997***	0.395***	1.106***	0.988***	0.226**	1.119***
	(0.00619)	(0.0451)	(0.0178)	(0.0166)	(0.0542)	(0.0300)	(0.00294)	(0.0776)	(0.107)	(0.00632)	(0.104)	(0.131)
LogAge(t)	-0.00155	-0.122***	-0.0964***	-0.0278**	-0.0701*	-0.124***	-0.00881**	-0.0529	-0.135**	0.0136	-0.371	-0.206
	(0.00502)	(0.0299)	(0.0225)	(0.0109)	(0.0413)	(0.0437)	(0.00384)	(0.0561)	(0.0553)	(0.0128)	(0.339)	(0.190)
Constant	-0.0181	0.405***		0.0891***	0.213*		0.0344**	0.216		-0.0489	1.382	
	(0.0184)	(0.104)		(0.0335)	(0.116)		(0.0163)	(0.230)		(0.0494)	(1.263)	
Observations	2,199	2,199	2,199	1,274	1,274	1,274	3,218	3,218	3,218	812	812	812
R-squared	0.954	0.558		0.820	0.327		0.992	0.146		0.974	0.060	
Number of companies		222	222		158	158		1,079	1,079		272	272
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

net sales	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.977***	0.747***	0.892***	0.952***	0.559***	0.740***	0.996***	0.0748	1.762***	0.980***	0.00185	0.656***
	(0.00531)	(0.0339)	(0.0143)	(0.0141)	(0.0442)	(0.0303)	(0.00282)	(0.0550)	(0.0323)	(0.00937)	(0.148)	(0.179)
LogAge(t)	-0.000417	-0.0996***	-0.0676***	-0.0264***	-0.0202	-0.0662*	-0.000112	-0.0322	-0.0170	-0.00267	-0.175	-0.272
	(0.00451)	(0.0253)	(0.0184)	(0.00942)	(0.0426)	(0.0393)	(0.00402)	(0.0630)	(0.160)	(0.0160)	(0.376)	(0.333)
CashFlow/Sales(t-1)	0.00615	0.0111	0.00514	-0.0416**	-0.0715**	-0.0891***	-0.00985	-0.00257	-0.0599***	-0.0176	0.00136	-0.0314**
	(0.00653)	(0.00806)	(0.00567)	(0.0190)	(0.0311)	(0.0191)	(0.00877)	(0.00321)	(0.00577)	(0.0117)	(0.00929)	(0.0146)
Q(t-1)	0.0224***	0.0168**	0.0211***	-0.0165	0.0111	0.0142	0.0138***	0.00538	-0.00919	0.00507	0.0102	-0.0191
	(0.00459)	(0.00796)	(0.00712)	(0.0156)	(0.0199)	(0.0181)	(0.00523)	(0.00392)	(0.00966)	(0.00956)	(0.0270)	(0.0214)
CapExp/FixedAssets(t-1)	0.000741	-0.00256	-0.00155	0.0110	0.0288**	0.0294**	0.00253*	0.00140	0.000254	0.0151**	0.00822	0.00236
	(0.00413)	(0.00513)	(0.00441)	(0.0119)	(0.0144)	(0.0141)	(0.00148)	(0.00212)	(0.0104)	(0.00741)	(0.0110)	(0.0229)
Totaldebt/TotalAssets(t-1)	8.90e-05	0.0101	0.000596	-0.0237*	-0.0318	-0.0336*	-0.00359	0.00639	-0.103***	0.00676	-0.0171	0.0242
	(0.00451)	(0.0100)	(0.00867)	(0.0130)	(0.0233)	(0.0198)	(0.00295)	(0.0109)	(0.0174)	(0.00853)	(0.0414)	(0.0391)
Constant	-0.0215	0.328***		0.0768**	0.0658		0.000298	0.135		0.0126	0.668	
	(0.0163)	(0.0881)		(0.0298)	(0.122)		(0.0164)	(0.260)		(0.0618)	(1.413)	
Observations	2,161	2,161	2,161	1,195	1,195	1,195	2,078	2,078	2,078	508	508	508
R-squared	0.965	0.635		0.848	0.299		0.994	0.017		0.974	0.006	
Number of companies		218	218		149	149		1,039	1,039		254	254
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

net sales	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.905***	0.521***	0.830***	0.863***	0.413***	0.699***	0.999***	0.0996*	0.388***	0.994***	-0.132	0.395***
	(0.0256)	(0.0624)	(0.0220)	(0.0256)	(0.0714)	(0.0330)	(0.00329)	(0.0549)	(0.0312)	(0.00897)	(0.116)	(0.122)
LogAge(t)	-0.00231	-0.109***	-0.105***	-0.0388***	-0.0653	-0.0991**	-0.00570	-0.000209	-0.0179	0.00283	-0.0683	-0.180
	(0.00477)	(0.0303)	(0.0240)	(0.0101)	(0.0463)	(0.0404)	(0.00414)	(0.0723)	(0.0720)	(0.0153)	(0.333)	(0.304)
LogFixedAssets(t-1)	0.0474**	0.187***	-0.00262	0.0751***	0.148***	-0.00805	-0.00202	0.0168	0.0164	-0.0104	0.0334	0.0715
	(0.0201)	(0.0443)	(0.00645)	(0.0225)	(0.0492)	(0.0157)	(0.00189)	(0.0117)	(0.0109)	(0.00841)	(0.0319)	(0.0486)
LogEbitda(t-1)	0.0350***	0.0218**	-0.000128	0.0482***	0.0640***	0.00318	-0.00205	-0.00530	-0.0111***	-0.0158	0.0110	-0.0137
	(0.00886)	(0.0100)	(0.00740)	(0.0152)	(0.0208)	(0.0160)	(0.00379)	(0.00341)	(0.00263)	(0.0134)	(0.0125)	(0.0120)
Constant	-0.0152	0.361***		0.109***	0.195		0.0237	0.00111		-0.00800	0.267	
	(0.0175)	(0.105)		(0.0315)	(0.132)		(0.0173)	(0.299)		(0.0584)	(1.242)	
Observations	2,169	2,169	2,168	1,18	1,18	1,18	2,004	2,004	2,004	472	472	472
R-squared	0.952	0.563		0.858	0.304		0.993	0.024		0.976	0.029	
Number of companies		221	221		154	155		1,002	1,002		236	236
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8 : Estimates of standardized value added models with pooled OLS, LSDV, LSDVC, QML for London and Japanese markets

value added	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.978***	0.747***	0.897***	0.861***	0.451***	0.597***	0.992***	0.126	0.658***	0.972***	0.110	0.885***
	(0.00499)	(0.0340)	(0.0192)	(0.0199)	(0.0370)	(0.0268)	(0.00351)	(0.0987)	(0.0527)	(0.0104)	(0.0747)	(0.116)
LogAge(t)	-0.00689	-0.120***	-0.0839***	-0.0198	-0.0128	-0.0668*	-0.00649	-0.0575	-0.101	-0.0253	0.262	0.00143
	(0.00513)	(0.0258)	(0.0216)	(0.0120)	(0.0514)	(0.0386)	(0.00428)	(0.0680)	(0.0751)	(0.0190)	(0.347)	(0.267)
Constant	-0.00436	0.392***		0.0718*	0.0580		0.0238	0.236		0.0956	-0.977	
	(0.0192)	(0.0896)		(0.0379)	(0.146)		(0.0179)	(0.279)		(0.0733)	(1.294)	
Observations	2,039	2,039	2,039	1,184	1,184	1,184	3,218	3,218	3,218	812	812	812
R-squared	0.955	0.615		0.762	0.242		0.982	0.016		0.940	0.013	
Number of companies		207	207		146	146	0.982	1079	1079		272	272
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

value added	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.973***	0.757***	0.903***	0.867***	0.504***	0.663***	0.990***	-0.300**	0.0814**	0.979***	-0.00387	0.972***
	(0.00520)	(0.0305)	(0.0188)	(0.0212)	(0.0356)	(0.0322)	(0.00435)	(0.151)	(0.0392)	(0.0139)	(0.185)	(0.127)
LogAge(t)	-0.00395	-0.103***	-0.0673***	-0.0222*	0.0246	-0.0412	9.90e-05	0.000520	0.0124	-0.0195	0.312	0.537
	(0.00471)	(0.0249)	(0.0176)	(0.0116)	(0.0496)	(0.0575)	(0.00479)	(0.104)	(0.124)	(0.0267)	(0.636)	(0.601)
CashFlow/Sales(t-1)	-0.00623	0.00239	-0.00408	0.0102	-0.0167	-0.0342	-0.0139	0.0127	-0.00774	-0.0456**	-0.0200	-0.100***
	(0.00556)	(0.00733)	(0.00724)	(0.0239)	(0.0354)	(0.0211)	(0.00945)	(0.0112)	(0.00486)	(0.0176)	(0.0195)	(0.0234)
Q(t-1)	0.0336***	0.0294***	0.0304***	-0.00867	0.00924	0.00960	0.0178***	0.0190***	0.0150**	0.00824	-0.0321	-0.0776**
	(0.00533)	(0.00808)	(0.00777)	(0.0172)	(0.0214)	(0.0223)	(0.00568)	(0.00612)	(0.00749)	(0.0139)	(0.0486)	(0.0363)
CapExp/FixedAssets(t-1)	-0.00652	-0.0135*	-0.0136*	-0.00735	0.00917	0.00838	0.00326*	0.00911*	0.00771	0.00710	-0.0162	-0.0345
	(0.00508)	(0.00735)	(0.00732)	(0.0127)	(0.0141)	(0.0175)	(0.00194)	(0.00523)	(0.00809)	(0.00897)	(0.0188)	(0.0413)
Totaldebt/TotalAssets(t-1)	0.000712	0.0172	0.00858	-0.0296	-0.0435	-0.0474**	-3.06e-05	0.0235	0.0110	0.00610	0.0262	0.149**
	(0.00442)	(0.0110)	(0.00775)	(0.0190)	(0.0355)	(0.0213)	(0.00357)	(0.0264)	(0.0135)	(0.0126)	(0.0697)	(0.0696)
Constant	-0.0146	0.334***		0.0753**	-0.0542		-0.000587	-0.000406		0.0720	-1.164	
	(0.0173)	(0.0865)		(0.0380)	(0.143)		(0.0195)	(0.431)		(0.105)	(2.389)	
Observations	2,013	2,013	2,013	1,133	1,133	1,133	2,078	2,078	2,078	508	508	508
R-squared	0.959	0.634		0.778	0.289		0.982	0.131		0.942	0.017	
Number of companies		204	204		139	139		1,039	1,039		254	254
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

value added	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.962***	0.627***	0.890***	0.783***	0.401***	0.630***	1.006***	-0.240	0.194***	1.007***	-0.0511	0.952***
	(0.0137)	(0.0427)	(0.0172)	(0.0319)	(0.0555)	(0.0262)	(0.00679)	(0.154)	(0.0458)	(0.0169)	(0.150)	(0.134)
LogAge(t)	-0.00786	-0.113***	-0.0884***	-0.0289**	-0.0203	-0.0430	-0.00672	0.0864	0.0595	-0.00416	0.212	0.177
	(0.00501)	(0.0256)	(0.0224)	(0.0124)	(0.0571)	(0.0532)	(0.00507)	(0.121)	(0.134)	(0.0265)	(0.627)	(0.616)
LogFixedAssets(t-1)	0.00285	0.137***	-0.00684	0.0858***	0.150**	0.00390	0.00235	-0.00930	-0.00493	0.00201	0.0752	0.119
	(0.0131)	(0.0278)	(0.00668)	(0.0237)	(0.0578)	(0.0182)	(0.00278)	(0.0172)	(0.0202)	(0.0121)	(0.0543)	(0.0976)
LogEbitda(t-1)	0.0187**	0.0105	-0.00215	0.0679***	0.0575**	-0.0103	-0.0235**	-0.00979	-0.0362***	-0.0624***	-0.0438	-0.148***
	(0.00812)	(0.00984)	(0.00742)	(0.0201)	(0.0242)	(0.0143)	(0.0103)	(0.00615)	(0.00548)	(0.0211)	(0.0306)	(0.0255)
Constant	-0.00142	0.367***		0.0914**	0.0742		0.0276	-0.359		0.0136	-0.785	
	(0.0187)	(0.0891)		(0.0404)	(0.165)		(0.0210)	(0.499)		(0.104)	(2.339)	
Observations	2,019	2,019	2,018	1,111	1,111	1,112	2,004	2,004	2,004	472	472	472
R-squared	0.954	0.621		0.783	0.283		0.981	0.105		0.941	0.038	
Number of companies		207	207		142	144		1,002	1,002		236	236
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9 : Estimates of standardized market capitalisation models with pooled OLS, LSDV, LSDVC, QML for London and Japanese markets

market capitalisation	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.965***	0.625***	0.700***	0.821***	0.445***	0.619***	0.986***	0.117***	0.700***	0.921***	0.0456	0.467***
	(0.00539)	(0.0245)	(0.0673)	(0.0203)	(0.0317)	(0.0260)	(0.00268)	(0.0250)	(0.0673)	(0.0152)	(0.0415)	(0.0716)
LogAge(t)	0.106*	-0.166*	-0.176*	0.00183	-0.203***	-0.184***	-0.00477	-0.113	-0.176*	-0.0682**	0.124	-0.224
	(0.00559)	(0.0311)	(0.0984)	(0.0170)	(0.0731)	(0.0513)	(0.00565)	(0.116)	(0.0984)	(0.0297)	(0.354)	(0.357)
Constant	-0.0702***	0.553***		-0.0402	0.560***		0.0175	0.465		0.255**	-0.463	
	(0.0210)	(0.109)		(0.0534)	(0.210)		(0.0238)	(0.479)		(0.115)	(1.323)	
Observations	2,120	2,120	2,120	1,167	1,167	1,167	3,196	3,196	3,196	803	803	803
R-squared	0.926	0.462		0.652	0.223		0.972	0.015		0.849	0.003	
Number of companies		213	213		143,00	143,00		1,071	1,071		269	269
OLS	Yes			Yes			Yes			Yes		
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes			Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

market capitalisation	London: main segment			London AIM			Japan: 1st and 2nd Sections			Japan: Jasdaq and Mothers		
LogSize(t-1)	0.932***	0.590**	0.776***	0.790***	0.425***	0.619***	0.991***	-0.0962**	0.576***	0.938***	-0.161**	0.568***
	(0.00993)	(0.0288)	(0.0220)	(0.0223)	(0.0339)	(0.0289)	(0.00597)	(0.0458)	(0.0887)	(0.0222)	(0.0715)	(0.216)
LogAge(t)	0.00556	-0.168***	-0.0116***	-0.0125	-0.217***	-0.201***	0.00394	-0.100	-0.136	0.00424	-0.207	-0.351
	(0.00541)	(0.0323)	(0.0304)	(0.0185)	(0.0744)	(0.0600)	(0.00824)	(0.182)	(0.197)	(0.0335)	(0.683)	(0.883)
LogFixedAssets(t-1)	0.0137	0.0314	0.00929	0.0178	-0.0475	-0.00773	-0.000231	-0.0197	0.0134	-0.0110	0.115	0.231
	(0.00967)	(0.0221)	(0.00717)	(0.0202)	(0.0438)	(0.0222)	(0.00395)	(0.0366)	(0.0362)	(0.0181)	(0.154)	(0.218)
LogEbitda(t-1)	0.0304*	0.0252**	-0.0160***	0.0725***	0.0770***	0.0115	-0.00652	0.00140	-0.0248***	-0.0261	0.00404	-0.0750*
	(0.00967)	(0.0124)	(0.00762)	(0.0191)	(0.0292)	(0.0200)	(0.00720)	(0.00802)	(0.00765)	(0.0239)	(0.0300)	(0.0384)
Constant	-0.0535***	0.563**		-0.00134	0.604***		-0.0166	0.410		-0.0178	0.774	
	(0.0202)	(0.113)		(0.0584)	(0.216)		(0.0349)	(0.751)		(0.128)	(2.552)	
Observations	2,093	2,093	2,093	1,132	1,132	1,132	1,994	1,994	1,994			
R-squared	0,924	0,46		0.656	0.227		0.973	0.011		466	466	466
Number of companies		213	213		140	140		997	997	0.854	0.031	
OLS	Yes			Yes			Yes			Yes	233	233
LSDV		Yes			Yes			Yes			Yes	
LSDVC			Yes			Yes						
QML									Yes	.		Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10 : Estimates of standardized size models with GMM-system for the London markets

	London: main segment					London AIM				
	employees	total assets	productivity	net sales	value added	employees	total assets	productivity	net sales	value added
LogSize(t-1)	1.040***	0.980***	0.845***	1.034***	0.967***	1.015***	0.932***	0.512***	0.945***	0.688***
	(0.0405)	(0.0266)	(0.0545)	(0.0420)	(0.0356)	(0.0426)	(0.0486)	(0.0666)	(0.0439)	(0.0532)
LogAge(T)	-0.0134	0.00237	-0.0208	-0.0122	-0.00511	-0.0563***	-0.0195	-0.0275	-0.0327**	0.00746
	(0.00853)	(0.00605)	(0.0153)	(0.00880)	(0.00564)	(0.0162)	(0.0169)	(0.0320)	(0.0150)	(0.0222)
CashFlow/Sales(t-1)	0.0150	0.0148*	-0.00269	0.0121	0.00526	0.0802***	0.0621*	0.0932*	-0.0392	0.0142
	(0.0108)	(0.00798)	(0.0207)	(0.0104)	(0.00973)	(0.0265)	(0.0315)	(0.0560)	(0.0408)	(0.0442)
Q(t-1)	0.0312***	0.0395***	0.0472***	0.0318***	0.0369***	0.000493	0.0865***	0.0300	0.00382	0.00447
	(0.01000)	(0.00827)	(0.0181)	(0.0113)	(0.0114)	(0.0263)	(0.0306)	(0.0468)	(0.0250)	(0.0272)
CapExp/FixedAssets(t-1)	0.00860	0.00287	0.0111	-0.00417	-0.00790	0.0160	0.0129	0.00964	0.0337*	-0.00542
	(0.00762)	(0.00628)	(0.0163)	(0.00671)	(0.00909)	(0.0168)	(0.0230)	(0.0270)	(0.0199)	(0.0216)
Totaldebt/TotalAssets(t-1)	0.00181	-0.0101	0.0321	-0.00362	0.0212	0.00399	-0.0380	-0.0541	-0.0190	-0.0524
	(0.0164)	(0.0122)	(0.0280)	(0.0126)	(0.0174)	(0.0258)	(0.0259)	(0.0481)	(0.0318)	(0.0380)
Constant	0.0193	-0.0342	0.0680	0.0186	-0.00953	0.166***	0.0503	0.0663	0.105**	-0.00421
	(0.0291)	(0.0210)	(0.0543)	(0.0303)	(0.0187)	(0.0474)	(0.0521)	(0.0970)	(0.0466)	(0.0729)
Observations	2,036	2,161	1,929	2,161	2,013	1,004	1,205	937	1,195	1,133
AR(1)	-4.487	-5.627	-4.425	-6.406	-5.203	-5.986	-6.314	-5.368	-4.026	-5.686
p	7.22e-06	1.83e-08	9.66e-06	1.49e-10	1.96e-07	2.14e-09	2.72e-10	7.97e-08	5.67e-05	1.30e-08
AR(2)	-1.029	1.445	-0.140	-2.222	1.245	-0.463	-1.786	-1.373	1.364	-1.147
p	0.304	0.149	0.889	0.0263	0.213	0.643	0.0741	0.170	0.173	0.252
hansen	13.37	6.799	8.625	8.803	7.571	16.43	16.68	9.578	12.21	10.45
p	0.204	0.744	0.568	0.551	0.671	0.0880	0.0817	0.478	0.271	0.402
Number of companies	205	218	195	218	204	126	150	116	149	139
GMM22	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

	London: main segment					London AIM				
	employees	total assets	productivity	net sales	value added	employees	total assets	productivity	net sales	value added
L.s_size	0.829***	0.956***	0.814***	0.701***	0.906***	0.797***	0.792***	0.591***	0.655***	0.563***
	(0.0482)	(0.0439)	(0.0462)	(0.0740)	(0.0483)	(0.110)	(0.0621)	(0.0600)	(0.0848)	(0.0734)
log_age	0.00248	0.00523	-0.0213	-0.00275	-0.0152**	-0.0360*	-0.0449***	-0.0177	-0.0389*	-0.0190
	(0.00895)	(0.00805)	(0.0187)	(0.0116)	(0.00655)	(0.0203)	(0.0137)	(0.0354)	(0.0206)	(0.0277)
L.fixed assets	0.118***	-0.0218	-0.0129	0.221***	0.0707*	0.160*	0.129*	-0.0960	0.236***	0.205***
	(0.0429)	(0.0422)	(0.0488)	(0.0581)	(0.0373)	(0.0848)	(0.0685)	(0.0668)	(0.0588)	(0.0753)
L.ebitda	0.0170*	0.0242***	-0.0196	0.0150*	0.0177*	0.0967***	0.116***	0.00891	0.0626***	0.0700**
	(0.0101)	(0.00885)	(0.0223)	(0.00850)	(0.0103)	(0.0241)	(0.0237)	(0.0312)	(0.0202)	(0.0325)
Constant	-0.0305	-0.0419	0.0657	-0.00410	0.0229	0.102*	0.108**	0.0341	0.113*	0.0678
	(0.0294)	(0.0278)	(0.0640)	(0.0401)	(0.0233)	(0.0572)	(0.0446)	(0.108)	(0.0626)	(0.0824)
Observations	2,047	2,169	1,94	2,169	2,019	973	1,188	912	1,18	1,111
ar1	-4.175	-5.460	-4.254	-3.823	-5.100	-4.832	-6.039	-4.465	-3.664	-4.717
ar1p	2.98e-05	4.76e-08	2.10e-05	0.000132	3.40e-07	1.35e-06	1.55e-09	8.02e-06	0.000248	2.40e-06
ar2	-1.157	1.716	-0.00186	-0.846	1.351	-1.204	-1.685	-1.654	0.848	-1.697
ar2p	0.247	0.0861	0.999	0.397	0.177	0.229	0.0919	0.0981	0.397	0.0897
hansen	76.34	56.96	57.57	51.46	47.44	56.72	32.09	32.37	29.28	50.01
hansenp	0.00435	0.151	0.139	0.303	0.455	0.157	0.412	0.399	0.554	0.355
Number of companies	208	221	198	221	207	127	155	117	154	142
GMM12		Yes	Yes	Yes			Yes	Yes	Yes	
GMM22	Yes				Yes	Yes				Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1