

TITLE

Linking financial ecosystem and the growth of young SMEs. Evidence from Spanish regions

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ABSTRACT

This study analyses the effect of the financial ecosystem on the growth of young firms at a regional level. This subject is relatively innovative in entrepreneurial finance research, since the majority of the studies carried out have failed to take into account all the alternative sources of external financing to which young firms have access. This study highlights the relevance of other alternative resources and actors in the financial environment beyond traditional banks, such as crowdfunding, business angels, peer to peer lending, accelerators, incubators, or venture capital. Specifically, our research incorporates a proxy of the development of the financial ecosystem based on survey data from the Global Entrepreneurship Monitor (GEM). Moreover, our investigation uses a sample of young small and medium-sized enterprises (SMEs) representing every Spanish region between the years 2008-2015. The empirical analysis applies panel data methodology. The results show that the growth of young enterprises depends on the development of a regional financial ecosystem, evidencing that better access to external finance favours the growth of young firms. This relation is even more relevant among early-stage firms, suggesting the moderating effect of firm age on the relationship between the regional financial ecosystem and the growth of young SMEs.

KEYWORDS: firm growth; young SMEs; regional financial development; entrepreneurial finance

JEL: O4; G30; L26

LINKING FINANCIAL ECOSYSTEM AND THE GROWTH OF YOUNG SMEs. EVIDENCE FROM SPANISH REGIONS

1. INTRODUCTION

The growth of firms is a topic that has interested researchers and practitioners. One of the most analysed issues in the previous literature has been the determinants of firm growth (e.g. Acs and Audretsch, 1990; Evans, 1987; Gilbert et al., 2006; Hart, 2000; Mateev and Anastasov, 2010). Among the determinants of firm growth can be highlighted the access to finance (Beck and Demirguc-Kunt, 2006; Beck et al., 2006). Particularly for young, small and medium-sized enterprises (SMEs), the lack of finance could be a major constraint for their growth (Beck et al., 2006; Esho and Verhoef, 2018; Kersten et al., 2017). This circumstance could generate serious problems for the economy since SMEs form the backbone of most countries around the world. In the European Union (EU), SMEs represent over 99.8% of all businesses. SMEs employ two out of every three employees, creating 85% of all new jobs and generate about three-fifths of the EU value-added (EUROSTAT-OCDE, 2018).

While large companies have access to all types of external financing both privately and via domestic and international financial markets, SMEs, and especially young enterprises, are highly restricted in their access to external financing. The problems of asymmetric information between management and investors are particularly relevant for SMEs, as they are more opaque than large firms (Palacín-Sánchez et al., 2013). This problem is a key reason for the difficulties in obtaining external financial resources for young SMEs. This phenomenon is known as the “funding gap” (Brown and Lee, 2014; Esho and Verhoef, 2018; Fraser et al., 2015) and has been studied by the entrepreneurial finance literature, which also studies new ways of funding new and young firms.

The study of the access to external financing for firm growth is especially relevant in young and new SMEs (Fraser et al., 2015). In the financial literature, there exists evidence that firms in the earlier stages of their life cycles are typified by their greater asymmetric information levels, more growth opportunities, and are also smaller in size, and consequently face different financing choices than older firms do (Canto-Cuevas et al., 2019).

Empirical evidence on the relationship between access to finance and the growth of SMEs, particularly young SMEs, can follow a macro level approach. In this approach, studies analyse the influence of financial environment, generally known as the financial system, on the growth of SMEs across different geographical areas. This macro level approach is based on the idea that differences in the ability of financial resources and actors between financial environments within SMEs affect business and influence financing and would explain the divergences in their growth. In general, the existing empirical evidence shows that the degree of financial development plays an important role in relaxing the constraint on SME growth (Demirguc-Kunt and Maksimovic, 1998; Fernández de Guevara and Maudos, 2009; Guiso et al., 2004; among others). Guiso et al. (2004) also show that the enterprise growth process is more robust in local areas with higher levels of financial development, therefore the relationship between growth and financial development can as well be posited at the regional level, being especially relevant for SMEs, and even more so for young SMEs, given that they do not have access to international markets and operate in a more local environment (Palacín-Sánchez and di Pietro, 2016).

Most of the mentioned empirical studies, that have analysed the relationship between financial development and SME growth, have widely introduced the financial system, considering one dimension, specifically, the development of the banking sector, and have used samples of firms without taking into account the heterogeneity of SMEs, in particular, new and young SMEs. However, the financial environment has changed over the last years, and the financial sector is not the only player in the external financing of new and young SMEs. Following Block et al., (2018), the panorama for entrepreneurial finance has changed strongly: there are now many new players and several new entrepreneurial financing instruments such as crowdfunding platforms, accelerators and incubators, university-based seed funds, business angels, family funds or venture capital. These alternative sources of external financing have been promoted, among other reasons, as a result of the 2008 financial crisis and the traditional difficulties for entrepreneurs to access financing (Fraser et al., 2015). The set of all these financing options for new and young SMEs can be called a financial ecosystem for entrepreneurship (Block et al., 2018; Fraser et al., 2015). Thanks to this transformation in the financial ecosystem, new and young SMEs can not only resort to bank financing to get ahead, but also can obtain other alternative resources.

Empirical evidence focused on this new financial ecosystem has examined whether some of its sources and actors, considered separately, impact the growth of new and young firms. However, there is still no study that comprehensively captures the effect of the financial ecosystem, including all the actors and instruments, on the growth of young and small firms. Consequently, a better understanding is needed of how new and traditional sources of financing jointly support entrepreneurial ventures (Hanssens, et al., 2015) and the firm growth process, particularly in the case of young SMEs, which has been less extensively investigated (Federico and Capelleras, 2014; Giordani, 2015).

The purpose of our paper is to study the effect of the financial ecosystem on young SMEs growth at the regional level. The empirical analysis uses a cohort of young Spanish manufacturing SMEs

combining both firm-level and regional-level information. The data set for this research consists in an unbalanced panel of 6,216 observations representing every Spanish region for the period 2008-2015. The research analysis applies panel data methodology, specifically the generalised least squares estimator.

In an innovative way in the entrepreneurial finance literature, firstly, our study incorporates a new proxy of the financial ecosystem which considers all the financing options available to the entrepreneur and young SMEs. This variable is based on data from the Global Entrepreneurship Monitor (GEM)- National Experts Survey. Concretely, the GEM questions related with the conditions of the entrepreneurial financial ecosystem in Spanish regions are considered. In addition, our study measures the growth of young firms in two ways: a) in terms of the annual variation of total assets, and b) in terms of the variation of the number of employees. Secondly, our study considers whether the influence of the financial ecosystem on the growth of young SMEs is moderated by the stage of the firm's life cycle.

This paper focuses on the context of Spain. This country is an important case study for several reasons. First, more than 99.9% of Spanish firms are SMEs, characterised by being smaller than their European counterparts and having a lower growth capacity (Teruel and Segarra, 2010), which places the Spanish economy in a highly vulnerable situation. Therefore, it is important to investigate ways to achieve growth and the consequent business consolidation of young Spanish SMEs. Secondly, Spain and Spanish firms suffered the most during and in the aftermath of the 2008 financial crisis and over a prolonged period (IFM, 2012). This made Spanish and European Union institutions focus on the promotion of new alternatives of financing for new and young enterprises. Therefore, it is relevant to assess this new entrepreneurial financial ecosystem. Thirdly, Spanish regions have a high degree of self-government and there is a great disparity among them, in the financial sector as well (Carbó-Valverde et al., 2013). The study of Fernández de Guevara and Maudos (2009) is highlighted. They find that the development of the regional financial system and bank competition influence the growth of Spanish SMEs. If, at the regional level in Spain, it has been observed that there are differences in the regional banking system and its effect on growth, it will be interesting to explore whether this effect on regional growth is also observed considering the financial ecosystem more comprehensively.

Our results suggest that the development of the regional financial ecosystem positively influences the growth of young SMEs. This relation is even more relevant among early-stage firms. Therefore, in regions with more developed financial ecosystem, young firms grow more. A better understanding of this link should encourage policymakers to design initiatives that help to promote alternative sources of finance, not only at the national level but also at the regional level.

This paper is structured as follows. In the next section we discuss the related literature, and thereby formulate the hypothesis of this study. The third section presents the sample of firms, defines the variables to be studied, shows descriptive statistics for all the variables considered, and describes the model and the methodology used. The fourth section sets out the empirical results. Finally, the fifth section presents the conclusions.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESIS

The growth of SMEs and their determinants has been generating a great interest in researchers, entrepreneurs and policymakers since the end of the last century, given among other reasons, the proven ability of SMEs to generate employment and wealth (Birch, 1979; Storey, 1994; Veciana, 2005). Among the main determinants of firm growth is the access to finance. In fact, the lack of financing is one of the major obstacles to the growth of SMEs (Ayyagari et al., 2008; Beck and Demirguc-Kunt, 2006; Beck et al., 2006).

SMEs tend to have difficulties accessing external financing. These difficulties are of particular importance to new and young companies (Beck and Demirguc-Kunt, 2006; Berger and Udell, 1998; Ennew and Binks, 1996). These SMEs may face more problems of asymmetric information between management and investors because they often present insufficient collateral, poor historical data quality and limited availability, and, therefore, they are often opaque (Cumming,

et al., 2019). The pecking order framework (Myers, 1984; Myers and Majluf, 1984) and agency theory posit that the availability of financial resources diminishes when there is an absence of established financial records and a significant presence of information asymmetry. These attributes are commonly observed in new and young enterprises (Fraser et al., 2015). All of this, together with the fact that young companies may have higher growth opportunities, as well as a limited capability to generate internal finance, means that young firms are likely to have a great need for external resources (Fasano and Deloof, 2021). Thus, the study of the access to external financing for firm growth is especially relevant in the early stages of the life cycle of SMEs (Fraser et al., 2015).

2.1 Growth of SMEs and the financial development

In the finance literature, it is generally accepted that financial development reduces barriers to business growth, with the greatest benefits accruing to small and newly firms (Beck and Demirguc-Kunt, 2006). Additionally, a more developed financial system is better able to reduce information asymmetries for smaller firms (Beck, 2012). Financial development refers to the process of improving the functioning and effectiveness of a financial system within an economy, which includes the development of financial institutions, markets and instruments (Levine, 2005a). A better performing financial system involves improving financial intermediation, access to finance and the efficiency of financial markets, which in turn reduces the external financing constraints that hinder business and industrial expansion (Levine, 2005).

Several theoretical studies have examined the link between the financial system and the growth of a country or region. They have considered different financial environments. Certain models emphasises the benefits of bank-based systems and others stress the benefits of systems that rely more on financial markets (Beck, 2012; Beck and Levine, 2002; Levine, 2002; Maksimovic and Demirguc-Kunt, 2002). In all these models, the relevance of financial development to mobilise and ultimately accelerate sustainable growth has been recognised (Bencivenga, et al., 1995; Greenwood and Smith, 1997; Levine, 1991).

Most empirical studies confirm the theoretical assumptions and show that financial development of a country or a region positively influences the economic growth of these geographical areas (Ang, 2008; Beck and Levine, 2004; Beck et al., 2000; Levine and Zervos, 1998; McCaig and Stengos, 2005). Particularly, financial systems play a crucial role in fostering the growth of firms, on whose shoulders rest a good part of the growth of the economy of a country or a region (Demirguc-Kunt and Maksimovic, 1998). According to the influential study of Rajan and Zingales (1998), better developed financial intermediaries and markets help to overcome market frictions by reducing the link between the availability of internal funds and investment, i.e., facilitating access to external finance, with small and new firms benefiting the most (Beck and Demirguc-Kunt, 2006).

Empirical research on the relationship between access to finance through the development of the financial system and the growth of SMEs, particularly young SMEs, can follow a macro level approach. This macro approach means exploring how financial development influences the growth of young small firms (Gaies et al., 2021). The general justification is that the financial environment, that is, the financial system, directly influences the growth of firms as a supplier of funds (Demirguc-Kunt and Maksimovic, 1998). This macro approach implies assessing the ability of resources and actors in the financial environment to generate and to channel resources for the growth of young and new firms (Gaies, et al., 2021).

Most of the previous empirical literature, that have analysed the relationship between financial development and SME growth, has assessed whether certain dimensions of the financial environment, in particular, the financial sector, play an important role in promoting firm growth. While large companies have access to all types of external financing, both privately and via domestic and international financial markets, for SMEs the financial sector has traditionally been

the most relevant provider of external funds in most countries of the world (Ayyagari et al., 2020; 2021).

A first group of these studies has focused on firms located in different countries. Beck et al. (2005), using a unique firm-level survey database covering 54 countries, investigate whether the financial, legal, and corruption obstacles that firms report affect their growth. Their results, for the particular case of financial development, indicate that the level of development of the financial system (financial sector) does not affect all companies equally, the smallest firms being, those which suffer more limitations in their growth. That is, the development of the financial system helps relax the constraints for the growth of SMEs. León (2020), using a firm-level survey database from 62 countries, investigates whether the degree of development of the financial sector affects the growth of small and young firms. His results show that the financial development, measured by bank credit to the private sector over GDP, stimulates the growth of small and young firms, although this result depends on the term of the available banking resources. More recently, Andrieu et al. (2021) analyse the effect of financial development on firm's growth by focusing on a large sample of young and new European SMEs. The authors find a positive relation between the financial development (the financial sector) and the growth of young firms¹. Moreover, they find that a firm's debt level is an important factor explaining SMEs' growth, with different levels of impact around their life cycle. Bank credit is positively related to firm growth at the start-up stage, with a decreasing pattern over time.

A second group of empirical studies that examine the effect of the financial development on the growth of SMEs has focused on samples of small firms located in areas (regions) across a single country. This kind of studies, which compares zones (regions) of a single country, is more suitable for SMEs, since SMEs usually have limitations to access financing in zones other than those in which SMEs operate. Moreover, these studies set out from a more homogeneous situation, given that many institutional factors are shared (Palacín-Sánchez and di Pietro, 2016). Among the very few regional studies carried out in business growth research in SMEs, we highlight the following. Guiso et al. (2004) analyse Italian regions using a sample of small firms and entrepreneurship. They examine the effects of differences in local financial developments, that is, the regional banking sector, and find that local financial development promotes the growth of small firms. More recently, Hossain et al., (2021) study the growth of a sample of Bangladeshi manufacturing SMEs and find that the local financial development (the financial sector) improves the SME growth. For the Spanish case, Fernández de Guevara and Maudos (2009) analyse the effect of regional financial development and bank competition on firms' growth using the Spanish provinces as a testing ground. They find that regional financial development and bank competition influence SME growth. Moreover, the results show that firms in industries with a greater dependence on external finance grow faster in more financially developed regions.

To sum up, these previous cross-country studies show that smaller firms are the most constrained in their growth, due to small firms having less access to sources of external finance. Then, the financial development helps alleviate SMEs' growth constraints and increases SMEs' access to external finance, especially smaller firms (Andrieu et al., 2021; Beck et al., 2005; León, 2020). On the other hand, the abovementioned cross-regional studies show how higher levels of local financial development enable an easier access to external funds (Fernández de Guevara and Maudos, 2009; Guiso, et al., 2004), and are able to better bolster the SMEs' growth processes.

Most of all the mentioned empirical results that show the relationship between the growth of SMEs and financial development have been reached considering one dimension of the financial system, that is the financial sector. Specifically, Table 1 shows the indicators used in these studies to measure the development of the financial sector. However, the financial environment has changed significantly over the last years, and the financial sector is not the only player in the external financing of firms.

¹ However, this relationship is not significant when the panel methodology used is GMM.

Table 1. Cross-country / region studies that have analysed the relationship between the development of the financial sector and the growth of firms.

Type of study	Studies (chronological)	Type of firms	Proxies of development of the financial sector
Cross-country	Beck et al. (2005)	Listed firms of all sizes	Domestic bank credit to the private sector / Gross domestic product (GDP)
	Léon (2020)	Small vs large firms Young vs old firms	Bank credit to the private sector / GDP Short-term bank credit / GDP Long-term bank credit / GDP Bank credit allocated to households over GDP
	Andrieu et al. (2021)	Startups	Dummy based on the variable of domestic credit to private sector by banks (% of GDP)
Cross-region	Guiso (2004)	SMEs and entrepreneurs	Branches per million in habitants Fraction of branches owned by local banks Number of savings banks per million in habitants Number of cooperative banks per million in habitants Bank branches Private credit / GDP ratio
	Fernández de Guevara and Maudos (2009)	SMEs Large firms	
	Hossain et al. (2021)	SMEs firms	Number of bank branches Bank density per sq.km Bank branch per 10,000 population Private bank accounts per adult Public bank accounts per adult

2.2 Growth of young SMEs and the new financial ecosystem

A new financial ecosystem with new players and instruments has emerged, among other reasons, due to the consequences of the global financial crisis that began in 2008. The availability of external financial resources, mainly bank loans, was drastically reduced, leading to enormous difficulties in financing SMEs. This situation was particularly dramatic in the case of the growth of young firms, as they require more local financial support and have greater difficulties in overcoming financial barriers to accessing external finance (Cumming et al., 2019; Deloof et al., 2019; Fasano et al., 2020). As a result, young and small firms presented few options to obtain bank financing to finance their projects.

Other reasons that have favoured the development of new players in the financial ecosystem include technology-related factors such as the Internet and fintech firms, and regulatory and policy-related factors such as the creation of financial markets of SMEs. On the other hand, changes in product markets due to the Internet, innovation technologies and globalisation have also favoured the new financial ecosystem (Block et al., 2018). In the European context, after a few years of drought in bank funding, after 2008 and with the help of all the above-mentioned factors, other alternative resources and actors in the financial environment have emerged and been promoted, such as crowdfunding platforms, business angels, peer-to-peer lending, accelerators, family funds or venture capital (OECD, 2018). Consequently, the landscape of entrepreneurial finance has completely changed and a new financial ecosystem for new and young SMEs has emerged (Block et al., 2018; Fraser et al., 2015).

Empirical evidence focused on this new financial ecosystem has examined whether some of its sources and actors, considered separately, impact the growth of new and young firms. The following provides a brief summary of the main evidence and its findings.

Venture capital (VC) and business angels (BA) are two of the possible private equity options of finance of new and small business. They are active investors who are often willing to take higher risks in exchange for potentially higher returns (Fraser et al., 2015). BA are individual investors who directly invest their own money, and provide advice, expertise and strategic contacts (Banhatti, 2016). With regard to the evidence about the effect of business angels on the growth

of entrepreneurial firms, this is scarce due to difficulties in accessing data. The empirical results are mixed. On the one hand, (Bonini et al., 2019) show that angel-backed firms perform better and have a higher probability of survival when angels invest as part of a syndicate rather than individually. On the other hand, (Cavallo et al., 2019) find no evidence on the contribution of business angels to the growth of digital ventures at both the startup and scale-up stages.

VCS, unlike traditional banks and other financial options, offer more than just financial support. In addition to funding, VCs provide value-added services that are critical to the growth of startups (Haro-de-Rosario et al., 2016). These often include mentoring services and their social connections and networks to help startups connect with suppliers, partners and potential customers in the market. This multifaceted support goes beyond mere financial investment, making VCs valuable contributors to the overall success and growth of startups (Chemmanur et al., 2011; Fraser et al., 2015; Vanacker et al., 2013). With regard to VC and its relationship with the growth of new and young business, the empirical evidence is much more extensive. In the US context, empirical studies show a positive effect of VC financing on SME growth in terms of sales and employment (Chemmanur et al., 2011; Greenwood et al., 2022; Puri and Zarutskie, 2012). In the European context, Cavallo et al. (2019) investigated the impact of VC on the growth of digital new ventures in two specific lifecycle phases: startup and scale-up. Their findings suggest a positive relation between VC support and the growth of digital ventures in terms of revenue. On the other hand, other empirical evidence shows that VC helps to keep firms alive in the early stages of their life cycle, as VC-backed firms grow faster than non-VC-backed firms (Cavallo et al., 2019; Puri and Zarutskie, 2012). Therefore, in general, evidence has supported a positive relationship between VC financing and SME growth.

In addition, there are other actors in the new financial ecosystem that provide diverse support to young firms, namely incubators and (more recently) accelerators. These organisations play a crucial role in fostering the development of innovative startups. They offer a range of business support services, facilitate access to valuable networks and provide office space. This multifaceted support contributes to the creation and growth of startups, as evidenced in studies such as those of Bergek and Norrman (2008), Hackett and Dilts (2004) and Alaassar et al. (2023).

Entrepreneurs and SMEs can also rely on crowdfunding, which is a very recent alternative to traditional bank-financing in the new financial ecosystem. Harrison (2013) explains crowdfunding as the utilisation of the Internet to democratise fund raising by businesses and individuals. The empirical studies on the link between crowdfunding and SME growth are very scarce and incipient. We highlight that of Eldridge et al. (2021) who carried out their study on UK SMEs, and show that crowdfunding, particularly equity crowdfunding, has a positive impact on the growth opportunity of small firms.

This mentioned empirical approach that relates the different sources and actors, considering each case separately, on the growth of small and young firms is very interesting, although it is a simplification and is clearly insufficient (Cumming et al., 2019). There is still no study that comprehensively captures the effect of the financial ecosystem as a whole, including all the actors and instruments, on the growth of young and small firms. Therefore, further research is needed to fully understand how this new financial ecosystem contributes to fostering SME growth (Fraser et al., 2015).

The understanding of the relationships involved of the new financial ecosystem for the growth of young SMEs needs to take into account that the financial ecosystem is an integral part of the entrepreneurial ecosystem (EE) (Isenberg 2011; Liguori et al., 2019)². The EE has been built on previous systemic models to explore how the co-location of firms, supporting actors and factors,

² Conceptually, an entrepreneurial ecosystem is a collection of six non-causal critical domains of entrepreneurship. These include policy, finance, culture, supports, human capital and markets (Liguori et al., 2019, Isenberg 2011)

can foster an environment that encourages economic growth (Stam and Spigel, 2018) by promoting entrepreneurship through the increase of innovative startups and small firms (Spigel, 2017). Moreover, a well-developed entrepreneurial ecosystem should provide the necessary injection of financial resources to succeed (Roundy et al., 2018; Spigel, 2017) and ought to eliminate the funding gap that limits the growth of entrepreneurial firms (Block et al, 2018; Cumming et al, 2019).

Although globalisation and the diffusion of new technologies may indicate that the EE is homogeneous regardless of the geographical area, the EE must still be considered at a regional or even local level to identify all its specificities and particularities. The EE depends on, among other aspects, entrepreneurial innovation systems at the regional level (Cooke, 2004), where the interaction of different actors (in this case, new sources and players, entrepreneurs and financial institutions) creates a favourable environment for the development of knowledge and innovation (Berman et al., 2020), which can then be exploited by firms, improving their growth and helping to explain why some regions are more high-growth than others (Coad and Srhoj, 2023).

Fintech innovations, among other factors, have led to the emergence of the financial ecosystem, which in turn has facilitated the better development of the entrepreneurial ecosystem. These technological and financial advances have changed the way new businesses start (Kraus et al., 2019) and grow. According to Berman et al. (2021), the effects of such innovations are asymmetric, strengthening startups and smaller firms while increasing competitive pressure on larger and established firms. Therefore, these technological and financial advances that drive the entrepreneurial ecosystem also give dynamism to the financing ecosystem.

In short, and as an advance with respect to the previous literature, our study aims to analyse the relationship between the development of the financial ecosystem as a whole and the growth of young SMEs. That is, the financial ecosystem is defined considering all the financing options available to the entrepreneur and young companies. Furthermore, it is convenient to carry out this study at the regional level due to the specificities of the regional financial ecosystem. We present the hypothesis related with the regional financial ecosystem and the growth of young SMEs as follows:

H1: The development of the regional financial ecosystem has a positive effect on the growth of young SMEs.

Our study focusses on the access financing of new and young firms in which the information asymmetries and funding gaps are traditionally more pronounced (Andrieu et al., 2021; Fraser et al., 2015; Wallmeroth et al., 2018). The previous literature on the financial life cycle of firms established that financing needs vary with the age of the firm (Sahlman, 1990; Carey et al. 1993; Berger and Udell 1998; Andrieu et al., 2021). Therefore, it should also be possible to observe changes in financing needs depending on the life-cycle (age) of the new and young SMEs.

The life cycle of new and young SMEs is heterogeneous, and it is possible to distinguish different life stages that are associated with different financing needs and different financing alternatives (Andrieu et al., 2021; Berger and Udell, 1998; Canto-Cuevas et al., 2019). During the first few years, many new ventures have to face a critical period in which negative cash-flows are often expected. Consequently, these new ventures are unable to raise funds through internal financing or traditional bank financing channels (Cumming et al., 2019). This period is known as the valley of death (Mazzucato, 2013), and the literature agrees that the best alternative to close this financing gap is private equity financing (Fraser et al., 2015). Surviving the valley of death and startup will depend largely on access to the necessary external financing. Furthermore, it is of particular importance to have a very rich and dynamic entrepreneurship financing ecosystem with a strong network of venture capital, business angels and other sources of financing willing to take greater risks and invest in seed, startup and early-stage companies. Once these first stages have been overcome, uncertainty about the cash-flows is more reduced, the firm could have a credit

history and could provide guarantees. In short, financial risk and information asymmetries will begin to diminish and the path to traditional financing such as bank financing and internal financing would be easier for these firms, together with the rest of the sources of the new financial ecosystem.

Therefore, a more developed financial ecosystem, which nurtures and supports young SMEs, can contribute to improving the growth of young companies, especially in their first years of life. We present our second hypothesis which is related with the moderating effect of life cycle of firm in the relationship between the financial ecosystem and the growth of young SMEs as follows:

H2: The relationship between the growth of young SMEs and the development of the regional financial ecosystem is moderated by the stage of the life cycle of the firm.

3. DATA, VARIABLES AND METHODOLOGY

3.1. Data source and sample selection

The empirical study needs firm- and regional- level data. Firm-level data are taken from the SABI (Iberian Balance Sheet Analysis Systems) database collected by Bureau Van Dijk. The SABI database contains financial statements of more than a million non-financial Spanish companies. On the other hand, regional-level data are obtained mainly from the Global Entrepreneurship Monitor (GEM).

The sample of firms studied includes young manufacturing SMEs. First, we follow the European Commission definition of SMEs. That is, for selected firms the number of employees firms should range between 10 and 250, sales should be between 2 million and 50 million euros, and total assets should range from 2 million to 43 million euros. Second, apart from the fact that the companies must be SMEs, they must also be young SMEs. There is no consensus in the empirical literature concerning the definition of the different firm's life-cycle stages (Keasey et al., 2015). We follow those studies that use an age variable to define a young firm (Andrieu et al., 2021; Coluzzi et al. 2015; Federico et al., 2012; Lee et al., 2001; León, 2020; Nunes et al., 2013). Specifically, according to Federico and Capelleras (2014), who also study young firms and their relationship between growth and profit, we consider as young firms those that are a maximum of 14 years old. Third and finally, the companies in our sample belong to the manufacturing sector. There are several reasons to expect that the growth of firms varies across industries, and therefore the determinants of SME growth depend on the sector (Andrieu et al., 2021; Coad, 2007; Federico and Capelleras, 2014). This leads us to consider a sole sector such as manufacturing. This sector is defined according to the Standard Industrial Classification of Economic Activities 2009 (NACE Rev. 2).

The young SMEs of our sample belong to all Spanish regions during the period 2008-2015. The data covers a period of 8 years, which is interesting to capture the development of this new financial ecosystem. These give unbalanced panel data with 6,216 observations. Table 2 presents the distribution of the SMEs among the 17 autonomous communities that were established in Spain from its democratic stage. Although Catalonia has more weight due to the traditional greater relevance of the manufacturing sector in this region (Instituto Geográfico Nacional [IGN], 2022), all the regions are sufficiently represented in the sample. Consequently, our sample reflects the regional diversity of Spain.

Table 2: Observations per region

Region	Number of Observations	Percentage of Observations
Andalusia	480	7.72
Aragon	460	7.4

Asturias	48	0.77
Balearic Islands	31	0.5
Canary Islands	55	0.88
Cantabria	80	1.29
Castile-La Mancha	425	6.84
Castile-Leon	347	5.58
Catalonia	1,082	17.41
Valencian Community	796	12.81
Extremadura	121	1.95
Galicia	629	10.12
La Rioja	56	0.9
Madrid	480	7.72
Murcia	265	4.26
Navarre	317	5.1
Basque Country	544	8.75
Total	6,216	100

3.2. Variables

Dependent variable

Growth is our dependent variable in the empirical research. Growth is a firm variable. There is no single method to measure firm growth which reflects the complexity and heterogeneity associated with this variable (Capelleras and Kantis, 2009; Coad, 2007; Davidsson et al., 2006; Federico and Capelleras, 2014). Following previous research, our study measures SME growth in relative terms and using two firm indicators: assets (Cassano et al., 2013; Coluzzi et al., 2015; Singh and Whittington, 1975; Wagenvoort, 2003) and employees (Arouri et al., 2020; Becchetti and Trovato, 2002; Block and Fathollahi, 2023; Honjo and Harada, 2006; Tingvall and Videnord, 2020). First, the growth of the assets ($GROWTH_{AS}$) is estimated as the percentage of annual change of the total assets of the firm. Second, the employment growth ($GROWTH_{EM}$) is estimated as the percentage of annual change of the total employees of the firm. Specifically, growth is calculated comparing assets (or employees) at time t and $t-1$. Using two measures of SME growth allows us to offer a more complete picture of the growth process in young SMEs and also enables us to overcome the inconvenience that there is not a perfect indicator of growth for all purposes (Barroso-Castro et al., 2020).

Independent variable

Access to entrepreneurial finance. Spain, where our study is performed, has traditionally had a financial system with a bank-based structure (Palacín-Sánchez and di Pietro, 2016). The global financial crisis of 2008 showed that countries like Spain, with an excessive dependence on bank financing, suffered a reduction in the financing available to companies (IFM, 2012; OECD, 2018). These financial limitations were considerably more pronounced for new and young SMEs. Faced with this situation, and thanks to many initiatives taken at a European level and national level, new financing alternatives and actors began to be developed and promoted in Spain. Crowdfunding platforms, accelerators and incubators, business angels, family funds, venture capital, government policy instruments to foster SME access to finance, and SME financial markets were among such new actors and financing options. As a result, the financial ecosystem for entrepreneurship has changed greatly in Spain since 2008 (OECD, 2018).

Our study requires a regional variable which should be related to the regional financial ecosystem. Despite the development that the Spanish financial ecosystem has undergone, this was a relatively new phenomenon in our period of study (2008-2015), covering the early years of the development of this financial ecosystem. This circumstance, together with the heterogeneous nature of the alternative sources of financing, make it difficult to obtain quality quantitative information at the country level and even more so at the regional level. In fact, quantitative data on SMEs and entrepreneurship financing is often sparse and anecdotal in nature. As quantitative data on SME financing are not easily accessible, survey data are particularly useful (OECD, 2018). Consequently, the regional variable employed in our study is based on survey data from the Global Entrepreneurship Monitor (GEM).

The GEM project began in 1999 and has become the richest source of reliable information on the state of entrepreneurship and entrepreneurial ecosystems across the globe, publishing not only the GEM Global Report annually, but also a range of national reports each year. GEM applies a common methodology for all geographical areas, ensuring the comparability of results (Alvarez, et al., 2011). Many empirical studies have used data from the GEM project, such as Naudé et al. (2008) and Roper and Scott (2009). Spain joined the GEM project in 2000 and was one of the first participant countries that has developed a regional network of teams that launch annual regional reports concerning entrepreneurial activity at the same level as national ones. Since 2008, all the Spanish regions have had GEM data at a regional level (de la Vega et al., 2007).

The regional variable in our empirical study is specifically based on the GEM National Experts Survey (NES). This looks at the national/regional context in which individuals start businesses. The GEM model acknowledges that entrepreneurial activity does not take place in isolation. It is shaped by a set of social, cultural, political and economic contextual factors that are encapsulated in the nine pillars that go into the GEM Entrepreneurial Framework conditions³ (Audretsch and Keilbach, 2004; Reynolds et al., 2005). Among these all conditions, *Access to entrepreneurial finance* is related to the financial environment. According to the GEM project, *Access to entrepreneurial finance* is defined as the availability of financial resources—equity and debt—for small and medium enterprises (SMEs) (including grants and subsidies). The questions asked the experts in each region to construct this factor are shown in Table 3. Every year, at least 36 experts from each GEM region assess whether *Access to entrepreneurial finance* is supporting new and growing businesses, based on the experts' response to the items listed in Table 2 on a Likert scale (from 1 to 5 points). Consequently, *Access to entrepreneurial finance* is the proxy of our regional financial ecosystem variable (FE) and GEM provide the mean of our variable for each region⁴. This is the independent variable in our study. These data are available on the GEM Spain site (www.gem-spain.com).

Table 3: Items to assess the factor *Access to entrepreneurial finance* in the National Expert Survey

Questions	Response
In your region ...	1-2-3-4-5
1. It is quite common to obtain funding from private crowdfunding lenders for new and growing firms. 2. IPO is a commonly used resource to provide financing for new and growing firms.	The responses to the items follow a Likert

³ In summary, these nine pillars include: 1) Access to entrepreneurial finance; 2) Government policy (including support, relevance, taxes and bureaucracy); 3) Government entrepreneurship programmes; 4) Entrepreneurship education; 5) Research and development transfers; 6) Commercial and professional infrastructure; 7) Ease of entry; 8) Physical infrastructure; 9) Social and cultural norms.

⁴ For a more in-depth analysis of the methodology followed by GEM to estimate the factor Access to entrepreneurial finance, it is recommended to consult the GEM site, specifically the sections: Interpreting National Experts Survey (NES) Data and NES Data Collection in <http://gem-consortium.ns-client.xyz/about/wiki>

<p>3. There is sufficient funding available through IPOs for new and growing firms.</p> <p>4. There is a sufficient supply of venture capital for new and growing firms.</p> <p>5. There is sufficient finance available from private investors, other than founders, for start-ups and growth firms.</p> <p>6. There are sufficient public subsidies available for start-ups and growth firms.</p> <p>7. There are sufficient means of external financing available for new and growing firms.</p> <p>8. There are sufficient sources of equity finance available to finance new and growing firms.</p>	<p>scale, where 1 means the statement is completely false according to expert opinion and 5 means the statement is completely true.</p>
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Source: GEM 2015.

Control variables

Firm variables. We also include classic firm-determinants of firm growth as control variables. These are independent variables in our study. According to previous studies, four characteristics of firms are used: leverage, profitability, size, and age, which are defined as follows. Leverage (TDR) is measured as the total debt divided by the total assets of the firm (Palacín-Sánchez and di Pietro, 2016; Serrasqueiro et al., 2018). Profitability (PROF) is estimated as the ratio between earnings before interest, taxes, depreciation and amortisation and the total assets of the firms (Serrasqueiro et al., 2018). The size of a firm (SIZE) is defined as the logarithm of total assets (Andrieu et al., 2021; de Carvalho et al., 2013; Mateev and Anastasov, 2010). The age of the firm (AGE) is the number of years of a firm's activity (Coad, et al., 2018). According to the previous literature on SME growth, there is a relative consensus that the growth of firms has a positive relationship with leverage (Andrieu et al., 2021; Becchetti and Trovato, 2002; Honjo and Harada, 2006; Mateev and Anastasov, 2010; León, 2020) and profitability (de Carvalho et al., 2013; Mateev and Anastasov, 2010; Nunes et al., 2013; Serrasqueiro et al., 2018). By contrast, there is no consensus on the influence of firm size and age on the growth. Among others, Andrieu et al. (2021), and León (2020); show a negative relation between firm size and growth, while Mateev and Anastasov (2010) find a positive relation between the two variables, firm size and growth. Regarding firm age, Lee et al. (2001) find a negative relationship between firm age and growth for young firms. In contrast, Federico et al. (2012) observe a positive relationship, also with young firms. Furthermore, Mateev and Anastasov (2010) study fast-growing SMEs and conclude that the coefficient of the AGE variable is positive but statistically insignificant.

Regional Variables. Finally, to control for regional differences, we use the relative gross domestic product (GDP) per capita by region (Guiso et al., 2004). Relative GDP means that if a region is richer than the average value, which is 1, this region is considered as more developed, and less developed otherwise. The GDP comes from the Spanish Statistical Office.

3.3. Model and methodology

The model includes the variable that represents the regional financial ecosystem (FE) and the interaction between the financial ecosystem (FE) and AGE in order to test the direct and indirect influence of the development of the financial ecosystem on the growth of young SMEs. The model, in addition, also includes, four firm-level factors (TDR, PROF, SIZE, AGE), a regional variable (GDP) and year and regional dummies to control for the time and regional omitted variables. The equation model is presented as follows:

$$GROWTH_{it} = \alpha_i + \beta_0 TDR_{it} + \beta_1 PROF_{it} + \beta_2 SIZE_{it} + \beta_3 AGE_{it} + \beta_4 FE_{rt} + \beta_5 AGE_{it} * FE_{rt} + \beta_6 GDP_{rt} + time\ dummies + regional\ dummies + \mu_i + \mathcal{E}_{it}$$

where i is the firm, t is the time, and r is the region; μ_i represents the unobservable individual effects, and \mathcal{E}_{it} is an error term.

Our work uses panel data. Since autocorrelation in the error process is a likelihood in an unbalanced panel with not equally spaced observations, we use an autoregressive model to control for the autocorrelation of the residuals (Baltagi and Wu, 1999). For this reason, the Wooldridge test for autocorrelation in panel data is carried out. The null hypothesis of this test is no first-order autocorrelation (the Wooldridge test is rejected with a p-value of 0.00). To control for the autocorrelation fixed and random effects with the AR (1) errors model is also considered in our study. The Hausman test, which is run to choose between fixed and random effects, accepts the null hypothesis of no systematic difference between both estimators. So, the Baltagi-Wu GLS estimator of the random-effects model is used (Baltagi and Wu, 1999).

3.4. Descriptive Statistics

Table 4 presents the mean, standard deviation, minimum and maximum for all the variables of the study in the whole sample. The average of asset growth and employment growth is 4.7% and 2.7%, respectively, for the total sample of Spanish young SMEs. The high volatility observed when comparing the maximum and minimum values of the two growth indicators suggests the greater risk and uncertainty associated with new and young SMEs.

On the other hand, Table 5 shows mean values for all the variables by regions. These regional values are estimated for the period 2008-2015. The mean values of growth variables ($GROWTH_{AS}$ and $GROWTH_{EM}$) show significant regional differences according to the analysis of variance performed (Bartlett's test). This result justifies the empirical analysis that we carry out in Section 4 where we especially analyse the influence of the regional financial ecosystem on firm growth.

Table 4: Descriptive statistics

Variables	Mean	Std. Dev.	Min.	Max.
$GROWTH_{AS}$	0.047	0.257	-0.727	6.495
$GROWTH_{EM}$	0.027	0.303	-4.499	4.691
TDR	0.619	0.337	0.019	9.399
PROF	0.105	0.093	-0.787	1.031
SIZE	8.796	0.687	7.602	10.644
AGE	10.132	3.158	1	14
FE	2.337	0.313	1.520	3.280
GDP	1.024	0.194	0.680	1.376

Table 5: Descriptive statistics by region

<i>Mean values</i>								
Region	$GROWTH_{AS}$	$GROWTH_{EM}$	TDR	PROF	SIZE	AGE	FE*	GDP
Andalusia	0.069	0.036	0.686	0.098	8.707	10.65	2.330	0.758
Aragon	0.048	0.016	0.626	0.108	8.815	10.30	2.355	1.087
Asturias	0.058	0.026	0.557	0.113	9.401	8.27	2.416	0.906

Balearic Islands	0.031	0.035	0.700	0.089	8.675	10.20	2.317	1.071
Canary Islands	0.105	0.009	0.472	0.127	9.232	9.27	2.053	0.860
Cantabria	0.046	0.042	0.592	0.137	8.858	11.04	2.416	0.940
Castile-La Mancha	0.069	0.050	0.607	0.113	8.837	10.16	2.402	0.932
Castile-Leon	0.031	0.032	0.672	0.100	8.764	9.23	2.205	0.799
Catalonia	0.031	0.016	0.569	0.105	8.677	10.23	2.328	1.172
Valencian Community	0.040	0.028	0.636	0.114	8.724	10.16	2.227	0.884
Extremadura	0.019	0.034	0.656	0.092	9.009	10.84	2.318	0.699
Galicia	0.058	0.040	0.578	0.123	8.871	9.82	2.388	0.881
La Rioja	0.067	0.040	0.745	0.093	8.474	10.43	2.260	1.079
Madrid	0.043	0.004	0.659	0.096	8.874	10.00	2.346	1.349
Murcia	0.074	0.028	0.665	0.082	8.801	10.68	2.207	0.831
Navarre	0.035	0.017	0.572	0.096	8.899	9.81	2.490	1.231
Basque Country	0.037	0.031	0.608	0.095	8.852	9.82	2.488	1.281
Spain	0.047	0.027	0.619	0.105	8.796	10.132	2.337	1.024

*Bartlett's test for equal variances: $\chi^2(18) = 2.4e+03$ Prob> $\chi^2 = 0.000$

Finally, Table 6 presents the correlations between all the variables of the study. The correlations among the independent variables are comparatively low, which provides evidence that multicollinearity is not a concern.

Table 6: Correlation matrix

Variables	GROWTH _{AS}	GROWTH _{EM}	TDR	PROF	SIZE	AGE	FE	GDP
GROWTH _{AS}	1							
GROWTH _{EM}	0.116***	1						
TDR	0.053***	0.036***	1					
PROF	0.087***	0.077***	-0.150***	1				
SIZE	0.061***	0.035***	-0.033***	-0.021**	1			
AGE	-0.019	-0.069***	-0.065***	-0.0215**	-0.0142	1		
FE	0.044***	0.071***	0.092***	0.099***	-0.051***	-0.208***	1	
GDP	-0.029**	-0.026**	-0.045***	-0.035***	0.003	-0.025**	0.140***	1

4. RESULTS

4.1. Baseline Analysis

This section presents the regression results that estimate the influence of the regional financial ecosystem development on the growth of young firms. The estimations are made by using the Baltagi–Wu GLS estimator of the random-effects model. These results are presented in Table 7 for the two dependent variables related with the firm growth considered: the growth of employees ($GROWTH_{EM}$) in column 2 and the growth of assets ($GROWTH_{AS}$) in column 3.

The regional financial ecosystem (FE) presents a positive and significant effect on growth of employees (Table 7, column 2) and growth of assets (Table 7, column 3), which means that young SMEs find more favourable conditions to grow in regions with a greater development of its financial ecosystem. That is, the broader and more diverse alternative sources of external financing ease the flows to the financing growth plans of young SMEs. Moreover, it should be highlighted that, the financial ecosystem development is relevant both to promote new employees and new investments in assets (capital expenditure and working capital). Consequently, our Hypothesis H1 is confirmed. Our results go one step further than those achieved by Fernández de Guevara and Maudos (2009) and Guiso et al., (2004), given that not only the regional development of the banking sector positively influences the growth of SMEs, but also that the more developed the entrepreneurial financing ecosystem is, the greater the growth of young SMEs. Furthermore, our results show the relevance of considering regional heterogeneity as a key factor to understand the firm growth in line with previous studies (Demirguc-Kunt and Maksimovic, 1998; Fernández de Guevara and Maudos, 2009; Guiso et al., 2004; Maté Sánchez-Val and Ramón-Llorens, 2016).

Table 7. Determinants of GROWTH

	$GROWTH_{EM}$	$GROWTH_{AS}$
TDR	0.027** (0.012)	0.052*** (0.010)
PROF	0.252*** (0.048)	0.196*** (0.042)
SIZE	0.017*** (0.007)	0.042*** (0.006)
AGE	0.134 (0.010)	0.016* (0.009)
FE	0.096** (0.045)	0.115** (0.038)
AGE*FE	-0.008** (0.004)	-0.007** (0.004)
GDP	- 0.035 (0.024)	- 0.049** (0.021)
Constant	- 0.239*	-0,597***

	(0.129)	(0.111)
Year dummies	yes	yes
Regional dummies	yes	yes
R-square	0.033	0.032
Wald chi2	186.87	156.41
Observations	5,897	6,216

Notes: Standard errors in parentheses. *, ** and ***, indicate significant at the 10, 5 and 1% level, respectively

We subsequently investigate whether there is a different effect of the regional financial ecosystem for entrepreneurship over the growth of young SMEs according to the age of firms. The coefficients on the interaction terms, AGE x FE, are negative and statistically significant for the growth of young SMEs for both dependent variables, $GROWTH_{EM}$ employees (Table 7, column 2) and $GROWTH_{AS}$ (Table 7, column 3). Therefore, the relationship between regional financial ecosystem and growth of firms is moderated by their age. This means that since the regional financial ecosystem had a positive effect on the growth of young SMEs (Table 7, columns 2 and 3), as the age of young companies' increases, the effect of regional financial ecosystem on their growth decreases. These results suggest that a dynamic and developed entrepreneurial financial ecosystem provides strong support for the growth of younger SMEs in terms of easier access to external financial resources (Cumming et al., 2019; Deloof et al., 2019; Fasano et al., 2020; Gaies et al., 2021). The firms in the early stage of life with more problems of asymmetric information and with a high-risk profile will probably benefit from having access not only to lenders but also to other alternative investors such as venture capital, which favours the financing and growth of younger firms (Beck and Demirguc-Kunt, 2006; Berger and Udell, 1998; Ennew and Binks, 1996). Therefore, these results confirm Hypothesis 2 and are consistent with existing empirical evidence on moderating role of age of young SMEs over financial ecosystem (Andrieu et al., 2021).

Regarding control variables (Table 7), firm factors are significant in explaining both asset growth and employment growth. Overall, these results coincide with those commonly shown in previous empirical studies. Firstly, leverage (TDR) presents a positive relation with the firm growth, which provide evidence that young SMEs with more access to debt are able to finance higher growth (Andrieu et al., 2021; Léon, 2020; Mateev and Anastasov, 2010). Secondly, the positive coefficient of profit (PROF) indicates that young SMEs with a greater profitability and, therefore, more capacity to generate their own resources, are able to grow more (de Carvalho et al., 2013; Mateev and Anastasov, 2010; Nunes et al., 2013; Serrasqueiro et al., 2018). Thirdly, SIZE shows a positive relation with the growth of young firms, which suggests that larger SMEs present more facilities to grow thanks to credible and bankable expansion plans (Mateev and Anastasov, 2010). Fourth, AGE presents a positive and significant relation with assets growth (Cavallo et al., 2019; Federico et al., 2012), but this relationship becomes non-significant for employee growth (Léon, 2020; Mateev and Anastasov, 2010).

Overall, our study suggests that the financial ecosystem supports the growth of young SMEs, having a more relevant effect for younger companies. In other words, a developed and well-designed financial ecosystem is very relevant and vital for companies in the early stages of their life cycle. However, as they get older, that financial ecosystem loses certain relevance for their growth because these companies have access not only to the new sources but also to the traditional financing sources such as bank credit or internal financing.

4.2. Robustness checks

In order to test the robustness of the analysis, the region of the sample with the most firms is omitted from the regressions to ascertain if it has a disproportionate influence on the results; the region is Catalonia (Table 8). The robustness test confirms the above results, not only in terms of the size and sign of the coefficients, but also in terms of the level of significance. That is, the broader and more diverse alternative sources of external financing ease the flows to the financing growth plans of young SMEs.

Table 8. Robustness test omitting Catalonia

	GROWTH _{EM}	GROWTH _{AS}
TDR	0.027 ** (0.013)	0.046 *** (0.011)
PROF	0.224 *** (0.054)	0.199 *** (0.046)
SIZE	0.021 *** (0.007)	0.040 *** (0.007)
AGE	0.019 * (0.011)	0.016 (0.009)
FE	0.130 *** (0.051)	0.122 *** (0.042)
AGE*FE	-0.011 ** (0.005)	-0.007 * (0.004)
GDP	0.067 (0.389)	0.254 (0.339)
Constant	-0.456 *** (0.537)	-1.806 *** (0.354)
Year dummies	<i>yes</i>	<i>yes</i>
Regional dummies	<i>yes</i>	<i>yes</i>
Number of observations	4855	5134
Wald chi2	172.35	129.52
Prob > chi2	0	0

Notes: Standard errors in parentheses. *, ** and ***, indicate significant at the 10, 5 and 1% level, respectively. The same methodology as the regression in Table 7 is used.

6. CONCLUSIONS

This article examines the relationship between the financial ecosystem and the growth of young SMEs from a regional perspective. Specifically, we study the effect of the development of the financial ecosystem on the growth of young Spanish SMEs, using an unbalanced panel representing every Spanish region.

In an innovative way in the entrepreneurial finance literature, firstly, our study incorporates all the alternative sources of external financing to which young firms have access, differing from previous studies that have mostly introduced the financial environment considering one dimension, such as the development of the banking sector, and that have not considered regional heterogeneity. Our regional financial ecosystem variable is based on survey data from the Global Entrepreneurship Monitor, concretely the National Experts Survey. Secondly, our study considers whether the influence of the financial ecosystem on the growth of young SMEs is moderated by the stage of the firm's life cycle.

Firstly, our empirical results show that the development of the regional financial ecosystem positively influences the growth of assets and the growth of employees in young SMEs. These results evidence that the growth of young SMEs is higher in regions where there is a more developed financial ecosystem; that is, where there are broader and more diverse alternative financing options and, consequently, there is better access to external finance. These results are in line with previous empirical studies that found a positive influence of the regional financial development on SME growth (Fernández de Guevara and Maudos, 2009; Guiso et al., 2004). Moreover, our results are in line with previous empirical studies that have considered regional heterogeneity as a key aspect in explaining firm growth (Demirguc-Kunt and Maksimovic, 1998), especially the growth of SMEs (Fernández de Guevara and Maudos, 2009; Guiso et al., 2004; Maté Sánchez-Val and Ramón-Llorens, 2016). As mentioned above, the study of the financial ecosystem, which is an integral part of the EE, must be carried out at a regional or local level in order to comprehensively identify its specificities and unique characteristics (Cooke 2004; Audretsch, et al., 2021). A regional analysis will allow us to understand the impact of the growth of young firms on the socio-economic development of the region. It could also be useful in formulating policies that take into account regional business development and the specific conditions of the local environment. Secondly, our empirical results show that the regional financial ecosystem is even more relevant for the growth of younger SMEs. That is, the effect of the regional financial ecosystem on the growth of young SMEs is moderated by the age of the firm, therefore SMEs in the early stages of life are most favoured by a dynamic entrepreneurial financing ecosystem.

These results are in line with previous studies that have shown that the development of the financial sector is particularly effective in alleviating the constraints faced by small firms (Beck and Demirguc-Kunt, 2006; Levine, 2005). These findings also highlight the important role of a well-developed regional financial ecosystem that can offer different financing alternatives and respond to the different financing needs of young companies in their life cycle (Andrieu et al., 2021; Berger and Udell 1998; Carey et al. 1993; Sahlman, 1990). All of this is conducive to the sustainable growth of young SMEs.

Our findings are valuable for entrepreneurs and policymakers to understand the origin of disparities in entrepreneurs financing opportunities and growth at the regional level. In addition, the knowledge of the growth of young firms could help business decision-making and the designing of policies to promote the growth of young firms at a national and a regional level. In fact, the entrepreneurial financing ecosystem is vital for the growth of the youngest companies, which are the ones that have the most problems and uncertainties to overcome in their early stages of life. In this line, our results contribute to important ongoing discussions on the financing of entrepreneurship and the allocation of resources to support startups (Horizon 2020). These findings also shed light on the role of institutions and public policy in the development of globally connected regional innovation systems (RIS) (Berman et al., 2020).

Overall, this study extends previous knowledge and provides the literature on entrepreneurial finance with some new insights. Firstly, it should be noted that this study is one of the very few studies that uses a specific sample of young and new SMEs to examine the relationship between firm growth and financial development (Federico and Capelleras, 2014; Giordani, 2015). Second, it provides empirical and longitudinal data, contributing to the lack of representative empirical studies examining entrepreneurial processes, including finance (Frimanslund et al., 2023; Sternberg et al., 2019). Another valuable contribution of our study is that it considers all the players and instruments, showing the financial ecosystem as a whole. Our results suggest that not only the regional development of the banking sector positively influences SME growth, but also that the more developed the entrepreneurial financial ecosystem is, the higher the growth of young SMEs. Therefore, our study represents an empirical contribution to better understand how the financial ecosystem promotes SME growth. Finally, our results show that the effect of the regional financial ecosystem on growth is moderated by the life cycle of the firm, such that it is the younger firms - in the earliest stages of life - that are most favoured by a more developed and dynamic entrepreneurial finance ecosystem. Therefore, these results provide a possible solution to minimise the critical seed and start-up period of firms.

Limitations and future research. Given that our variable measures the overall access to finance from a survey, it allows studying the role played by the financial ecosystem, but not distinguishing the impact of, respectively, the banking sector and the more developed entrepreneurial financing ecosystem. This is a limitation that should be highlighted, and for future research it would be interesting to consider individually the effect of the different instruments that define the financial ecosystem for entrepreneurship. Significant progress has been made in recent years and quantitative data on the financial ecosystem is being collected. Therefore, it would be very relevant to incorporate these new data to confirm the results achieved in our study regarding the development of the financial ecosystem and the growth of young SMEs. However, these data are not yet available. On the other hand, and for future research, most institutional regional variables should be considered, in order to control for cross-regional variations. This advance would help to explain the regional divergences in the growth of SMEs and the development of the financial ecosystem.

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