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The Portuguese Development Financial Institution and its impact on SME`s financial constraints

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Biographical note

Joana Pinto was born in Felgueiras, Portugal on 29 October 1989. In 2012, she concluded the Bachelor's degree in Economics at the School of Economics and Management of the University of Porto (FEP-U. Porto). After a three years interruption during which she lived in Belgium, in 2015 she enrolled in the Master`s degree in Economics at the same school.

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Abstract

Micro, small and medium sized-enterprises used to be a marginal subject in economics and the social sciences, but during the 1970s the trend was reversed and nowadays SMEs are regarded as the backbone of Europe`s economy. Despite that, SMEs still face more obstacles than large firms. One of those obstacles is indeed the access to external financing. The aim of this curricular internship report is to determine the impact of the host institution IFD – the Portuguese Development Financial Institution - on Portuguese SMEs financial constraints. For such, we estimate both investment-cash flow sensitivities and cash-cash flow sensitivities upon a sample of 648 firm-year observations, related to 162 companies, during the period 2014-2017. Our results show that target firms are financially constrained prior and after to IFD, remaining more or less at the same level of financial restrictions over the two subperiods. Furthermore, we found evidence that medium SMEs may well have easier access to external finance (prior and after IFD) than micro/small ones.

JEL Codes: L11; L26; M13; O16; G23; G24; C23; C58.

Keywords: Micro, small and medium-sized enterprises (SMEs); Financial constraints; Financial Instruments; Cash Flow Sensitivity of Cash; Cash Flow Sensitivity of Investment.

Resumo

Micro, pequenas e médias empresas já foram consideradas um tema marginal em economia e ciências sociais. No entanto, durante a década de 1970 a tendência foi invertida e hoje em dia as PME são tidas como a espinha dorsal da economia Europeia. Ainda assim, estas empresas tendem a enfrentar mais obstáculos do que as empresas de maior dimensão. Um desses obstáculos é o acesso a financiamento externo. O objetivo deste relatório de estágio curricular é determinar o impacto da instituição de acolhimento IFD - Instituição Financeira de Desenvolvimento - nas restrições de financiamento das PME Portuguesas. Para tal, usamos duas medidas de restrições de financiamento, *cash flow sensitivity of investment* e *cash flow sensitivity of cash,* para uma amostra de 162 empresas durante os anos de 2014, 2015, 2016 e 2017. Os nossos resultados mostram que as empresas na amostra enfrentam efetivamente dificuldades no financiamento externo e que o nível dessas restrições se mantém mesmo depois de recorrerem aos Instrumentos Financeiros da IFD. Além disso, encontrámos evidência de que as empresas de média dimensão têm um acesso mais facilitado a financiamento externo comparativamente com as micro e pequenas empresas.

Códigos-JEL: L11; L25; L26; M13; O16; G23; C83.
Palavras-chave: Micro, Pequenas e Médias Empresas (PMEs); Restrições Financeiras; Instrumentos Financeiros; Investimento; Caixa; Fluxos de Caixa.

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1. Introduction

This report is the final product of the curricular internship performed at the Portuguese Development Financial Institution, or IFD (Portuguese for: Instituição Financeira de Desenvolvimento, S.A.), between 2nd October 2017 and 30th March 2018. The IFD is a Portuguese financial institution fully owned by the State, created in 2014 and with headquarters in Porto, whose mission is to mitigate market failures in the financing of Portuguese companies, particularly viable micro, small and medium-sized enterprises (SMEs) in non-financial sectors. Its strategic objectives are namely the reduction of the costs of financing supported by those companies and the increase of the liquidity available in the overall economy. For such, IFD is authorized to develop and/or manage a diversified range of Financial Instruments, from equity to debt, co-financed by public and private resources.

SMEs play a key role in national economies around the world, generating employment and value added and contributing to innovation and more inclusive growth. However, these contributions vary widely across firms and across countries and sectors. Better access to global markets and knowledge networks, as well as better access to external finance, can strengthen SMEs` potential.

The objective of this report is thus to evaluate the impact of IFD`s financial instruments on Portuguese SME`s financial constraints[1]. Specifically, we will focus on those companies that have benefited from those instruments and we will attempt to measure and compare constraints before and after they resort to IFD`s support. The measures of constraints we are applying are two: investment cash flow sensitivity (ICFS) and cash-cash flow sensitivity (CCFS). Although not consensual, these measures have been widely used in the literature in order to identify and measure the level of financial distress faced by firms, as well as to identify groups of firms that suffer the most with financial constraints by distinguishing them according to certain attributes. To conduct our empirical test we use a balanced panel of 162 Portuguese SMEs covering the period 2014-2017.

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[1] In this report we adopt the definition of Silva and Carreira (2010, p. 4) who describe financial constraints as "the inability of a firm or a group of firms to raise the necessary amounts (usually due to external finance shortage) to finance their optimal path of growth". We assume all the companies that benefited from IFD`s support to be financially constrained to some extent.

The aim of this report is to contribute to the scarce empirical literature using the above methods to analyse financial constraints for a sample of Portuguese SMEs – according to Silva and Carreira (2010, p.3), "only a few works have investigated financial constraints in Portugal, but with different datasets and methodologies (see Cabral and Mata, 2003 or Oliveira and Fortunato, 2006)". Moreover, this topic is highly relevant for the host institution of the internship – IFD - whose main activity is to develop and operationalise financing solutions that ease SME`s access to finance. The internship made possible the awareness of the importance of SMEs to the Portuguese economy, the understanding of concepts such as *State Aid* and its procedures, as well as *on-lending* and *arrangement* operations, the deepening of knowledge about European Union Funds (European Structural and Investment Funds and European Fund for Strategic Investments) and programmes (Europe 2020) and the understanding of the Portuguese Mutual Guarantee System.

The remainder of the report is organised as follows. In chapter 2 we start by defining micro, small and medium-sized firms and by highlighting their economic and social relevance; then, we review the literature about SME`s access to finance and take a closer look to Portuguese SMEs` financing. In chapter 3 we describe the internship and the host institution. In chapter 4 we expose the main characteristics of the Financial Instruments currently offered by IFD. Chapter 5 comprises the empirical analysis explanation and the estimation results obtained and, finally, chapter 6 presents the conclusions and limitations of our investigation and makes some suggestions for future research.

2. Theoretical background

2.1 Definition of SME

The SME definition is a useful tool designed to help SMEs identify themselves so that they can receive the full support they need to overcome market failures and/or structural barriers (European Commission, 2015).

Usually, SMEs are firms that are relatively small in terms of employment, turnover and total assets. However, the quantification of "small" is not unique and varies from country to country and/or from industry to industry, reflecting differences not only in the dimension and performance of each economy/industry, but also in social and cultural aspects (Council of Europe Development Bank, 2013).

In the United States of America (USA), "the Small Business Administration (SBA) has established two widely used size standards – 500 employees for most manufacturing and mining industries and $7.0 million in average annual receipts for most nonmanufacturing industries. However, many exceptions exist" (Small Business Administration, 2012, p. 5).

In the European Union (EU), for legal and administrative purposes - namely for national State aid schemes and Community programmes - the definition of micro, small and medium-sized enterprises include enterprises that employ a maximum of 249 persons and which have an annual turnover not exceeding EUR 50 million, and/or[2] an annual balance sheet not exceeding EUR 43 million (see Table 1 below) (Council of Europe Development Bank, 2013). This definition applies to companies together with all of their partnerships/linkages with others, that is, if an enterprise has one or more majority partnerships (at least 25% each) with others, data from those enterprises must also be considered in the SME calculation (European Commission, 2015).

[2] "The definition offers the above choice since, by their nature, enterprises in the trade and distribution sectors have higher turnover figures than those in manufacturing. Providing an option between this criterion and the balance sheet total, which reflects the overall wealth of an enterprise, ensures that SMEs engaged in different types of economic activity are treated fairly" (European Commission, 2015, p. 11).

Table 1: EU definition of SMEs.

Company dimension	Staff headcount	Annual turnover	Annual balance sheet
Medium	< 250	≤ €50 million	≤ €43 million
Small	< 50	≤ €10 million	≤ €10 million
Micro	< 10	≤ €2 million	≤ €2 million

Source: Commission Recommendation of 6 May 2003[3]

For EU member countries, the use of the EU definition of SMEs is voluntary, but the European Commission (EC) together with the European Investment Bank (EIB) and the European Investment Fund (EIF), promotes its wide application, since "a common definition helps to improve the consistency and effectiveness of SME policy across the EU". Indeed, "lack of a common definition could lead to the uneven application of policies and thus distort competition across Member States" (European Commission, 2015, p. 5). In Portugal, the commonly-used definition of SME matches with the European Commission Recommendation of 6 May 2003.

Nevertheless, the classification of a company as small or big is not exhausted in quantitative aspects, such as those defined above. Indeed, there are also important qualitative attributes that distinguish small enterprises from big ones, namely the non-separation between owners` assets and company`s assets and the information asymmetry. These and others qualitative attributes will be approached in section 2.3.

2.2 The social and economic relevance of SMEs

"Small and medium-sized enterprises used to be a largely mute, or marginal subject in economics and the social sciences" (Loveman & Sengenberger, 1991, p. 1). At least until the early 1970s, in many advanced industrialized countries and in parts of the developing world, the model of industrialization prevailed - economic activity was carried on by large-scale enterprises, which required an extensive coordination. However, during the 1970s, this long-standing trend was reversed, and small enterprises have emerged as the key to economic regeneration (Loveman & Sengenberger, 1991). The "most impressive" evidence that

[3] Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises (Text with EEA relevance) (notified under document number C(2003) 1422) (OJ L 124, 20.5.2003, pp. 36–41).

"economic activity moved away from large firms to small firms, in the 1970s and 1980s, is the share of the 500 largest American firms, the so-called Fortune 500. Their employment share dropped from 20 per cent in 1970 to 8.5 per cent in 1996" (Carlsson, 1992 and 1999, according to Wennekers & Thurik, 1999, p. 27-28).

Different authors provide some explanations for that shift towards smallness. Carlsson (1992) – according to Wennekers & Thurik (1999, p. 28) – advances two causes: on the one hand, "the intensification of global competition", which led to the "increase in the degree of uncertainty" and "the growth in market fragmentation"; on the other hand, "the changes in the character of technological progress" that resulted in a "structural shift affecting the economies of all industrialized countries". Brock and Evans (1989) – according to Wennekers & Thurik (1999, p. 28) – justify the shift with "the increase of labour supply leading to lower real wages and coinciding with an increasing level of education; changes in consumer tastes; relaxation of (entry) regulations and the fact that we *were* in a period of creative destruction". Loveman and Sengenberger (1991) emphasize the role of "politicians and organizations" in the "active encouragement and financial support of the small firm sector" (p. 3).

SMEs and entrepreneurship[4] are now recognised worldwide to be a key source of innovation, flexibility, (inclusive and sustainable) economic growth and employment dynamics, across countries at all levels of development (OECD, 2006 and 2017). This is supported by different authors. Acs and Audretsch (1987, p. 567) found unequivocal evidence that, although "large firms tend to have the relative innovative advantage in industries which are capital-intensive, concentrated, highly unionized, and produce a differentiated good", "small firms tend to have the relative advantage in industries which are highly innovative, utilize a large component of skilled labour" and are "more closely approximating the competitive model". Arvanitis (1997) investigated the impact of firm size on innovation activity for Swiss manufacturing and found no evidence for the existence of economies of scale in innovation activity for that sector. Carree and Thurik (1998) investigated "whether or not a higher share of small business at the start of the 1990s has led to higher output growth in the subsequent three or four years in European manufacturing" (p. 144). Their results "indicated that an industry with a low large and medium-sized firm

[4] Wennekers and Thurik (1999) explain that "the revaluation of the role of small firms is related to a renewed attention to the role of entrepreneurship", in the sense that "small firms certainly are a vehicle in which entrepreneurship thrives" (p.29).

presence, relative to the same industries in other countries, has performed better in terms of output growth" (p. 144). Also, the authors argued that "smallness, whatever it may be, lifts the dependency on possibly sluggish and transient resources like scale, scope, and experience and intensifies the dependency on resources like adjustment and effectiveness", which are "likely to be more robust against uncertainty and change than the former" (p. 144). Shaffer (2002) presented empirical evidence on statistically significant and economically meaningful, negative linkages between manufacturing and retail firms` size and economic growth, in a sample of more than 700 US cities. Beck, Demirguc-Kunt, and Levine (2005) and Ayyagari, Beck, and Demirguc-Kunt (2007) found a positive association between the importance of SMEs in manufacturing and GDP per capita growth.

Regarding employment, "the role of small firms in the job creation process is controversial" (Wennekers & Thurik, 1999, p. 28), because although they exhibit "sharply higher gross rates of job creation", they also display higher rates of job destruction (Davis, Haltiwanger, & Schuh, 1996, p. 297). "For both new jobs and the typical existing job, job durability increases with employer size" (Davis et al., 1996, p. 312). This is confirmed by European Commission (2015): while in 2014, SMEs accounted for 71% of 1.5 million increase in employment in the non-financial businesses sector across the EU28, from 2008 to 2013, SME's accounted for 73% of the 2.2 million drop in employment in the same sector. However, macroeconomic developments appear to be the main factor explaining SMEs employment creation and reduction. Therefore, public policies supporting SMEs are crucial for their good performance (European Commission, 2015).

In fact, different studies on SMEs "have shown that framework conditions within which they operate, and the entrepreneurial culture are key factors in determining the extent of SME performance (…)" (Gagliardi et al., 2013, p. 11). Ayyagari et al. (2007) presented "evidence that some dimensions of the business environment can explain cross-country variation in the importance of SMEs" (p. 429).

The role of SMEs is crucial for Europe – "their number, employment capacity and value added constitute a large share of the European economy". Therefore, providing the right conditions in which SMEs can flourish is paramount for reducing income inequalities and achieving prosperity for all EU citizens, as well as worldwide (Gagliardi et al., 2013, p. 11; OECD, 2017). "In emerging economies, the need to stimulate SME growth is even more urgent due to the need to generate employment for expanding labour forces" (OECD, 2006, p. 16).

Importance of SMEs in the European and Portuguese economies in 2016

Micro, small and medium-sized enterprises are regarded as the backbone of Europe`s economy. In 2016, they:

- Accounted for 99,8% of total non-financial businesses[5] in EU28 (just under 24 million SMEs);
- Employed 93 million people, equivalent to 66,6% of total employment in the non-financial sector in EU28;
- Generated EUR 4 trillion of value added, equivalent to 56,8% of total value added in the non-financial business sector in EU28.

Micro SMEs are by far the most common type of SME in Europe, accounting for 93% of all enterprises and 93,2% of all SMEs in the non-financial business sector, in 2016. Also, micro SMEs accounted for 29,8% of total employment in the EU-28 non-financial business sector, in 2016, whereas small and medium-size SMEs accounted for 20% and 16,7%, respectively. In terms of value added, micro enterprises contributed for 20,9% of total value added in the EU-28 non-financial sector, in 2016, whereas small and medium companies contributed for 17,8% and 18,2%, respectively (European Commission, 2017, p. 12).

In terms of their contribution to sectoral employment and sectoral value added (within the EU28 non-financial sector), SMEs play a particularly important role in the *accommodation and food services*, *business services* and *construction* sectors. In 2016, the contribution of SMEs in these three sectors ranged from 81,8% to 87,6% in terms of employment, and 75% to 80,4% in terms of value added. "Even in the EU-28 manufacturing sector, in which large enterprises are generally dominant, SMEs still accounted for 58% of total employment and 42% of total value added, in 2016" (European Commission, 2017, p.15).

At the Member State level, although it is possible to distinguish differences across countries in the shares of SME enterprises, employment and value added, SMEs are also very significant. The proportion of SMEs in the non-financial sector varied between 99,6% in Germany and Luxembourg, and 99,9% in ten other Member-States, in 2016 (European

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[5] "This broad sector consists of all sectors of the economies of the EU-28 Member States, except financial services, government services, education, health, arts, culture and agriculture, forestry, and fishing" (European Commission, 2017, p.11).

Commission, Interactive SME database[6]). Moreover, in all Member States SMEs contributed 50% or more of total employment generated by the non-financial business sector, and 50% or more of total value added, except for Ireland where only 36,6% of value added in the non-financial sector was generated by SMEs (in 2016) (European Commission, 2017).

In Portugal, SMEs` contribution, in 2016, was the following:

- 99,9% of total businesses (1.213.107 SMEs, of which 96,3% were micro enterprises);
- 78,8% of total employment (2.994.706 persons employed in a micro, small or medium-sized enterprise, of which 57,6% were working in a micro firm);
- 58,7% of total value added;
- 57,4% of total turnover.

2.3 Access to finance for SMEs

"Access to finance is critical for SMEs to fulfill their potential to innovate, grow and create jobs" (OECD, 2017, p. 80). However, a large body of literature (before and after the recent global financial crisis) has suggested that small businesses are financially more constrained than large firms and are less likely to have access to formal and alternative sources of finance, which potentially explains SMEs failure as well as the lack of SMEs` contribution to economic development in many countries, especially in the less developed ones (Gregory, Rutherford, Oswald, & Gardiner, 2005; Beck & Demirguc-Kunt, 2006).

Indeed, since the emergence of SMEs as an area of great interest, the lack of equity finance has been pointed out as "a major constraint on the formation and development of small and medium-sized enterprises" (Mason & Harrison, 1997, p. 111). Alternatively, bank credit has been identified as the main source of SMEs external finance. But even access to debt by SMEs is somewhat restricted or inadequate, "(…) in particular to newer, innovative and fast-growing companies, with a higher risk-return profile" (OECD, 2015, p. 6).

A wide variety of reasons are presented in the literature for this limited access to external finance faced by SMEs, with responsibility attached not only to the macroeconomic environment and the legal and financial systems, but also to SMEs themselves. In fact, SMEs are characterized by a set of attributes that makes them less attractive to lenders and

[6] https://ec.europa.eu/growth/smes/business-friendly-environment/performance-review_en#interactive-sme-database (accessed on 20-12-2017).

investors, comparing with larger firms. The most relevant attribute is "perhaps" the information opacity/asymmetry, as argued by Berger and Udell (1998). These authors explained that "unlike large firms, small (privately held) firms do not enter into contracts that are publicly visible or widely reported in the press" nor do they "issue traded securities that are continuously priced in public markets" (p. 616). Moreover, many times they do not even "have audited financial statements that can be shared with any provider of outside finance" (Berger & Udell, 1998, p. 616). Therefore "small firms often cannot credibly convey their quality", which makes financing very difficult (Berger & Udell, 1998, p. 616).

Additionally, there can be also potential principal/agent problems. Once financing is received, the entrepreneur and/or the manager may be motivated to undertake excessively risky projects, "(…) while the lender prefers a less risky project that increases the probability that the loan will be repaid". This problem, although potentially present in all types of lending, is more accurate for smaller firms than for larger firms due to the higher information asymmetries of smaller companies (OECD, 2006, p. 19).

As a result of information asymmetry, and to overcome the subsequent credit rationing, small firms often pledge collateral ("secured debt", as defined by Leeth & Scott, 1989), since "collateral may play the role of a signaling device for borrower quality" and "lower the agency costs of debt" (Voordeckers & Steijvers, 2006, p. 3068). Consequently, lenders might be willing to negotiate better credit terms or even approve credit that otherwise would not be granted (Voordeckers & Steijvers, 2006).

Collateral can be of two types: business collateral and personal collateral. "By pledging business collateral to obtain the loan, the business owner augments the implicit claim on all business assets with an explicit claim on a business asset. Similarly, pledging personal assets as collateral (personal guarantees) commits the specific assets (personal wealth) of the owner" (Ang, Lin & Tyler, 1995, p. 198). Personal commitments are mostly relevant in the case of start-ups, since they normally do not have adequate tangible assets (business collateral) to secure loans and so firm`s owners must employ personal wealth (Berger & Udell, 1998). However, these circumstances can be quite problematic since they can conduct to an underinvestment situation "if risk averse small business owners become less willing to borrow funds to be supported by personal assets and wealth to undertake positive net present value projects" (Ang et al., 1995, p. 209). Consequently, economic development and growth may be at risk, especially in smaller countries/communities (Ang et al., 1995). Besides, the need to provide personal guarantees for the company to obtain the necessary financing contradicts the *limited liability* clause, typical of the sole proprietorships, by quotas or anonymous (Rocha, 2000).

In addition to collateral pledging, Harhoff and Körting (1998) found that (in Germany) “borrowing by small firms is considerably more concentrated than borrowing by larger firms. For the group of firms with fewer than five employees, 80.1% of external funding come, on average, from one institution, while firms with 250-500 employees borrow only 61.7% from the most important institution, on average” (p. 1331). According to the same authors, “the simplest explanation of these patterns is one of fixed costs for maintaining a borrowing relationship” (p. 1331). Specifically, “assuming that less concentrated borrowing structures may require a risk premium”, “small firms may not have the bargaining power to prevent a deterioration of credit conditions in the case they decide to use less concentrated borrowing patterns” (Harhoff & Körting, 1998, p. 1331). Thus, “long-term relationships between banks and firms may be an important instrument for counteracting informational asymmetries” (Harhoff & Körting, 1998, p. 1318).

Another distinctive and challenging characteristic of small firms is the overlap between ownership and management, that is, frequently, the proprietor is also the manager of the company. This situation can conduct to inefficiencies in the way owner-managers see risk and are willing to invest in profitable projects (Rocha, 2000). Moreover, “whereas large firms are expected to observe recognized standards of corporate governance in which actors such as executives, auditors, and boards of directors are expected to conform to transparent norms, SMEs tend to reflect much more closely the personalities of their owners”, even when they are not the managers (OECD, 2006, p. 18).

The proximity (or uniqueness) between property and management can inclusively deviate small companies from the goal of profits` maximization. In fact, in a SME, sometimes, other personal objectives may be considered more relevant. It is for example the case of creating jobs for family and friends and controlling company's activities, not allowing their expansion beyond the limits from which it becomes necessary to delegate or share responsibilities. Also, the desire of the proprietors in keeping a fixed personal income may deviate the company from that goal (Rocha, 2000).

Likewise, many times “it is very difficult to distinguish the financial situation of the firm from that of its owners. The use of company`s cars and home accommodations for both private and business purposes are clear cases in point. Furthermore, estate tax and intergenerational succession are important issues in SMEs but usually unimportant for larger companies" (OECD, 2006, p. 18). The entrepreneur is also likely to "lack familiarity with many aspects of finance as well as the capability to articulate a business plan that meets the requirements of the bankers or investors" (OECD, 2006, p. 28).

In short, these and other attributes can make it very difficult for SMEs to get external funding. However, as if that was not enough, small companies` financial constraints can be further amplified by underdeveloped financial systems and weak legal and regulatory frameworks, as mentioned earlier. This is particularly the case of less developed economies.

According to Čihák, Demirgüç-Kunt, Feyen and Levine (2013), "financial development can be defined as improvements in the quality of five key financial functions: (1) producing and processing information about possible investments and allocating capital based on these assessments; (2) monitoring individuals and firms and exerting corporate governance after allocating capital; (3) facilitating the trading, diversification, and management of risk; (4) mobilizing and pooling savings; and (5) easing the exchange of goods, services, and financial instruments" (p. 6). Therefore, when financial institutions (such as banks and insurance companies) and financial markets (including stock markets, bond markets and derivatives markets) fail to provide these key services many entrepreneurs are excluded from pursuing profitable projects and economic growth is slowed down (Čihák et al., 2013).

In this context, the recent international financial crisis provided concrete examples of the existing relationship between the financial system and the real economy. The collapse of subprime mortgages caused a huge drop in interbank liquidity, which in its turn had a direct and strong impact on the supply of debt and equity for firms, especially the smaller ones due to their internal characteristics.

Likewise, the legal and regulatory systems must be strong enough to protect property rights, including creditor rights, and relatively efficient in resolving cases of delinquent payments and bankruptcy, in order to encourage firms to operate in a transparent manner and, hence, boost financial institutions to lend to SMEs (OECD, 2006). "If such conditions are absent, banks will tend to avoid SMEs even if borrowers in that sector are able to devise otherwise *bankable* projects and are prepared to pay interest rates that reflect the risks associated with SME lending" (OECD, 2006, p. 27).

In addition, the access to external finance has an important impact on SMEs` capital structure, and consequently on their 'firm value'. Even though Modigliani and Miller (1958) have defended the irrelevance of this structure (under the unrealistic assumption of perfect capital markets), the market frictions led to consider the benefits and costs of debt when deciding firms' financing sources and several capital structure theories have emerged that try to explain how firms execute their financing decisions, as it is the case of the trade-off and the pecking order theories (Carvalho, 2017).

"The main benefit of debt financing is the fact that interest payments are deducted in calculating taxable income, allowing a 'tax shield' for the firms" that enables them to pay lower taxes than they would if they used only their own capital (Eriotis, Vasiliou & Ventoura-Neokosmidi, 2007, p.322). However, excessive debt obligations (i.e. interest payments) may increase the probability of bankruptcy, therefore it is important that companies` managers find an equilibrium between debt and equity. But supply frictions in debt and equity markets make it difficult to maintain an optimal capital structure that balances the costs and benefits associated with varying degrees of financial leverage.

The special case of innovative SMEs

While it is generally agreed that all SMEs have the potential to make a contribution to economic development, there is a sub-category of SMEs with strategic significance for economic performance – the innovative firms, i.e., those introducing new products, processes or business models. These firms "are most likely to create new markets, achieve rapid growth, and help the economy recover. External finance may be particularly important for innovative small firms, as they can lack the internal resources to successfully commercialize innovations" (Beck & Demirguc-Kunt, 2006, Schneider & Veugelers, 2010, according to Lee, Sameen, & Cowling, 2015, p.370).

Yet it is innovative small firms which have a higher probability of applying for finance than other firms (higher demand). However, they are also more likely to find it difficult to access finance (restricted supply) (Freel, 2007, Schneider & Veugelers, 2010, Hutton & Lee, 2012, Mason, 2013, Mina, Lahr & Hughes, 2013, according to Lee, et al., 2015). Traditional means of finance, such as bank lending are only of limited relevance to this firm category, which usually have negative cash flows, untried and very risky business models and a greater scope for information asymmetry and moral hazard. Also, they are often more reliant on intangible assets (rather than physical assets), which are difficult to value and hard to use as collateral for lending (OECD, 2006). Therefore, the most successful means of providing finance to innovative firms has been through equity and quasi-equity products (e.g.

'mezzanine finance' and 'hybrid products') under which the investor can assume a large amount of risk but can also reap very large rewards (OECD, 2006).

Innovative SMEs (ISMEs) "typically proceed through several stages, from 'seed' before production has begun through an 'early stage' and then one or more 'expansion' or 'development'. ISMEs require a range of financing vehicles as they progress through the life cycle, and investment at any stage of the life cycle is frequently contingent on there being some potential to advance to the next stage" (OECD, 2006, p. 12).

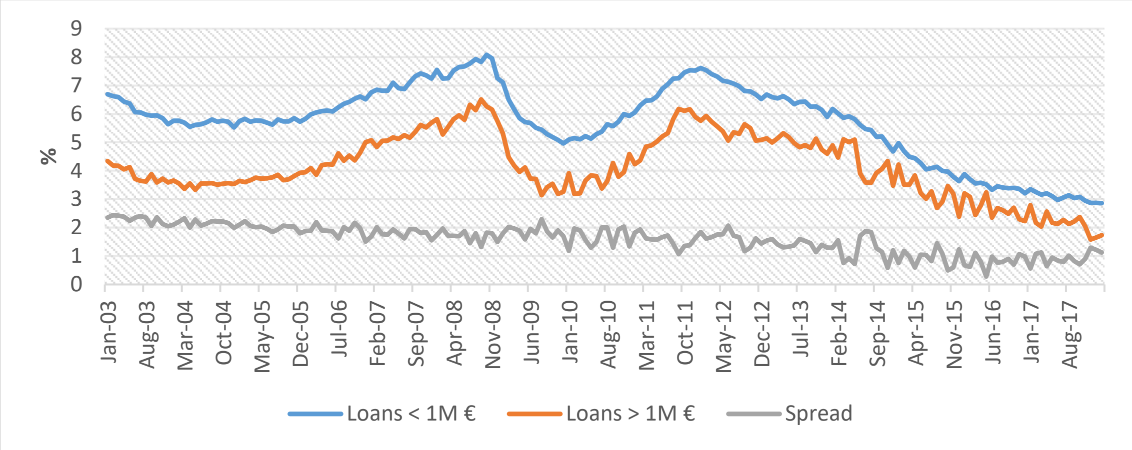
"Business angels, individuals who commit business experience as well as their own capital, often play key roles in the formative stages of a firm's life. The role of business angels in early-stage finance appears to be growing and is increasingly recognised as a vital link in the financing chain. It is also an area where government technical support may have a very high payoff. Venture capitalists, which often enter the firm at the middle to later stages of its life cycle, provide a link between the SME and institutional sources of capital" (OECD, 2006, p.12).

In this context, governments should encourage and determine whether the market for formal and informal risk capital can be made to operate more efficiently (OECD, 2006).

<u>A closer look to Portuguese SMEs access to finance</u>

In order to obtain insights into the borrowing cost difference between SMEs and large companies, we follow the widely used break-down of loans size up-to €1million (typically for smaller SMEs) and over €1 million (for larger SMEs and large businesses). Figure 1 below shows the evolution between 2003 and 2017 of the average bank loan interest rates to non-financial corporations in Portugal by loan/company's size. The existence of a structural spread between the financing cost for SMEs and the one faced by larger companies is obvious and confirms the theoretical framework explained above regarding the greater risk aversion on the opaquer SME business. These differences are even boosted by the fact that SMEs do not have an "easy access to alternatives sources of finance" comparing with large companies (Farinha & Félix, 2015, p. 168).

Figure 1: Average interest rates[7] of bank loans to non-financial companies (new operations) and spread between loans` size, Portugal | 2003-2017



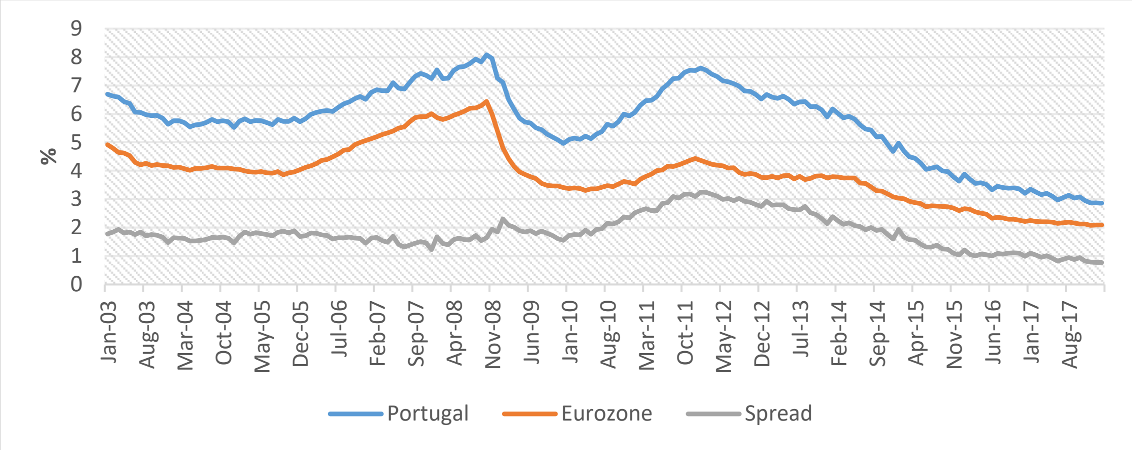
Source: Banco de Portugal (database).

Moreover, it is also possible to verify the existence of a structural significative difference between the average borrowing cost of Portuguese SME and other Eurozone small business. Figure 2 shows the evolution between 2003 and 2017 of average interest rates of bank loans up to 1 million euros to non-financial companies in Portugal and Eurozone, as well as the differences between them, that is, the spread. In January of 2012, the spread reached a maximum value of 3,25%, and remained above 1% until December of 2016, when it finally fell to 0,99% and continued below 1% until the end of 2017.

These circumstances are mainly explained by the fact that Portuguese corporations exhibit historically higher indebtedness ratios compared with other European countries. In fact, the indebtedness of Portuguese firms increased substantially between 1995 and 2007: "whereas in 1995, loans, debt securities and trade credit of Portuguese non-financial corporations amounted to 60 per cent of GDP, in 2007 this indebtedness ratio was almost twofold. The increase in the debt-to-GDP ratio of non-financial corporations in Portugal during this period was one of the largest among European countries" (Banco de Portugal, 2008, p. 176).

[7] Annualised agreed rates (AAR).

Figure 2: Average interest rates[8] of bank loans up to 1M € to non-financial companies (new operations) in Portugal and Eurozone and spread between them | 2003-2017

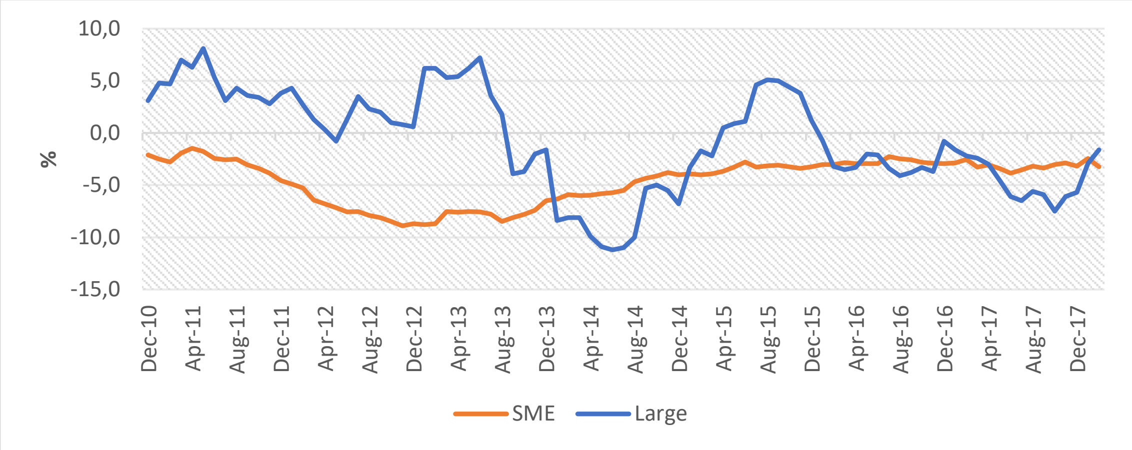


Source: Banco de Portugal (database).

The outbreak of the global financial crisis in 2008 and the following credit and liquidity crunch, as well as the sovereign debt crisis, led to an adjustment process characterized by a significant contraction of the Portuguese economy and worse prospects of economic agents (Farinha & Félix, 2015). These circumstances hit SMEs harder than other non-financial market participants "due to their opacity and higher vulnerability to economic downturns" (Infelise, 2014, p. 2). In this context, Figure 3 below shows the evolution of the annual rate of change of the stock of loans granted by financial sector entities residents in Portugal to non-financial SMEs and large companies, between December of 2010 and December of 2017. The annual rates of change in the case of SMEs remained negative during the whole period, having varied between -1,5% and -8,9%, whereas the annual rates of change in the case of large companies oscillated between negative and positive values.

[8] Annualised agreed rates (AAR).

Figure 3: Annual rates of change of stock of loans granted by financial sector to non-financial companies by size, Portugal | 2010-2017

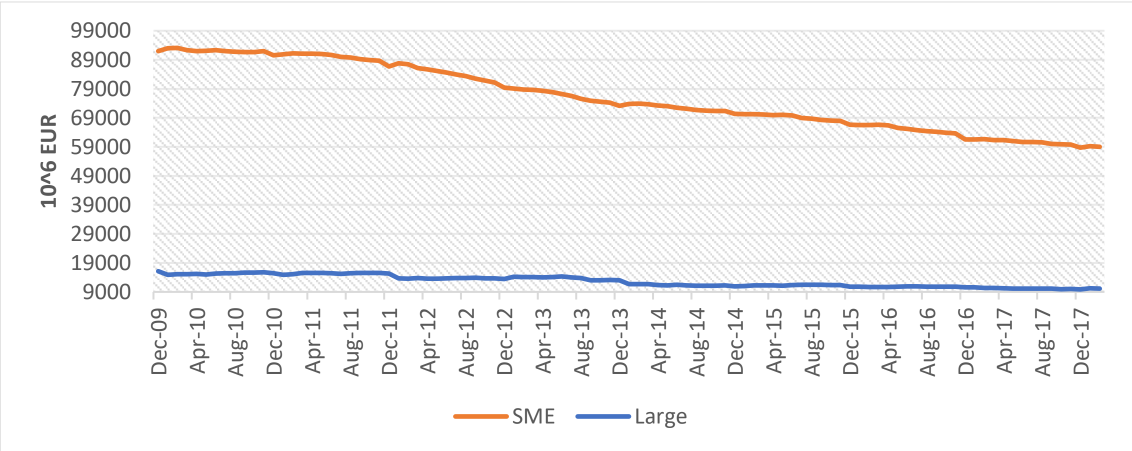


Source: Banco de Portugal (database).

(The annual rates of change in the case of SME correspond to the average of the annual rates of change of micro, small and medium firms)

Overall, between 2010 and 2017 the stock of loans granted to SMEs by the financial sector, in Portugal, decreased by about 37%, from 92.930 million euros in January of 2010 and 58.724 million euros in December of 2017 (Figure 4). The stock of loans granted to large firms varied between a minimum value of 9.869 million euros and a maximum value of 15.801 million euros in the same period (Figure 4).

Figure 4: Stock of loans granted by financial sector to non-financial companies by size, Portugal | 2009-2017



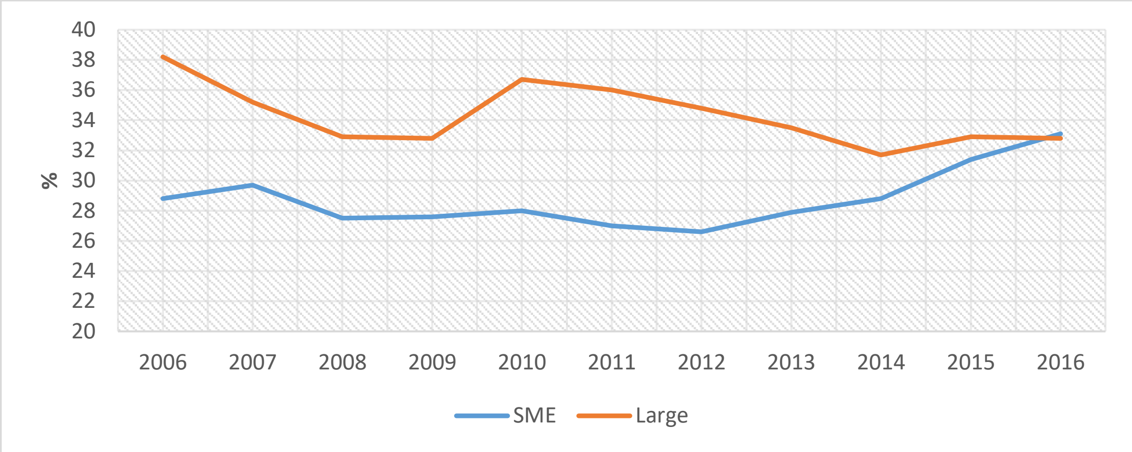
Source: Banco de Portugal (database).

Farinha and Félix (2015) studied the supply and demand of new loans granted to Portuguese SMEs between 2010 and 2012. "The estimates relative to the intensive and extensive margins[9] suggest that a significant fraction of Portuguese SMEs was affected by credit rationing" (Farinha & Félix, 2015, p. 175). Specifically, the estimates for the intensive margin suggest that "approximately 15% of SMEs with a bank loan were partially rationed; the most affected firms by credit rationing are the younger, with approximately 26%, and the smaller firms with approximately 19%. The estimates for the extensive margin suggest that about 32% of Portuguese SMEs were affected by credit restrictions and did not get a loan even though their credit latent demand was positive. Smaller and younger firms were the most affected, but the estimates for the remaining dimension categories indicate that those were also considerably affected, with approximately 23% of medium firms facing credit restrictions" (Farinha & Félix, 2015, p. 174). "Furthermore, the number of new firms with access to credit decreased more than half in the period between 2010 and 2012 according to the Portuguese Credit Register dataset, which suggests that a considerable number of firms did not have access to credit in this period. In fact, Portuguese banks faced increased deleveraging pressures and stricter minimum capital requirements in the context of the Financial and Economic Assistance Program contributing to more restrictive credit standards and conditions applied on loans" (Farinha & Félix, 2015, p. 175).

Regarding equity, Portuguese SMEs exhibit lower equity-to-asset ratios (financial autonomy) comparing with large companies (Figure 5). Also, the average financial autonomy of Portuguese SMES is little when compared with a group of selected European countries - Austria, Belgium, Germany, Spain, France, Italy and Poland (Figure 6).

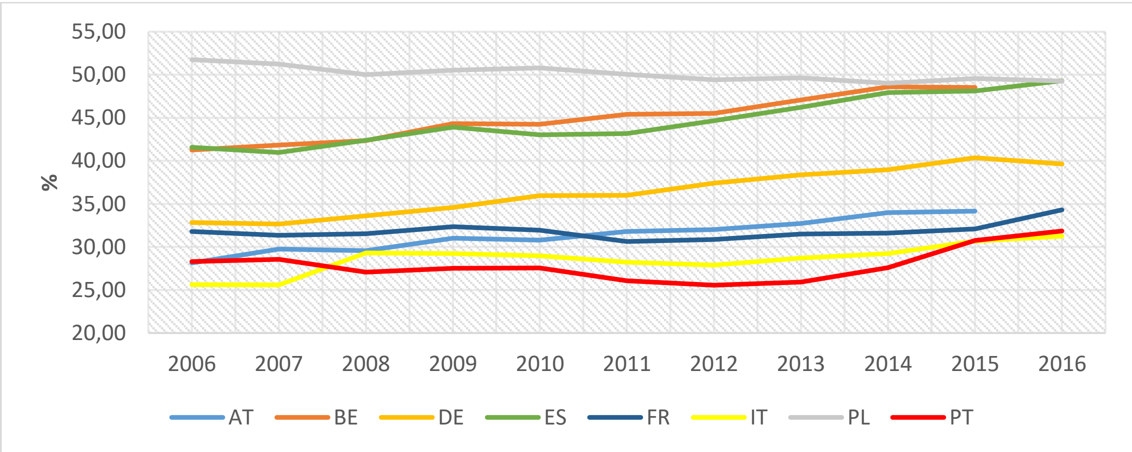
[9] The main estimation results of the equations of demand and supply of new loans were obtained assuming two different situations: (i) the credit demand and supply are independent, meaning that shocks in credit demand are not correlated with shocks in credit supply – intensive margins; (ii) credit demand and supply may be correlated – extensive margins (Farinha & Félix, 2015).

Figure 5: Equity (in % of total assets) of non-financial companies by size, Portugal | 2006-2017



Source: Banco de Portugal (database).

Figure 6: Equity (in % of total assets) of non-financial SMEs by country | 2006-2016



Source: BACH – Bank for the Accounts of Companies Harmonized (database).

3. The internship and the host institution

The internship at the Portuguese Development Financial Institution (the "IFD") (Instituição Financeira de Desenvolvimento, S.A.) was between 2nd October 2017 and 30th March 2018 and the work was developed in the Studies and Research Unit. The main task developed during the internship was an analysis of the impact of IFD`s Financial Instruments (FI) on Portuguese SMEs` financial constraints, which was the basis for the present report.

The host institution IFD is a Portuguese State-owned financial company, created on the 21st of October of 2014 by the Decree-Law No. 155/2014[10]. Its mission is to support the development of the Portuguese business fabric by performing operations to mitigate market failures in the financing of Portuguese companies, particularly viable micro, small and medium-sized enterprises and mid-cap companies in non-financial sectors. Its strategic objectives are namely the reduction of the costs of financing supported by those companies, the strengthening of their equity and quasi-equity ratios, the enlargement of operation maturities and the increase of the liquidity available in the overall economy.

In this context, IFD acts as the manager entity – Management by Mandate - of autonomous Funds of Funds (FoF) - the Equity and Quasi-Equity Fund (FC&QC)[11] and the Debt and Guarantees Fund (FD&G)[12] - co-financed by European Structural and Investment Funds (ESIF), namely those of Portugal 2020. These FoF are destined to the capitalization of FI of equity and quasi-equity and debt and guarantees, "intending, in that way, to respond to constraints identified in financing SME with objectives in line with those of Operational Programmes (OP), as well as using the high multiplier effect of these instruments" (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p. 2). Furthermore, IFD can also provide advisory and consulting services to SMEs and mid-caps in capital structure, corporate strategy and related issues, as well as corporate mergers and acquisitions (IFD, 2018, "About IFD", para. 2, accessed on 19-01-2018).

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[10] Decree-Law No. 155/2014 of 21 October, *Diário da República* No. 203/2014, Series I, *Ministério das Finanças*, Lisbon.

[11] Decree-Law No. 225/2015 of 9 October, *Diário da República* No. 198/2015, Series I, *Ministério da Economia*, Lisbon.

[12] Decree-Law No. 226/2015 of 9 October, *Diário da República* No. 198/2015, Series I, *Ministério da Economia*, Lisbon.

Currently, IFD has three fully operational lines of financing with ESIF – Line *Capitalizar Mais* (debt and guarantees), Line of Financing for Venture Capital Funds and Line of Financing for Special Purpose Vehicles owned by Business Angels. However, IFD aims (and has already authorization from the European Commission) to diversify and strengthen the instruments offered, by creating new ones and by adding new sources of financing. In January of 2018, the IFD and the EIB (European Investment Bank) signed a financing protocol up to 250 million euros, which will result in a line of credit for national commercial banks or financial companies (financial intermediaries) with "advantageous financial conditions, both in terms of low interest rates and long tenors, to support investment projects of Portuguese companies"[13]. This agreement, which consists of an on-lending operation[14], it is the first of its kind for IFD and "will ensure that financial intermediaries match the EIB loan with at least the same amount for the benefit of SMEs and midcaps"[11].

The IFD is a wholesale entity and does not compete with retailer financial institutions in supplying financial products directly to SMEs and mid-caps. Rather, it acts complementarily with commercial banks, Mutual Guarantee Societies (MGSs), Venture Capital Funds, Business Angels and other private and public partners, to address existing market failures (IFD, 2018, "About IFD", para. 2, accessed on 19-01-2018).

For the fact that IFD is mainly financed by public resources, its interventions constitute State Aid if they "distort or threaten to distort competition by favoring certain undertakings or the production of certain goods", being in that case "incompatible with the internal market", as defined by Article 107(1) of the Treaty on the Functioning of the EU (TFEU) [15]. Consequently, and according to Article 108(3) of the Treaty, IFD`s activities must be previously communicated to the European Commission "in sufficient time to enable it to submit its comments", except for some categories of aid that are exempted from the notification requirement, according to Article 109. The Commission Regulation (EU) No.

13 http://www.eib.org/infocentre/press/releases/all/2018/2018-022-eur-250-million-eib-credit-facility-to-ifd-first-eur-100-million-tranche-to-support-portuguese-smes-and-midcaps.htm?lang=-en (accessed on 14-02-2018).

14 An on-lending operation consists of obtaining multilateral financing from international financial institutions and borrow it to national commercial banks so that they can finance SMEs and mid-caps at better terms. IFD can also realize arrangement operations, which are similar to on-lending except for the fact that they are performed off-balance sheet (IFD, 2018, "About IFD – Products/Services", para. 2, accessed on 19-01-2018).

15 Treaty on the Functioning of the European Union, Official Journal of the European Union C 326, 26.10.2012, p. 47-390.

651/2014[16] - General Block Exemption Regulation (GBER) - and the Commission Regulation (EU) No. 1407/2013[17] – *de minimis* regulation - define such categories of aid. In this context, *aid to SMEs* and *aid for access to finance for SMEs* are compatible with the internal market within the meaning of Article 107(3) of the Treaty and shall be exempted from the notification requirement, provided that the conditions laid down in the Commission Regulation (EU) No. 651/2014 are fulfilled. The *de minimis* aid, "being aid granted to a single undertaking over a given period of time that does not exceed a certain fixed amount", specifically €200.000 for a period of three years, does not affect trade between Member States and, therefore, it is also not subject to the notification procedure (Commission Regulation (EU) No. 1407/2013, p. 1).

When IFD was created, it was planned the foundation of the holding IFD with the objective of regrouping in the IFD existing public participations in financial entities dedicated to the financing and internationalization of SMEs in Portugal, giving those companies (SPGM, Portugal Ventures, PME Investments, SOFID) a better coordination, as well as the optimization of resources. However, its implementation is still pending evaluation and decision by national authorities. Likewise, it is being studied the possibility of extending IFD`s activities to corporate restructuring operations, namely property transfers and consolidation and turnaround processes, for the purpose of helping viable companies becoming more profitable or better organized. In this context, IFD may implement new financial instruments after obtaining the necessary authorization from the European Commission.

[16] Commission Regulation (EU) No. 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty, Official Journal of the European Union L 187, 26.06.2014. p. 1-78.

[17] Commission Regulation (EU) No. 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to *de minimis* aid, Official Journal of the European Union L 352, 24.12.2013, p. 1-8.

4. IFD`s Financial Instruments

For the purpose of lessening market failures in the financing of SMEs and mid-caps, IFD is able to develop and/or manage a diversified range of financial instruments, from equity to debt, co-financed by public and private resources. The mobilization of FI for the direct support of enterprises has been extensively encouraged by numerous academic and non-academic studies, which highlight the possibility of recycling public funds in the medium and long term thanks to reimbursements, as well as the opportunity of leveraging private resources through their combination with public funds. Also, the ability to access financial intermediaries' skills and know-how, "promoting networking, partnerships and cooperation between market agents", and the "disciplining effect of investment" constitute overall advantages offered by the FIs, making them much more attractive and effective comparing to non-repayable public subsidies (Augusto Mateus & Associados, 2015, p. vii).

In this chapter, we expose the main characteristics of the three Financial Instruments currently offered by IFD in the context of the FD&G and the FC&CQ.

4.1 Debt and Guarantees Fund (FD&G)

4.1.1 Line *Capitalizar Mais* – Capitalize Program – Portugal 2020

The Credit Line *Capitalizar Mais*, previously known as Credit Line with Mutual Guarantee, IFD 2016-2020[18]*,* is part of the Capitalize Program[19] created by the Portuguese Government to support the capitalization of companies and the recovery of investment after the financial crisis. This Line works with funds from the Portugal 2020 Programme and its objectives are the promotion of "the support to SME financing with projects that reinforce the companies' skills in developing new products and services", or "with innovations at the process, product, organization or marketing level" (IFD, 2018, "Products - Linha Capitalizar Mais", para. 1, accessed on 28-02-2018). Specifically, these objectives are in line with the Investment Priority (IP) 3.3 of Portugal 2020.

[18] The characteristics of the Credit Line with Mutual Guarantee, IFD 2016-2020, were reviewed in the 4th quarter of 2017 with the intention of increasing its flexibility, namely in terms of operation maturities, maximum amount of guarantee per company and eligible operations. Consequently, its designation was changed to *Capitalizar Mais* (IFD, Activity Plan and Budget 2018, p. 18).

[19] Council of Ministers` Resolution No. 100/2015, *Diário da República* No. 250/2015, Series I, 23.12.2015.

From the initial endowment of the FD&G of €104.428.571[20] and later reinforcements, and considering the multiplier effect of guarantees[21], the Credit Line *Capitalizar Mais* grants a global financing amount up to €1.000.000.000 (one thousand million euros) to projects located in the NUTS II regions of Azores, Alentejo, Algarve, Centre, Lisbon and North. The maximum amounts made available for each of these regions by the corresponding Operational Programmes (OP) of Portugal 2020 are presented in Table 2 (IFD, Disclosure Document, version 1.3, 2017, p. 3).

Table 2: Geographic scope of the Credit Line *Capitalizar Mais*.

	OP endowment (in millions of euros)						**TOTAL**
	Azores	**Alentejo**	**Algarve**	**Centre**	**Lisbon**	**North**	
Global Financing Amount	79 M€	257 M€	9 M€	252 M€	88 M€	315 M€	**1.000 M€**

Source: IFD, Disclosure Document, version 1.3, 2017, p. 3.

The credit operations to be executed within this Line benefit from an autonomous, first demand guarantee by the Mutual Guarantee Societies (MGSs), destined to guarantee up to 80% (until a maximum of €4.000.000[22]) of the debt of each beneficiary company, being the maximum allowed amount of debt per company €15.000.000, under the GBER. In its turn, the guarantees issued by the MGSs benefit from a counter-guarantee by the Mutual Counter-Guarantee Fund (MCGF)[23] of 75%. For such, the FD&G managed by IFD provides funds to the MCGF. Also, the guarantee fee applicable by the MGSs to each operation is subsidized by the FD&G under *de minimis* regulation, and limited to maximum values, according to companies' classification criteria (IFD, Disclosure Document, version 1.3, 2017, p. 6 -7).

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[20] This value corresponds to the sum of the European Regional Development Fund (ERDF) component of €69.900.000 and the national component of €34.528.571 (Decree-Law No. 226/2015 of 9 October).

[21] See Annex 1 for an illustration of the multiplier effect of guarantees.

[22] "If the support is granted within *de minimis* regulation, the guarantee cannot exceed €1.500.000 (or €750.000 for companies in private road transportation) with a maturity of five years, or €750.000 (or €375.000 for companies in private road transportation) with a maturity of ten years" (IFD, Disclosure Document, version 1.3, 2017, p. 6).

[23] Decree -Law No. 229/98 of 22 July, changed by Decree-Law No. 46/2013 of 5 April, *Diário da República* No. 67/2013, Series I, *Ministério das Finanças*, Lisbon.

The eligible operations within Line *Capitalizar Mais* are new investments in fixed assets, “increases in working capital associated with an effective increase in activity” and “operations aimed to acquisition of real estate related to the business activity”. In this latter case, “the maximum amount for the acquisition of real estate, other than land, may not exceed 50% of the total amount of financing approved for the final beneficiary”. “In the particular case of land, not constructed or constructed, the maximum amount is limited to 10% of the total expenditure eligible for the operation”. Also, “companies with operations approved within the Portugal 2020 Programme may, within this Credit Line, finance non-eligible expenses as defined in articles 7 and 52 of Ordinance No. 57-A/2015, of February 27[24] ”. However, in no case this line allows “operations destined to financial restructuring and/or that imply the consolidation of live credit” even if they “were considered non-eligible expenses within approved applications to the Portugal 2020 Programme” (IFD, Disclosure Document, version 1.3, 2017, p. 5).

“Beyond the eligibility conditions stated above, the Beneficiaries must also sign a statement (…) in which they commit to maintain the same level of employment observed at the loan contract date during the lifetime of the contract” (IFD, Disclosure Document, version 1.3, 2017, p. 3).

The operation maturities to be set within Line *Capitalizar Mais* result from the negotiation between the company and the bank, up to a maximum of 12 years[25], inclusively, from the loan contract date. Likewise, the grace period is defined between the company and the bank, up to a maximum of 3 years from the loan contract date. Moreover, to each operation is applied an interest rate plus a spread to be paid in full by the beneficiary companies, in a quarterly basis and in arrears. The spread charged by financial intermediaries is limited to maximum values according to companies` classification criteria (IFD, Disclosure Document, version 1.3, 2017, p. 6-7).

Additional and detailed information about eligible and non-eligible operations, spread and guarantee commissions’ maximum limits, companies` classification criteria, eligibility conditions for Final Beneficiaries, among others, were included in Annex 2.

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[24] Ordinance No. 57-A/2015 of 27 February, *Diário da República* No. 41/2015, Series I, *Presidência do Conselho de Ministros e Ministério da Economia*, Lisbon.

[25] “If the support is granted within de *minimis* regulation, the term of the financing is up to 10 years, starting the counting of the term on the date of contracting the operation” (IFD, Disclosure Document, version 1.3, 2017, p. 6).

4.2 Equity and Quasi-Equity Fund (FC&CQ)

4.2.1 Line of Financing for Special Purpose Vehicles owned by Business Angels

Within this Capital Line, through co-investment with Special Purpose Vehicles (SPV) owned by Business Angels (BA), IFD intends "to facilitate the support to the economic exploitation of new ideas and promote the creation of new businesses", as well as "reinforce SMEs` skills in developing goods and services, through investment in innovative and qualified activities that contribute to their progression in the value chain" (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p. 3). These objectives are in line with the Investment Priorities (IPs) defined in Portugal 2020, specifically the IP 3.1 – "creation of companies and start-ups stages (qualified and creative entrepreneurship)" - and 3.3 – "strengthen SME capabilities in the development of new products and services" (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p. 18).

The ESIF/ERDF budget endowment made available to this Line within the Portugal 2020 and included in the FC&QC, was €18.111.446 in the first phase (ref.: FD-FC&QC-BA-01/16), and €18.540.068 in the second phase (ref.: IFD-FC&QC-BA-02/17). The distribution by Regions/Operational Programmes and IPs with regard to the first phase is in the table below:

Table 3: Geographic scope of the Line of Financing for SPV owned by BA, 1st phase

Investment Priority	**OP endowments** (in euros)				**TOTAL**
	COMPETE	**Algarve**	**North**	**Lisbon**	
IP 3.1	13 663 983*	1 019 599	---	1 380 799	16 214 381
IP 3.3	---	---	2 047 066	---	2 047 066
TOTAL					**18 111 446**

Source: IFD, Call for Tenders ref. IFD-FC&QC-BA-01/16, 2016, p. 4.

(*This amount is destined to projects located in the regions of North, Centre and Alentejo)

Regarding the second phase, the distribution by Regions/Operational Programmes and IPs is as follows:

Table 4: Geographic scope of the Line of Financing for SPV owned by BA, 2nd phase

Investment Priority	**OP endowments** (in euros)				**TOTAL**
	COMPETE	**Algarve**	**North**	**Lisbon**	
IP 3.1	15 695 639*	629 768	---	889 022	17 214 429
IP 3.3	---	---	1 325 639	---	1 325 639
TOTAL					**18 540 068**

Source: IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p. 4.

(*This amount is destined to projects located in the regions of North, Centre and Alentejo)

During 2018, it is expected the reinforcement of the Line of Financing for SPV owned by BA with funds from the OPs Madeira and Azores in order to finance projects located in these regions (IFD, Activity Plan and Budget 2018, p. 16).

"Each SPV may apply to a co-financing by FC&QC between a minimum of €300.000 and a maximum of €750.000 for the Investment Priorities (IP) 3.1 and 3.3 in the various Operational Programmes (OP)". However, if the amount available in the OP and IP selected by the applicants is less than requested, a lower co-financing quantity may be attributed (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p. 5). In its turn, "the maximum financing by FC&QC per operation is defined by the fund's co-financing percentage, which is dependent on the financing OP maximum rates, and shall not exceed, in any case, 65% of eligible expenses" (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p. 18). Furthermore, the SPV's investment in each FB, within the respective Investment Priority, must not exceed 25% of the SPV`s endowment for that IP (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p. 20). The SPV's investment in each Final Beneficiary (FB) has a duration up to 10 years after the date of the financing agreement. At the end of this period, the participations financed by FC&QC must be sold (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p. 18).

The solicitations by SPV owned by BA are analyzed by IFD and selected according to the Project Merit (PM), calculated according to the following criteria: (A) application quality, (B) adequacy of instruments to the targeted objectives, (C) capabilities demonstrated by the SPV team to manage the FI and (D) ability demonstrated to mobilize resources (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p.7). Regarding this last criteria, the SPV must ensure the following minimum levels of total private financing: (i) "10% of risk financing to FB that have not yet achieved their first commercial sale in any market", (ii) "40% of risk financing to FB that have operated in any market for less than seven years since their first commercial sale", (iii) "60% of risk financing for investments in FB with an initial risk financing that, based on a business plan prepared in order to enter a new product market or a new geographic market, is higher than 50% of its average annual turnover in the previous five years, and for complementary investments in eligible companies after the initial seven year period after the first commercial sale" (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p.27). "The payment of FC&QC co-financing is to be fulfilled as investments into FB are executed" (IFD, Call for Tenders ref. IFD-FC&QC-BA-02/17, 2017, p.19).

Additional and detailed information about the Line of Financing for SPV owned by BA can be found in the annexed Product Data Sheet (Annex 3).

4.2.2 Line of Financing for Venture Capital Funds

Within this line, "IFD intends to contribute to the creation and reinforcement of Venture Capital Funds that will invest in business projects in start-up or expansion stages. These investments are focused on SME and intend to provide the necessary financial means to develop and implement their innovation, growth and internationalisation strategies". The specific purposes of this Line also match the Investment Priorities 3.1 and 3.3 of *Portugal 2020* (IFD, Call for Tenders ref. IFD-FC&QC-FCR-01/16, 2016, p. 3).

IFD will analyze the applications by Venture Capital Companies and select those with higher Project Merit (PM) scores. "In the analysis of applications, accompaniment and monitoring of the execution of this FI, IFD will be aided by *PME Investimentos – Sociedade de Investimento, S.A.*" (IFD, Call for Tenders ref. IFD-FC&QC-FCR-01/16, 2016, p. 4). The Venture Capital Companies selected through this line, whether national or international, may only invest in SMEs in the NUTS II regions of North, Centre, Alentejo, Lisbon and Algarve, not exceeding the ERDF`s amounts defined for each of these regions as shown in Table 5.

Table 5: Geographic scope of the Line of Financing for Venture Capital Funds.

Investment Priority	**OP endowments** (in euros)					**TOTAL**
	North	**Centre**	**Alentejo**	**Lisbon**	**Algarve**	
IP 3.1	29 279 624*					29 279 624
IP 3.3	21 622 792	29 482 240	5 758 243	5 147 683	1 965 237	63 976 195
TOTAL						**93 255 819**

Source: IFD, Call for Tenders ref. IFD-FC&QC-FCR-01/16, 2016, p. 7).

(*Amount corresponding to COMPETE's endowment that will be applied in North, Centre and Alentejo)

The amount attributed by the FC&QC to each operation cannot exceed €10.000.000 (ten million euros) and the VCF must have a minimum size equivalent to a capital of no less than €5.000.000 (five million euros). However, "if demand by Financial Intermediaries is lower than the available endowment" in this Line, "IFD may assign endowments higher than €10.000.000 per application to eligible applicants, if the applicants request it", until a maximum of €20.000.000 (twenty million euros) per applicant. The FC&QC payment methodology results from a financial agreement between IFD and the VCF's Managing Company, according to fixed criteria (IFD, Call for Tenders ref. IFD-FC&QC-FCR-01/16, 2016, p. 19).

The duration of investments is up to 10 years after the date of the financing agreement. "At the end of this period, the participations financed by FC&QC have to be sold, with the possibility of a two years extension to the VCF" (IFD, Call for Tenders ref. IFD-FC&QC-FCR-01/16, 2016, p. 19). "The VCF's execution rate by financial intermediaries will be evaluated in three moments during the investment period (…). If the accumulated execution is below 30% on M1, 50% on M2 and 80% on M3, IFD may reduce FC&QC's endowment to the VCF up to the difference between executed and planned amounts at that moment. If the accumulated execution is above the reference values on each of these moments, IFD may increase FC&QC's participation in the VCF, if there is an expression of interest by the financial intermediary and financial capability within FC&QC to that end". (IFD, Call for Tenders ref. IFD-FC&QC-FCR-01/16, 2016, p. 21).

The VCF's investment in each FB, within the respective Investment Priority, cannot exceed 25% of the VCF's endowment for each IP (IFD, Call for Tenders ref. IFD-FC&QC-FCR-01/16, 2016, p. 22).

Additional and detailed information about the Line of Financing for Venture Capital Funds can be found in the annexed Product Data Sheet (Annex 4).

5. The impact of IFD`s Financial Instruments on Portuguese SME`s financial constraints

This chapter contains the research methodology used for the empirical study of the impact of IFD`s Financial Instruments on Portuguese SMEs` financial constraints. First, the methodology to assess the impact is explained and the empirical methods are established. Then, the research sample is described and some summary statistics on dependent and independent variables are presented. Lastly, the estimation results are exposed.

5.1 Methodology

The main purpose of this report is to assess whether financial constraints faced by Portuguese SMEs are eased by the Financial Instruments offered by IFD. Specifically, we will focus on those companies that have benefited from those instruments and we will attempt to measure constraints before and after they resort to IFD`s support.

Although relatively easy to define, financial constraints are actually very hard to measure, and researchers have struggled to develop methodologies that consistently allow identifying such constraints (Silva & Carreira, 2012). In this context, several previous studies propose many, not consensual, alternatives for measuring financial constraints. These empirical assessments can essentially be traced back to the seminal work of Fazzari, Hubbard and Petersen (1988) that introduced investment to cash-flow sensitivity (ICFS) as a measure of constraints. Their argument is the following: "financially constrained firms cannot obtain external finance - at least the full required amounts, or they do obtain them at significantly high costs – therefore they must rely on their internally generated funds once an investment opportunity arises. Meanwhile, financially unconstrained firms can easily resort to external funds to finance their investments. Accordingly, while constrained firms will exhibit a positive propensity to use cash-flows (internal finance) to finance investment (positive and significant ICFS), no systematic relationship should be found for unconstrained ones" (Silva & Carreira, 2012, p. 2-3).

Fazzari, Hubbard and Petersen (1988) - according to Silva and Carreira (2012) - regressed investment on cash-flow, estimated Q (control for investment opportunities) and year and firm dummies upon a sample consisting of 422 USA firms (1970-1984). Their findings suggested that firms with the highest retention ratios (as measured by dividend payments) exhibit higher ICFS than lowest retention ones. Although the ICFS approach has received severe criticism both at the theoretical and empirical levels, namely by Kaplan and Zingales (1997) and Povel and Raith (2002) (according to Silva and Carreira, 2012), the fact is that it is the most used empirical assessment of financial constraints - Bond, Elston, Mairesse and Mulkay (2003), Guariglia (2008), Silva and Carreira (2010), Scheuten (2014) and Erel, Jang and Weisbach (2015) are just examples of authors who have applied it.

More recently, in a different perspective of demand for liquidity, Almeida, Campello and Weisbach, (2004) suggest that financially constrained firms may alternatively be identified by looking at their cash policy. "If a firm is constrained, it has to pass-up present investment opportunities and hoard cash, in order to be able to take advantage of profitable future investment opportunities and hedge against future shocks. The same is not true when it comes to unconstrained firms, since they are able to resort to external finance whenever investment opportunities arise (by definition of financial constraints). Therefore, one should expect a positive and significant association between cash stocks and cash-flow for constrained firms, while no such relationship should be found for unconstrained ones. Finally, the degree to which a certain group of firms is financially constrained should be reflected on the cash to cash-flow sensitivity estimate (CCFS), as in ICFS—the higher the CCFS, the more constrained is such group of firms" (Silva & Carreira, 2012, p.5). Almeida et al. (2004) empirically estimated their hypothesis by using a sample of publicly-traded manufacturing firms over the 1971 to 2000 period and found robust support for their theory. Similarly, Han and Qiu (2007) developed and tested a two-period investment model that showed that the cash holdings of financially constrained firms are sensitive to cash flow volatility, because financial constraints create an intertemporal trade-off between current and future investments.

In the present report, we use the above measures to evaluate the extent to which target firms are financially constrained prior to IFD, and the extent to which these constraints are reduced after they benefit from IFD`s Financial Instruments. Our choice follows closely Silva and Carreira (2010) who also combine those two approaches to measure financial constraints of Portuguese companies for the period 1996-2004. However, our goal is not to take a stand on which measure of financial constraints is the most accurate; rather, we hope that, by using two different measures, we can estimate the extent to which the reduction of financial constraints is robust across alternative measures.

5.1.1 Measures specification

5.1.1.1 The Cash Flow Sensitivity of Investment

In order to test the causality and to determine the nature of the relation between cash flows (internal finance) and investment we borrow insights from the literature on the subject (e.g. Silva and Carreira, 2010, Cunha and Paisana, 2011, Scheuten, 2014 and Erel et al., 2015), and define the following equation:

$$\mathbf{(Investment_{i,t} / Total\ Assets_{i,t-1}) = \alpha_i + \beta_1 * AFTER_t * (Cash\ Flow_{i,t} / Total\ Assets_{i,t-1}) + \beta_2 * (Cash\ Flow_{i,t} / Total\ Assets_{i,t-1}) + \beta_3 * Sales\ Growth_{i,t} + \beta_4 * GDP\ Growth_{i,t} + \varepsilon_{it}} \quad (1)$$

In equation 1, the subscripts *i* and *t* correspond to firm and time, respectively, AFTER is a dummy variable that takes a value of one after IFD support, α_i controls for unobserved firm heterogeneity and ε_{it} is the error term. All variables are divided by Total Assets to address the problem of heteroscedasticity due to differences in firms` size.

The dependent variable 'investment' is determined as the change in tangible fixed assets plus depreciation, whereas the explanatory variable 'cash flow' is calculated as the net income plus depreciation. The inclusion of other independent variables derives from the need to control for idiosyncratic factors, other than the factors which are tested, which may influence the independent or dependent variables and, hence, the robustness of the results. Thus, the inclusion of the variable 'sales growth' ((sales – lagged sales)/lagged sales) serves as a way to control for investment opportunities faced by firms, whereas 'GDP growth' (annual percentage nominal growth rate of GDP in local currency) controls for variations in external financing availability. The choice of these two variables was based on Erel, et al. (2015) who also apply them in their study of the impact of acquisitions on European target firms` financial constraints.

If a positive correlation between investment and cash flow is found, that is, if coefficients on cash flow are positive and statistically significantly different from zero in model 1, then firms are financially constrained. If no correlation is found in model 1, that is, if coefficients on cash flow are statistically non-significant, then firms are unconstrained. In order to accept the hypothesis that firms ease their financial constraints after IFD`s support, it is required that the sum of the coefficient on cash flow to total assets ratio (β_2) and the coefficient on AFTER interacted with cash flow to total assets ratio (β_1) be lower than the coefficient β_2 alone, since β_2 represents the investment sensitivity before the support of IFD.

Regarding the variables 'sales growth' and 'GDP growth', we expect them to be positively related with investments, that is, we expect β_3 and β_4 to be statistically significant and positive before and after IFD`s support. Similar to many researchers studying the investment cash-flow sensitivity (such as Almeida and Campello, 2007, and Fazzari et al. 1988 - according to Scheuten, 2014), we assume that investment is exclusively explained by the availability of finance, internally and externally.

5.1.1.2 The Cash Flow Sensitivity of Cash

To measure the change in the cash flow sensitivity of cash we use an empirical specification quite similar to (1):

$$\left(\Delta \text{ Cash Stocks}_{i,t} / \text{Total Assets}_{i,t-1}\right) = \alpha_i + \beta_1 * \text{AFTER}_t * \left(\text{Cash Flow}_{i,t} / \text{Total Assets}_{i,t-1}\right) + \beta_2 * \left(\text{Cash Flow}_{i,t} / \text{Total Assets}_{i,t-1}\right) + \beta_3 * \text{Sales Growth}_{i,t} + \beta_4 * \text{GDP Growth}_{i,t} + \varepsilon_{it} \quad (2)$$

Again, we borrow insights from the literature on cash flow sensitivity of cash to build equation 2 (e.g. Silva and Carreira, 2010, Almeida et al., 2004 and Erel et al., 2015). The dependent variable corresponds to the change in cash stocks between two subsequent years as a percentage of total assets (we measure cash stocks by the amount of bank deposits and cash). The variable 'sales growth' is also applied here since it is expected that financially constrained firms exhibit a positive correlation between cash stocks and new/better investment opportunities (measured by 'sales growth'). Therefore, we predict coefficient β_3 to be positive and statistically significant for constrained firms but statistically non-significant for the unconstrained ones. Based on Erel et al. (2015), we also keep the variable 'GDP Growth' as a proxy to the availability of external finance since the greater the availability of external finance, the smaller the cash stocks of financially constrained firms are expected to be. Thus, we predict coefficient β_4 to be negative and statistically significantly different from zero for constrained firms but statistically non-significant for the unconstrained ones.

In order to accept the hypothesis that firms ease their financial constraints after IFD`s support, it is required that the sum of the coefficient on cash flow to total assets ratio (β_2) and the coefficient on AFTER interacted with cash flow to total assets ratio (β_1) be lower (or statistically non-significant) than the coefficient β_2 alone, since β_2 represents the cash sensitivity before the support of IFD.

5.2 Data and descriptive statistics

This report uses a balanced data panel to obtain empirical evidence on the impact of IFD`s Financial Instruments on Portuguese SME`s financial constraints. The necessary financial and accounting information of target firms was collected from the SABI database, by using the tax identification number of each firm, whereas the GDP growth taxes were collected from the database of *Instituto Nacional de Estatística* (Portuguese for Statistics Portugal). The sample period is from 2014 to 2017 but two subperiods were built: i) pre-IFD period from 2014 to 2016; ii) post-IFD period 2017. Although IFD was created in 2014, the very first financing operation was approved only in October of 2016 which limits our post-IFD sample to a single year.

Since a balanced panel data was used, firms had to respect some criteria to be included in the sample. Firstly, only companies that presented values for all variables and for every year of the period under analysis were considered. Secondly, in order to reduce the effect of outliers in our data set, we only contemplate firms that have sales higher than zero for every year of the period. As a result, our final (full) sample comprises a total of 162 companies and 648 firm-year observations.

In addition to the full sample analysis, and following Silva and Carreira (2010) and Cunha and Paisana (2011), we also investigate the financial constraints of two sub-samples: micro/small SMEs (with less than 50 employees, on average for the 4 years under analysis) and medium SMEs (with at least 50 employees, on average for the 4 years under analysis). The decision to split the initial sample according to size is justified by the assumption that smaller firms are more likely to be constrained in our sample, thus we expect to observe more reductions in constraints for smaller targets. To test this hypothesis we will reestimate our main equations on subsamples.

Tables 6 and 7, below, provide a brief summary of the variables used in the estimation of models (1) and (2) for the global sample and by classification scheme subsamples. Both means and standard deviations are reported. An interesting pattern that can be observed is that mean investment decreases with firm size. In other words, medium SMEs appear to invest less than micro/small SMEs. However, the standard deviation of larger firms on investments to total assets ratio is much smaller. Also, for the full sample and both subsamples investments increase in the post-IFD period (2017). Regarding cash stocks, there is a slightly increase between 2014-2016 and 2017 for the full sample and the group of firms with less than 50 employees. On the contrary, the group of firms with 50 or more employees appears to reduce cash stocks in the post-IFD period.

Table 6: Descriptive statistics for firms of the full sample and firms classified according with size, 2014-2016

Variables	Full sample		Size classes			
			[0;49]		[50;249]	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Investment $_{i,t}$ /Total Assets $_{i,t-1}$	0,1494	0,5102	0,1625	0,5746	0,1065	0,1751
Δ Cash Stocks $_{i,t}$ /Total Assets $_{i,t-1}$	0,0344	0,1832	0,0385	0,2043	0,0211	0,0821
Cash Flow $_{i,t}$ /Total Assets $_{i,t-1}$	0,1394	0,2022	0,1484	0,2239	0,1101	0,0989
Sales Growth$_{i,t}$	0,3182	1,8344	0,3911	2,0895	0,0802	0,1841
Number of companies	162		124		38	
Observations	486		372		114	

Source: own elaboration

Table 7: Descriptive statistics for firms of the full sample and firms classified according with size, 2017

Variables	Full sample		Size classes			
			[0;49]		[50;249]	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Investment $_{i,t}$ /Total Assets $_{i,t-1}$	0,1773	0,2331	0,1829	0,2507	0,1590	0,1643
Δ Cash Stocks $_{i,t}$ /Total Assets $_{i,t-1}$	0,0315	0,1428	0,0432	0,1437	- 0,0067	0,1347
Cash Flow $_{i,t}$ /Total Assets $_{i,t-1}$	0,1231	0,1197	0,1275	0,1311	0,1088	0,0699
Sales Growth$_{i,t}$	0,1260	0,2360	0,1453	0,2345	0,0630	0,2326
Numer of companies	162		124		38	
Observations	162		124		38	

Source: own elaboration.

5.3 Estimation results

In this subsection we present the estimation results for regressions (1) and (2). The econometric methodology applied is the fixed effects model (FEM). Silva and Carreira (2010), Cunha and Paisana (2011) and Erel, et al. (2015) are just examples of authors who have used the fixed effects model in longitudinal panel of data.

Table 8 presents the regression results of cash flow sensitivity of investment for the full sample and both subsamples. All of the three equations exhibit a good global fit (R-squared between 53,3% and 73,5%) and the explanatory variables are jointly statistically significant (Prob(F-statistic) = 0).

Table 8: Regression results for full sample and firms classified according to their size. Dependent variable: (Investment $_{i,t}$ /Total Assets $_{i,t-1}$).

Variables	Full sample	Size classes	
		[0;49]	[50;249]
Constant	\`-0,226853*	\`-0,261041*	0,12253**
	[0,044877]	[0,053784]	[0,048049]
AFTER$_t$*(Cash Flow $_{i,t}$ /Total Assets $_{i,t-1}$)	0,071655	0,02984	0,670672*
	[0,167366]	[0,188240]	[0,228545]
(Cash Flow $_{i,t}$ /Total Assets $_{i,t-1}$)	2,345512*	2,546749*	\`-0,3905**
	[0,106441]	[0,116150]	[0,194791]
Sales Growth$_{i,t}$	0,039506*	0,033759*	0,125255***
	[0,008951]	[0,009489]	[0,067951]
GDP Growth$_{i,t}$	1,654432	1,625747	0,382621
	[1,306881]	[1,568242]	[1,327876]
R-squared	0,698024	0,735069	0,533042
Prob (F-statistic)	0	0	0

Note: significance levels at 1% (*), 5% (**) and 10% (***); standard errors between [ ].

Regarding the full sample, table 8 shows a positive and statistically significant correlation between cash flows and investments in the pre-IFD period (2014-2016), which suggests that firms are indeed financially constrained before receiving support from IFD. In order to accept the hypothesis that firms ease their financial constraints after IFD\`s support, it is required that the sum of the coefficient on cash flow to total assets ratio and the coefficient on AFTER interacted with cash flow to total assets ratio be lower than 2,345512. However, this is not the case, as the coefficient on AFTER interacted with 'cash flow/total assets' is not statistically significantly different from zero. Thus, we conclude that financial constraints remain unchanged in the post-IFD period.

Regarding the two subsamples, table 8 suggests that in the pre-IFD period micro/small firms are financially constrained (as shown by the positive and statistically significant coefficient on cash flows to total assets ratio), whereas medium firms are not (as shown by the negative and statistically significant coefficient on cash flows to total assets ratio). In the post-IFD period (2017), apparently micro/small firms remain at the same level of financial constraints as consequence of the statistically non-significant coefficient on AFTER interacted with 'cash flows/total assets', whereas medium firms become financially constrained (as shown by the positive and statistically significant sum of the coefficient on cash flow to total assets ratio and the coefficient on AFTER interacted with 'cash flow/total assets').

Additionally, as we expected the variable 'sales growth' (proxy to investment opportunities) has a positive and statistically significant correlation with the dependent variable in the three regressions estimated and presented in table 8. On the contrary, the variable GDP growth appears not to be correlated with investments, as shown by its statistically non-significant coefficients.

Table 9 presents the regression results of cash flow sensitivity of cash for the full sample and both subsamples. Here, regressions present a lower global fit (R-squared between 0,286857 and 0,522638) and explanatory variables are jointly statistically non-significant in the case of firms with 50 or more employees.

Table 9: Regression results for full sample and firms classified according to their size. Dependent variable: (Δ Cash Stocks $_{i,t}$ /Total Assets $_{i,t-1}$)

Variables	Full sample	Size classes	
		[0;49]	[50;249]
Constant	`-0,039481***	-0,042354	-0,036253
	[0,022009]	[0,026856]	[0,033615]
AFTER$_t$*(Cash Flow $_{i,t}$ /Total Assets $_{i,t-1}$)	0,104992	0,155242***	-0,242649
	[0,082079]	[0,093995]	[0,159891]
(Cash Flow $_{i,t}$ /Total Assets $_{i,t-1}$)	0,609084*	0,62206*	0,407379*
	[0,052201]	[0,057998]	[0,136277]
Sales Growth$_{i,t}$	0,001712	0,000876	0,151393*
	[0,004390]	[0,004738]	[0,047539]
GDP Growth$_{i,t}$	-0,406111	-0,384549	0,024567
	[0,640918]	[0,783080]	[0,928987]
R-squared	0,498376	0,522638	0,286857
Prob (F-statistic)	0	0	0,368957

Note: significance levels at 1% (*), 5% (**) and 10% (***); standard errors between [ ]

Regarding the full sample, table 9 shows a positive and statistically significant correlation between cash flows and change in cash stocks in the pre-IFD period, which suggests that firms are indeed financially constrained before receiving support from IFD. Once again, in order to accept the hypothesis that firms ease their financial constraints after IFD`s support, it is required that the sum of the coefficient on cash flows to total assets ratio and the coefficient on AFTER interacted with cash flow to total assets ratio be lower than 0,609084. However, this is not the case, as the coefficient on AFTER interacted with 'cash flow/total assets' is not statistically significantly different from zero. Thus, we conclude that financial constraints remain unchanged in the post-IFD period for the full sample.

Regarding the two subsamples, table 9 shows that in the pre-IFD period both micro/small SMEs and medium SMEs have a positive and statistically significant correlation between cash flows and change in cash stocks, which means both groups of firms are financially constrained. However, medium firms are indeed less financially constrained: an increase of one euro on cash flow of micro/small firms leads to an increase of 62 cents on their cash stocks, whilst an identical increase in cash flow of medium firms only increases cash holdings on 41 cents. In the post-IFD period, apparently firms with less than 50 employees aggravate their level of financial constraints, since the sum of the coefficient on cash flow to total assets ratio and the coefficient on AFTER interacted with 'cash flow/total assets' is statistically significant and larger than 0,62206. Firms with at least 50 employees remain at the same level of financial constraints because of the statistically non-significant coefficient on AFTER interacted with 'cash flows/total assets'.

Contrary to table 8 where the variable 'sales growth' (proxy to investment opportunities) has a positive and statistically significant correlation with the dependent variable 'investments/total assets', here the same variable is statistically non-significant to explain the change in cash stocks of the full sample and the subsample of firms with less than 50 employees. Also, the GDP growth appears not to be correlated with change in cash stocks as shown by its statistically non-significant coefficients in the three regressions estimated and presented in table 9.

6. Conclusion, limitations and future research

Financial constraints are a key concern for firms since they delay the ability to carry out optimal investment opportunities and growth trajectories and have important effects on firm's capacity to stay in the market. In this report we showed that the severity of such constraints depends on institutional and firm specific characteristics. As a result, one can expect that firms operating in countries with less developed financial markets, as well as ineffective legal and regulatory systems, will be more exposed to the constraints as there will be a greater amount of frictions in the market. Oliveira and Fortunato (2006) – according to Silva and Carreira (2009, p.14) - point out that "one of the reasons why Portuguese manufacturing firms are financially constrained (…) might be due to a relative underdevelopment of capital markets in Portugal when compared to the USA or the UK". Additionally, "smaller and younger firms are expected to be more credit rationed due to information asymmetries (moral hazard and adverse selection problems) that either set the price of money on above-optimal levels or rationalize the credit. This inefficiency will set a wedge between internal and external forms of firm finance – a financing hierarchy" (Silva & Carreira, 2009, p.2).

The Portuguese Development Financial Institution (the "IFD") was established in 2014 as a new integrated public financial institution whose main objective is to contribute to lessening those frictions in the access of micro, small and medium-sized enterprises and mid-cap companies to finance in Portugal. Thus, our goal is to evaluate the extent to which target firms are financially constrained prior to IFD, and the extent to which these constraints are reduced after they benefit from IFD`s support.

Theory suggests that financial constraints should lead managers to increase the cash flow sensitivity of cash as well as the cash flow sensitivity of investment, and to decrease investment. If constraints are eased, then these effects should be reversed (Erel et al., 2015, p.352). In our sample we document that target firms appear to be financially constrained prior and after to IFD, remaining more or less at the same level of financial restrictions over the two subperiods. Thus, the increase in the targets` investments following IFD support (as showed in tables 6 and 7) does not derive from lower financial frictions. Instead, they may be the result of more and better investment opportunities, in the context of the Portuguese and Global economies recovery following the 2008-09 financial crisis and the subsequent sovereign credit rating downgrades. Despite this, we were able to find some evidence that medium SMEs may well have easier access to external finance (prior and after IFD) than micro/small ones.

There are however, some issues associated with the robustness of our measures of financial constraints that one should expect to be reflected in our findings. Indeed, financial constraints are an abstract concept and finding an appropriate measure has proved to be a rather difficult task. Even though many studies have applied the cash flow sensitivity of cash and investment in order to conclude about financial frictions, these measures are, however, built on fragile relationships and proxies (Silva & Carreira, 2010). Therefore, future avenues of research could explore the robustness of our findings by selecting different variables to represent similar questions, as well as different econometric methodologies. Also, the extension of our sample to more firms and a bigger post-IFD period would be suitable to test the robustness of our results.

In terms of the implications to IFD`s activity and despite our findings, it will remain crucial to monitor the evolution of Portuguese SMEs` financing conditions through core indicators, such as short-term vs. long-term loans, new business lending, collateral (% of SMEs needing collateral to obtain bank credit), interest rates, rejection rates and venture and growth capital investments. Also, the financial health of Portuguese companies must be scrutinised, namely the incidence of late or non-payments for SME loans compared to the overall corporate sector and the occurrence of payment delays in the B2B sector (OECD, 2018).

References

Acs, Z. J., & Audretsch, D. B. (1987). INNOVATION, MARKET-STRUCTURE, AND FIRM SIZE. *Review of Economics and Statistics, 69*(4), 567-574. doi:10.2307/1935950

Almeida, H. , Campello, M., & Weisbach, M. S. (2004), The Cash Flow Sensitivity of Cash. *The Journal of Finance*, *59(4)*, 1777-1804. doi:10.1111/j.1540-6261.2004.00679.x

Ang, J. S., Lin J. W., & Tyler F. (1995). Evidence on the Lack of Separation between Business and Personal Risks among Small Businesses. *Journal of Small Business Finance, 4(2/3)*, 197-210. Retrieved from https://digitalcommons.pepperdine.edu/cgi/viewcontent.cgi?article=1176&context=jef

Arvanitis, S. (1997). The impact of firm size on innovative activity - an empirical analysis based on Swiss firm data. *Small Business Economics, 9*(6), 473-490. doi:10.1023/a:1007920723585

Augusto Mateus & Associados (2015). Ex Ante Evaluation Study of the Financial Instruments for the Portugal 2020 Programmes: Allotment 1 – Financial instruments for the direct support of enterprises. Final Report. Commissioned by Agência para o Desenvolvimento e Coesão, I.P. (AD&C). Portugal. Retrieved from https://www.portugal2020.pt/Portal2020/Media/Default/Docs/AVALIACAO/Avaliacao_ExAnte_Instr_Financ_Lote%201_RelatorioFinal.pdf

Ayyagari, M., Beck, T., & Demirguc-Kunt, A. (2007). Small and medium enterprises across the globe. *Small Business Economics, 29*(4), 415-434. doi:10.1007/s11187-006-9002-5

Banco de Portugal (2008). Financial Stability Report. Economics and Research Department. Retrieved from https://www.bportugal.pt/sites/default/files/anexos/pdf-boletim/ref_08_e.pdf

Beck, T., & Demirguc-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance, 30*(11), 2931-2943. doi:10.1016/j.jbankfin.2006.05.009

Beck, T., Demirguc-Kunt, A., & Levine, R. (2005). SMEs, growth, and poverty: Cross-country evidence. *Journal of Economic Growth, 10*(3), 199-229. doi:10.1007/s10887-005-3533-5

Berger, A. N., & Udell, G. F. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking & Finance, 22*(6-8), 613-673. doi:10.1016/s0378-4266(98)00038-7

Bond, S., Elston, J., Mairesse, J., & Mulkay, B. (2003). Financial Factors and Investment in Belgium, France, Germany, and the United Kingdom: A Comparison Using Company Panel Data. *The Review of Economics and Statistics, 85(1)*, 153-165. Retrieved from http://www.jstor.org/stable/3211629

Carree, M. A., & Thurik, A. R. (1998). Small firms and economic growth in Europe. *Atlantic Economic Journal, 26*(2), 137-146. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-54649085162&partnerID=40&md5=ad8dc66555e91f0b5995af2684e74317

Carvalho, I. (2017). What is the impact of the access to external finance on the capital structure of SMEs in Europe? (Master Thesis, Católica Lisbon School of Business & Economics, Portugal). Retrieved from https://repositorio.ucp.pt/handle/10400.14/22012.

Čihák, M., Demirgüč-Kunt, A., Feyen, E., & Levine, R. (2013). Financial development in 205 economies, 1960 to 2010. National Bureau of Economic Research. Working Paper 18946. Retrieved from http://www.nber.org/papers/w18946.pdf

Council of Europe Development Bank (2013). Micro, Small and Medium-Sized Enterprises: CEB Financing and Its Social Value. Retrieved from https://coebank.org/media/documents/MSME_Study_Synthesis.pdf

Cunha, J., & Paisana, A. (2011). Evidence on the investment-cash flow sensitivity for a panel of portuguese manufacturing firms. (Conference Paper, University of Minho). Retrieved from http://hdl.handle.net/1822/15563

Davis, S. J., Haltiwanger, J., & Schuh, S. (1996). Small business and job creation: Dissecting the myth and reassessing the facts (Reprinted from Labor Markets, Employment Policy & Job Creation, 1994). *Small Business Economics, 8*(4), 297-315. doi:10.1007/bf00393278

Erel, I., Jang, Y., & Weisbach, M. S. (2015). Do Acquisitions Relieve Target Firms' Financial Constraints? The *Journal of Finance*, *70*(1), 289-328. doi:10.1111/jofi.12155

Eriotis, N., Vasiliou, D., & Ventoura-Neokosmidi, Z. (2007). How firm characteristics affect capital structure: An empirical study. *Managerial Finance*, *33*(5), 321-331. doi:10.1108/03074350710739605

European Commission (2017). Annual Report on European SMEs 2016/2017: Focus on self-employment. doi: 10.2873/742338

European Commission (2015). User guide to the SME Definition. doi:10.2873/620234

Farinha, L., & Felix, S. (2015). Credit rationing for Portuguese SMEs. *Finance Research Letters, 14*, 167-177. doi:10.1016/j.fr1.2015.05.001

Farinha, L., & Prego, P. (2014). Cash holdings determinants in the Portuguese economy. Financial Stability Report, May, 107-115. Retrieved from https://www.bportugal.pt/sites/default/files/anexos/papers/ar201401_e.pdf

Gagliardi, D., Muller, P., Glossop, E., Caliandro, C., Fritsch, M., Brtkova, G., . . . Cox, D. (2013). A RECOVERY ON THE HORIZON? Annual Report on European SMEs 2012/13. Retrieved from https://www.researchgate.net/profile/Deborah_Cox/publication/259174567_A_RECOVERY_ON_THE_HORIZON_Annual_Report_on_European_SMEs_201213/links/0046352a1c259e4936000000/A-RECOVERY-ON-THE-HORIZON-Annual-Report-on-European-SMEs-2012-13.pdf

Gregory, B. T., Rutherford, M. W., Oswald, S., & Gardiner, L. (2005). An empirical investigation of the growth cycle theory of small firm financing. *Journal of Small Business Management, 43*(4), 382-392. doi:10.1111/j.1540-627X.2005.00143.x

Guariglia, A. (2008). Internal financial constraints, external financial constraints, and investment choice: Evidence from a panel of UK firms. *Journal of Banking and Finance, 32*(9), 1795-1809. doi:10.1016/j.jbankfin.2007.12.008

Han, D., & Qiu, J. (2007). Corporate precautionary cash holdings. *Journal of Corporate Finance, 13*(1), 43-57. doi:10.1016/j.jcorpfin.2006.05.002

Harhoff, D., & Korting, T. (1998). Lending relationships in Germany - Empirical evidence from survey data. *Journal of Banking & Finance, 22*(10-11), 1317-1353. doi:10.1016/s0378-4266(98)00061-2

Infelise, F. (2014). Supporting Access to Finance by SMEs: Mapping the initiatives in five EU countries. European Capial Markets Institute. Research Report No. 9/April 2014. Retrieved from: http://observgo.uquebec.ca/observgo/fichiers/36310_DE1.pdf

Lee, N., Sameen, H., & Cowling, M. (2015). Access to finance for innovative SMEs since the financial crisis. *Research Policy, 44*(2), 370-380. doi:10.1016/j.respol.2014.09.008

Leeth, J. D., & Scott, J. A. (1989). THE INCIDENCE OF SECURED DEBT - EVIDENCE FROM THE SMALL BUSINESS COMMUNITY. *Journal of Financial and Quantitative Analysis, 24*(3), 379-394. doi:10.2307/2330818

Loveman, G., & Sengenberger, W. (1991). The re-emergence of small-scale production: An international comparison. *Small Business Economics, 3*(1), 1-37. doi:10.1007/BF00389842

Mason, C. M., & Harrison, R. T. (1997). Business Angel Networks and the Development of the Informal Venture Capital Market in the U.K.: Is There Still a Role for the Public Sector? *Small Business Economics, 9*(2), 111-123. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-0031527589&partnerID=40&md5=681cfbba2ee67547876fd16c4372aa06

OECD (2018). Financing SMEs and Entrepreneurs 2018. doi:http://dx.doi.org/10.1787/fin_sme_ent-2018-en

OECD (2017). Small, Medium, Strong. Trends in SME Performance and Business Conditions. doi:http://dx.doi.org/10.1787/9789264275683-en

OECD (2015). New approaches to SME and Entrepreneurship Financing: Broadning the Range of Instruments. doi:http://dx.doi.org/10.1787/9789264240957-en

OECD (2006). The SME financing gap (Vol. I): Theory and Evidence. doi: https://doi.org/10.1787/9789264029415-en

Rocha, L. M. R. M. (2000). A teoria financeira no contexto das pequenas e médias empresas: o caso do sector têxtil e de vestuário em Portugal (Master Thesis, University of Porto - School of Economics and Management, Portugal). Retrieved from https://sigarra.up.pt/fdup/pt/pub_geral.pub_view?pi_pub_base_id=25233

Scheuten, G. (2014). The influence of financial constraints on the investment-cash flow sensitivity in Dutch SMEs (Master Thesis, University of Twente - School of Management and Governance, Netherlands). Retrieved from https://essay.utwente.nl/64723/1/Scheuten_MA_Management%26governance.pdf

Shaffer, S. (2002). Firm size and economic growth. *Economics Letters, 76*(2), 195-203. doi:10.1016/s0165-1765(02)00043-5

Silva F., & Carreira, C. (2012). Measuring Firms' Financial Constraints: A Rough Guide. GEMF Working Papers 2012-14, GEMF, Faculty of Economics, University of Coimbra. Retrieved from https://ideas.repec.org/p/gmf/wpaper/2012-14.html

Silva F., & Carreira, C. (2010). Measuring firms' financial constraints: Evidence for Portugal through different approaches. GEMF Working Papers 2010-15, GEMF, Faculty of Economics, University of Coimbra. Retrieved from https://ideas.repec.org/p/gmf/wpaper/2010-15.html

Silva F., & Carreira, C. (2009). No Deep Pockets: Some stylized results on firms' financial constraints. GEMF Working Papers 2009-06, GEMF, Faculty of Economics, University of Coimbra. Retrieved from http://gemf.fe.uc.pt/workingpapers/abstracts/2009/resumo2009_06.htm

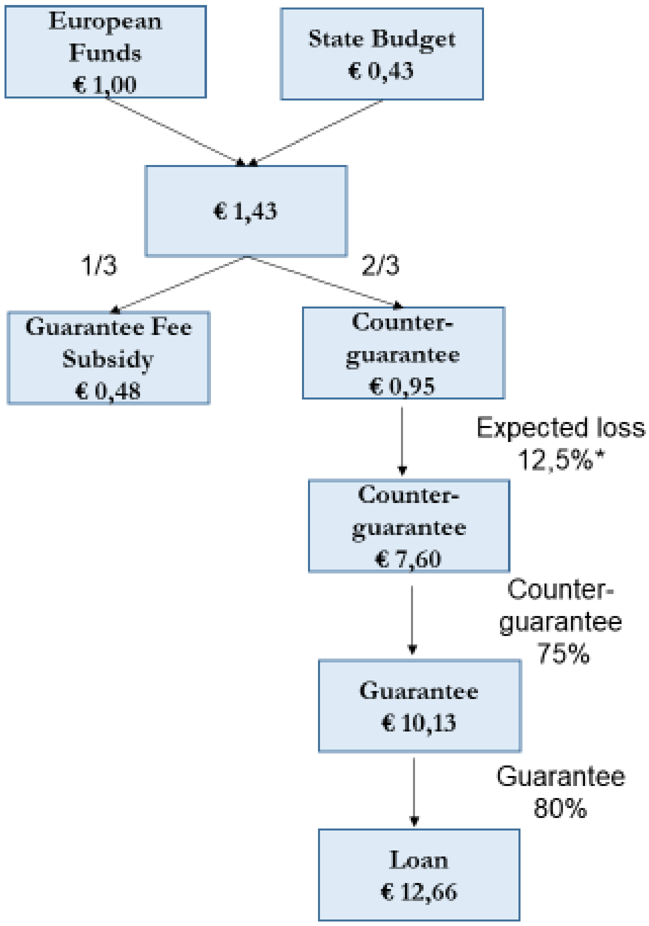
Small Business Administration, U. S. (2012). Guide to SBA's definitions of small business. Retrieved from http://www.patientadvocatetraining.com/wp-content/themes/patientadvocate/static/pdf/SBA_Definitions_of_Small_Busines.pdf

Voordeckers, W., & Steijvers, T. (2006). Business collateral and personal commitments in SME lending. *Journal of Banking & Finance, 30*(11), 3067-3086. doi:10.1016/j.jbankfin.2006.05.003

Wennekers, S., & Thurik, R. (1999). Linking entrepreneurship and economic growth. *Small Business Economics, 13*(1), 27-55. doi:10.1023/a:1008063200484

Annexes

Annex 1: The multiplier effect (FD&G)



*Expected loss: it is assumed that the probability of a SME not to pay back the loan is about 12,5%. Therefore, in the illustration above the Counter-Guarantee Fund is able to counter-guarantee 7,6 € of loans to SMEs with only 0,95 € of real endowment.

<u>Annex 2</u>: Line *Capitalizar Mais*

I. TERMS AND CONDITIONS OF THE CREDIT LINE	
1. Final Beneficiaries	Companies with an SME electronic certification granted by IAPMEI, with, at least, one year of approved accounts. Companies with support attributed under Regulation (EU) No. 651/2014, of June 16 (GBER – General Block Exemption Regulation), must also fulfil at least one of the following conditions: a. Has not operated in any market; b. Has operated in any market for less than seven years since the first commercial sale; c. Requires an initial investment of risk financing, which, based on a business plan prepared in order to enter a new product market or a new geographic market, is higher than 50% of its average annual turnover in the previous five years.
2. Eligibility conditions for Final Beneficiaries	a. To be legally established; b. To have an updated tributary and contributory situation with, respectively, the fiscal authorities and social security, to be verified up to the loan contract date; c. To be legally authorized to develop activities in the territory covered by the OP and the type of operations and investments they apply to; d. To have or be able to ensure, until the application's approval, the technical, physical and financial means and human resources necessary to develop the operation; e. To have an updated situation in terms of repositions, within ESIF financing; f. To not have unresolved default incidents with the Banking Institutions and the MGS on the contracting date; g. To present a balanced economic and financial situation or to demonstrate financing capacity for the operation; undertakings in difficulty, as defined in applicable EU regulations, are not to be considered; h. To not hold, or have held, directly or through a spouse or partner from whom they are not divorced or legally separated, or first degree relatives in the direct ascending or descending line, in more than 50%, equity in a company that has not fulfilled a restitution notification relative to support within an operation financed through European funds; i. To be SME in accordance to the definition within the Recommendation 2003/361/CE of the Commission, and provide evidence of this status until the date of financing by the financial intermediaries through Electronic Certification of SME, emitted according to Decree-Law 372/2007, of November 6; j. Not to be officially listed in a stock exchange, with the exception of alternative negotiation platforms.
3. Maintenance of the Level of Employment	Beyond the eligibility conditions stated above, the Beneficiaries must also sign a statement, a draft that will be made available by the Managing Entity of the Credit Line, in which they commit to maintain the same level of employment observed at the loan contract date during the lifetime of the contract.
4. Global Amount	Up to 1,000 million euros, with the amount to take by each Bank defined in order of reception of proposed operations within the Credit

	Line, provided they are validated by the Managing Entity of the Credit Line, as defined in this Product Data Sheet.
5. Geographic Scope	The projects to be financed within this Credit Line must be located in the NUTS II regions of Azores, Alentejo, Algarve, Centre, Lisbon and North, and cannot exceed the amounts defined for each of these regions: a. Azores: 79 M€ b. Alentejo: 257 M€ c. Algarve: 9 M€ d. Centre: 252 M€ e. Lisbon: 88 M€ f. North: 315 M€ **TOTAL: 1.000 M€**
6. Industry Scope	Eligible projects must be part of economic activities, especially those aiming to produce tradable goods and services and those with potential for internationalization or that contribute to their value chain and are not pertaining to general economic interest services. The concept of tradable goods and services includes those produced in industries subjected to international competition and which can be an object of international trade demonstrated through: a. Sales to foreign countries (exports); b. Indirect sales to foreign countries, of goods to clients in the national market when these are to be incorporated into other goods sold to foreign countries; c. Services to non-resident entities, with this portion of the company's turnover identified as such in its accounting system; d. Import replacement, increase in production for internal consumption of goods and services with negative trade balance (as evidenced in the last year of available statistical information). General economic interest services are any commercial service activities that fulfill general interest missions and, therefore, are subject to specific public service obligations (article 106 of the Treaty on the Functioning of the European Union), such as companies in charge of managing general economic interest services, namely transport, energy and communications networks. This Credit Line excludes projects in the following activities (Classificação Portuguesa de Atividades Económicas – CAE, reviewed by Decree-Law No. 381/2007, of November 14): a. Financial and insurance – divisions 64 to 66; b. Defense – sub-classes 25402, 30400 and 84220; c. Lotteries and other betting games – division 92. Due to specific European restrictions in terms of state aid, projects of final beneficiaries in the following industries are excluded: a. In fishing and aquiculture, as described in the Regulation (EU) No. 1379/2013, of December 11, that establishes the common organization of the fishing and aquiculture products, alters the Regulations (EC) No. 1184/2006 and (EC) No. 1224/2009 of the Council and revokes the Regulation (EC) No. 104/2000 of the Council; b. In primary agricultural production, as defined in Regulation (EU) No. 651/2014, of January 16; c. Companies with intragroup activities and whose main activities fall into subdivisions 70.10 "Activities of headquarters" or 70.22

	"Consulting activities for business and other management consulting activities" of NACE Rev. 2. As established in the Partnership Agreement, within the delimitation between funds of the Cohesion Policy and EARDF and EMFF, this Credit Line also excluded projects which invest in innovation relative to the transformation and commercialization of agricultural products included in Annex I to the Treaty of the European Union and forestry products: a. Developed in farms (when the raw materials comes mostly from the farm itself); or b. Developed by Organizations of Producers; or c. With a total investment of up to € 4 million.
7. Duration	Up to 12 months after the opening of the Credit Line, extensible up to four 6-month periods if it is not fully used up in the previous periods, as long as it does not go beyond the end of 2020.
8. Eligible Operations	a. Reinforce the region's SME skills to develop new products and services and projects with innovations at the level of processes, products, organization or marketing level; b. Financing operations for new investments in fixed assets and also for increases in working capital associated with an effective increase in activity, and an amount and proportion justified in economic and business terms, in any case limited to a maximum of 30% of the project or €500,000; c. Companies with operations approved within the Portugal 2020 Programme may, within this Credit Line, finance non eligible expenses as defined in articles 7 and 52 of Ordinance No. 57-A/2015, of February 27, including working capital, in this case up to 1/6 of the projected turnover for the first year after conclusion of the project, to a maximum of €500,000. Nevertheless, all the non-eligible operations defined in section 9 below are excluded, even if they were considered non-eligible expenses within approved applications to the Portugal 2020 Programme. In this scope, companies can submit applications up to two years after the conclusion of the investment project that is the target of the Portugal 2020 Programme; d. The eligibility of the reinforcement of working capital within this FI shall, in any case, be evaluated within the full compliance with the applicable EU regulations, namely specific restrictions for State aid, as well as those pertaining to the applicable ESIF regulations; e. Operations aimed to acquisition of real estate related to the business activity. In this case, the maximum amount for the acquisition of real estate, other than land, may not exceed 50% of the total amount of financing approved for the final beneficiary under this Credit Line. In the particular case of land, not constructed or constructed, the maximum amount is limited to 10% of the total expenditure eligible for the operation. Support for the acquisition of land or other real estate is not allowed to companies of CAE Division 68 (real estate activities).
9. Non-Eligible Operations	a. This Credit Line does not allow operations destined to financial restructuring and/or that imply the consolidation of live credit; b. This Credit Line does not allow operations destined to liquidate or replace, directly or indirectly, even if in different terms, financing which has been previously negotiated with the Bank;

	c. Operations destined to acquire land, buildings, vehicles and used goods; d. The investment to support cannot be materially concluded or fully executed on the financing decision date; e. Companies with approved applications to the Portugal 2020 Programme cannot finance, through this Credit Line, expenses considered eligible within those applications, as defined in Ordinance No. 57-A/2015, of 27 February.
10. Mutual Guarantee	The credit operations to be negotiated within this Credit Line benefit from an autonomous, first demand guarantee by the Mutual Guarantee Society (MGS), destined to guarantee up to 80% of the debt at each moment in time. The autonomous guarantee will be paid to the bank within 30 calendar days from the reception of the registered letter with acknowledgement of delivery requesting the payment of the guaranteed amounts, provided it fulfills all the remaining guarantee contract requirements.
11. MGS Counter-Guarantee	The guarantees issued by the MGS within this Credit Line benefit from a counter-guarantee by the Mutual Counter-Guarantee Fund (MCGF) of 75%.
12. Managing Entity of the Credit Line	IFD - Instituição Financeira de Desenvolvimento, SA (IFD), as Managing Company of FD&G, is the Managing Entity of the Credit Line (MECL), which will take on all the management functions attributed within the relevant Protocol, namely the relationship with the Bank and the MGS in terms of operation framework and payment of the guarantee fee subsidy. IFD may delegate the functions of operation framework and payment processing.
II. CREDIT OPERATIONS	
1. Type of Operations	Medium to long term loans and leasing operations for equipment to finance investments indicated in section 8, of Chapter I.
2. Maximum Amount per Company	a. The value of the guarantee, to be issued by the MGS, cannot exceed €4.000.000 per company; b. If the support is granted within Regulation (EU) No. 1407/2013 (*de minimis* regulation), the guarantee cannot exceed €1 500 000 (or €750 000 for companies in private road transportation) with a maturity of five years, or €750 000 (or €375 000 for companies in private road transportation) with a maturity of ten years, as defined in the operation maturity in the next section.
3. Operation Maturity	a. Up to 12 years, inclusively, from the loan contract date; b. If the support is granted within Regulation (EU) No. 1407/2013 (*de minimis* regulation), the term of the financing is up to 10 years, starting the counting of the term on the date of contracting the operation; c. The maturity to be set will result from the negotiation between the company and the Bank.
4. Grace Period	The grace period can be of up to 3 years from the loan contract date, to be defined between the company and the Bank.
5. Capital Repayment	Quarterly constant instalments, of equal value and in arrears.
6. Interest Rate to be paid by the Beneficiary	To the operations will be applied one of the following methods to determine the interest rate: a. The operations include interest at a rate resulting from the simple arithmetic average of the daily value of Euribor 12 months in the month prior to the interest period plus the spread in Table A (below). The Euribor swap rate will be disclosed on

	the Intercontinental Exchange (ICE) page, at https://www.theice.com/marketdata/reports/180, reported to the fixing of 11.00 am on the second business day prior to the date of contractualization; b. The operations include interest at Euribor 3, 6 or 12 Months of the second working day prior to the beginning of each interest period plus the spread in Table A (below). The Euribor rate will be calculated according to one of the following criteria: o Simple arithmetic mean of the daily Euribor quotations (3, 6 or 12 months) of the month prior to the interest counting period. If the Indexer's term is greater than the interest counting period, the Indexer's review will only occur at the beginning of each interest counting period starting after the expiration of the Indexer's term; or o Rate verified on the second business day prior to the beginning of each interest period. If the Indexer's term is longer than the interest counting period, the Indexer's review will occur at the beginning of each interest counting period initiated after the expiration of the Indexer's term.
7. Interest to be paid by the Beneficiary	The interest is to be paid in full by the beneficiary companies and will be paid quarterly and in arrears, to the account indicated in the loan contract.
8. Period of Use	Until 12 months after the contract date, up to a maximum of three uses. The Credit Institutions cannot attribute a value date to the loan earlier than the date when the funds are effectively transferred into the client's account.
9. Guarantee Fee Subsidy	The guarantee fee applicable by the MGS to each operation will be subsidized by FD&G, as defined in Table A (below), and is attributed under Regulation (EU) No. 1407/2013, of 18 December (*de minimis* regulation). The guarantee fees will be revised annually, depending on the risk associated to the type of operations and companies object of support, as well as the evaluation of the underlying indicators that determine them, namely the actual claim rate, liquid of recovery and effective management costs.
10. Credit Collaterals	a. Autonomous, first demand guarantee, issued by the MGS, destined to cover up to 80% of the debt at each moment in time within this Credit Line; b. The Bank and the MGS may request other collateral, within their credit analysis and decision process. These will be implemented *pari passu* for those entities, to guarantee the fulfilment of the responsibilities of the beneficiary company that arise from the autonomous guarantee(s), and for FD&G, for the recovery of the subsidized fees in case the subsidy expires. To this effect, the Bank, in accordance with the MGS, will supply drafts of the documents to be used; c. While the loan contract is in force, the Bank may request additional guarantees from the companies. These will be implemented *pari passu* for those entities, to guarantee the fulfillment of the responsibilities of the beneficiary company that arise from the autonomous guarantee(s), and for FD&G, for the recovery of the subsidized fees in case the subsidy expires.
11. Cumulus of Operations	Companies may present, through one or more credit institutions, more than one operation. Together, the amount contracted cannot exceed the

	maximum amount per company defined in section 2. The same expense cannot be considered eligible for different operations.
12. Affiliation to Mutualism	The companies that benefit from autonomous guarantee issued by the MGS under this Credit Line must, until the loan contract date, affiliate to Mutualism by acquiring shares of the respective MGS corresponding to 2% of the value of the relevant guarantee. These shares may be resold to the MGS, or any entity indicated by the MGS, upon completion of the legal requirements, at nominal value, at the end of the guarantee.
13. Fees, Expenses and Costs	a. The Banks may require the payment of a fee to set up and structure the operations of up to 0,25% flat; b. The operations under this Credit Line will be exempted of other fees and rates usually required by the Bank, as well as other similar ones required by the Mutual Guarantee Societies, notwithstanding the requirement that the beneficiary company pay all costs and expenses associated to the contracting of credit operations, namely those associated to the evaluation of buildings, registry and deeds, taxes and municipal fees, and other similar expenses. The exemption of expenses includes the securities custody if the securities account is used exclusively for operations with Mutual Guarantee.
14. Changes in Loan Conditions	Loans granted under this Credit Line cannot be altered, namely in what concerns the maturity and repayment conditions, without the previous consent of the Bank, the MGS and the Managing Entity of the Credit Line. However, the early repayment (in full or in part) of the borrowed capital is allowed, with no early repayment fee. In case an operation is restructured, if the company has no previous default events, even though the alteration will imply the loss of the guarantee fee subsidy effective in the quarter when the restructuring occurs, the spreads and fees in force will be maintained. If the company has previous default events, the spreads and fees may be increased.
15. Information Supplied by the Companies	The companies must supply to the Banks all the information required to the correct evaluation of the operation, including a summary map of the investment, according to the draft declaration to be made available by the Managing Entity of the Credit Line, as well as supply in a timely and complete manner the information necessary to its adequate monitoring. They must also respect all the legal disclosure obligations, namely annual accounts and remaining declaration obligations. They must, in addition, supply all the information solicited under the execution of audits or other control actions by the entities involved, especially the Managing Entity of the Line, within its control attributions. False statements will result in the increased rate of interest defined for default events.
16. Formalization of the Guarantee	The autonomous guarantees to be issued by the MGS will be formalized by the Bank, in the case of financing operations, on the loan contract date. Along with the contracting of the operation, the Bank will prepare the contract between the company and the MGS, the purchase and sale contract for the MGS shares, the term of acceptance of the framework of the State Aid regime and remaining documents necessary to contracting, as defined in the draft documents to be negotiated between the Bank and the MGS. The Bank must ensure the signature, by the client, of all these documents, along with the loan contract, as well as the delivery of these signed documents to the MGS, together with a

	copy of the loan contract, to be signed by the legal representatives of the MGS.

Table A – SPREAD (MAXIMUM LIMITS)

% Mutual Guarantee	Level	Global Bank Spread		Mutual Guarantee Fee	
		PME Líder	**Non *PME Líder***	***PME Líder***	**Non *PME Líder***
80%	Level A	1,860%	2,010%	0,650%	0,700%
	Level B	2,450%	2,600%	0,950%	1,000%
	Level C	3,250%	3,400%	1,450%	1,500%

Table B – COMPANY CLASSIFICATION CRITERIA

Level	Net Debt/EBITDA (No. years)(1)(3)	Equity/Assets(2)	
		General	**Trade and Services**
PME Líder	Specific Methodology		
Level A	≤ 3	≥ 30%	≥ 20%
Level B	Between 3 and 5	Between 20% and 30%	Between 15% and 20%
Level C	≥ 5	≤ 20%	≤ 15%

(1) Companies without a full year of activity are classified as level C; Companies with negative EBITDA, not PME Líder, are classified as level C; Companies with negative Net Debt are classified in the level resulting from the Equity / Assets ratio.

(2) Includes, as Equity, consolidated loans from shareholders and other equity instruments; Companies with a negative adjusted Equity / Assets ratio are classified as level C.

(3) The Net Debt / EBIDTA ratio must include, as Net Debt, the new debt resulting from this operation.

<u>Annex 3</u>: Line of Financing for Special Purpose Vehicles (SPV) owned by Business Angels (BA)

1. FI Management	Financial intermediary (SPV) selected by IFD to manage funds from FC&QC applied into the Line of Financing to SPV owned by BA.
2. Expected amount for the FI	Up to € 18,540,067.73 from ERDF. IP 3.1 – Creation of companies and startup stage (qualified and creative entrepreneurship) – € 17,214,428.87. IP 3.3 – Strengthen SME capabilities in the development of new products and services – € 1,325,638.86. In case there are any unused funds remaining from the first phase of the procedure, additional funds may be added to the different operational programmes and included in this Call.
3. Duration of the FI	Up to 10 years after the date of the financing agreement. At the end of this period, the participations financed by FC&QC within this call will have to be sold.
4. FI Investment Period	The investments in eligible SME should be completed until December 31, 2019. This deadline may be extended, pending authorization by IFD in articulation with the respective Managing Authorities, up to the end of the duration of the FI.
5. Minimum and maximum financing per SPV	Each SPV may apply to a co-financing by FC&QC between a minimum of € 300.000 and a maximum of € 750.000 for the Investment Priorities (IP) 3.1 and 3.3 in the various Operational Programmes (OP). Given the ranking of applications decided within the procedure and the available amounts in the OP and IP selected by the applicants, a co-financing amount lower than requested may be attributed. The maximum financing by FC&QC per operation is defined by the fund's co-financing percentage, which is dependent on the financing OP maximum rates, and shall not exceed, in any case, 65% of eligible expenses.
6. Eligible expenses	Eligible expenses, for FC&QC co-financing, are: a. SPV participation in FB, as defined in section 17; b. Management costs as defined in Regulation (EU) No. 480/2014, of March 3, and summarized in section 8.
7. SPV Management costs	The eligible Management Costs for the SPV, corresponding to the base remuneration, include only costs with services such as banks, accounting, auditing, legal, *due diligence* in FB. The total eligible costs must not exceed the maximum thresholds established in Regulation (EU) 480/2014, of March 3. The aggregate amount of the eligible management costs, during the eligibility period, cannot exceed, annually, 3% of the capital invested by the SPV within this Call, ensuring the compliance with the thresholds in Regulation (EU) No. 480/2014, of March 3rd, for base remuneration (Section 2.a., paragraph i. of Article 13).
8. Payment methodology	The payment of FC&QC co-financing is to be fulfilled as investments into FB are executed, obeying the following procedure: o After an investment decision in a FB is made by a SPV, it should notify FC&QC which must, within 21 calendar days, confirm the investment's eligibility and transfer its share to the SPV;

	o The SPV then has seven calendar days to transfer the amounts, as approved, into the FB.
9. Evaluation of the FI's execution	The FI's execution rate by financial intermediaries will be evaluated in three moments during the investment period: 31/12/2017 (M1) and 31/12/2018 (M2). If the accumulated execution is below 30% on M1 and 60% on M2, IFD may reduce FC&QC's endowment to the FI up to the difference between executed and planned amounts at that moment. If the accumulated execution is above the reference values on each of these moments, IFD may increase FC&QC's endowment to the FI, if there is an expression of interest by the financial intermediary and financial capability within FC&QC to that end. The reference for assessing the execution rates is the linear execution through time of the SPV's authorized capital. These provisions will be included in the financing agreement to be signed with financial intermediaries.
10. Preferential remuneration	FC&QC allows the attribution of preferential remuneration to private investors in SPV by distributing gains asymmetrically, where repayment and remuneration of the financing occurs at the end of the underlying operations. The financial intermediaries must propose the level of preferential remuneration in the application, respecting the rules defined above. The proposed preferential remuneration is part of the evaluation criteria of the application. The payment of preferential remuneration, if it occurs, must follow the following rules: i. Distribution of the cash received in direct proportion of the contribution of FC&QC (*pari passu*) and private investors in the SPV, until both have received the full amount invested in the FB; ii. The remaining profits are distributed in the proportion of 20% (FC&QC) / 80% (SPV) in the following conditions: o <u>Algarve</u>: Minimum private investment of 50%; Preferential Remuneration (% of returns for private investors) of 80%; o <u>Compete</u>*: Minimum private investment of 35%; Preferential Remuneration (% of returns for private investors) of 80%; o <u>Lisbon</u>: Minimum private investment of 60%; Preferential Remuneration (% of returns for private investors) of 80%; o <u>North</u>: Minimum private investment of 35%; Preferential Remuneration (% of returns for private investors) of 80%; (*Compete`s endowments to be applied in North, Centre and Alentejo) The payment of preferential remuneration in ii), if it occurs, is to happen only upon the FI's closure, never before the end of the execution period of Portugal 2020, after all the divestments are finished and all other SPV responsibilities are paid, using national State or private financial resources, after validation by FC&QC of the compliance with regulation requirements. Notwithstanding the conditions set in this section, the level and rules underlying preferential remuneration shall be confirmed, upon signature of the financing agreement, following a specific evaluation as to the

	relevance, proportionality and adequacy of that preferential remuneration.
11. SPV profits distribution	The SPV's profits must be distributed *pari passu* between the investors and the FC&QC until the full repayment of the investment into FB, after which the payment of preferential remuneration may take place, as defined in section 11. The SPV's profits (sale of participations, dividends or others), when not distributed by the investors and FC&QC, should be reused for the same purposes and priorities initially defined by FC&QC's financiers.
12. Maximum investment in FB	The SPV's investment in each FB, within the respective Investment Priority, must not exceed: o 25% of the SPV's endowment for IP 3.1; o 25% of the SPV's endowment for IP 3.3. **Example**: If the SPV has € 600,000 for IP 3.1 and € 400,000 for IP 3.3, the maximum investment per SME is € 150,000 within IP 3.1 and € 100,000 within IP 3.3. If an SPV receives an amount lower than requested in its application, this limitation must be reviewed in order to ensure the feasibility of investments performed in accordance with the SPV's investment policy. IFD may come to an understanding with the SPV to accept an investment/endowment ratio higher than defined in this section.
13. Management Model	The financial intermediaries must be managed on a commercial basis. This requirement is considered to be met when the financial intermediary satisfies the following conditions: o They should be required, by law or by contract, to act with the diligence of a professional manager acting in good faith and avoid conflicts of interest; best practices should be put in place, as well as regulation supervision; o Their remuneration is in accordance with market practices. This requirement is assumed to be met whenever the manager or financial intermediary is selected through an open, transparent, proportionate and non-discriminatory procedure, based on objective criteria related to experience, skills and operational and financial capability; o They should have a performance-based remuneration, or take part of the investment risks, co-investing their own funds, in order to guarantee that their interests are permanently aligned with those of the public investor; o They should define an investment strategy, investment criteria and a proposed schedule for investing.
14. Involvement in the project	The BA's and/or management team's level of commitment to the project, namely financially, will be valued in the analysis of the project merit, within criteria C (Demonstrated capabilities by the management team to manage the FI) and D (Demonstrated ability to mobilize resources).
15. SPV Characteristics	The SPV should have the following characteristics: a. They should be companies owned, directly, in majority and with management control by one or Business Angels (BA), whose investment policy requires participation in FB

	companies, SME, which fulfill the criteria associated with Investment Priorities 3.1 and 3.3 of Portugal 2020; b. The financing brought by the BA to the SPV cannot be lower than 35% of the total; c. They should be companies legally established and licensed to operate in Portugal.
16. Conditions of SPV participation in projects	SPV participation in each project must include a minimum of 70% equity and quasi-equity instruments. SPV financing is mandatorily associated to project development, no consolidation or financial restructuring operations are allowed.
17. *Due dilligence* prior to investments	The SPV will make investment decisions based on its knowledge and evaluation of the projects and respective business plans, that must include a description of the products/services, forecast revenues and returns, a viability analysis and an exit strategy.
18. Obligations of the SPV	The SPV, before IFD/FC&QC, undertakes to: a. Execute its business plan in the terms and schedules within the approved application; b. Comply, in a timely manner, with the legal obligations demanded of it, namely to the fiscal authorities and the social security, and demonstrate or allow access to the verification of the compliance to these obligations by the competent authorities; c. Communicate any relevant change or occurrence that may endanger the assumptions relative to the operation's approval; d. Maintain an accounting system in accordance with the Accounting Normalization System (SNC) or other applicable regulations; e. Ensure the existence of updated information adequate to the reporting of execution; f. Cooperate in developing the evaluation of results and impact of the operation; g. Maintain a dossier, during the operation and for at least three years after the closure of the financing programmes of Portugal 2020, containing all the documents that support the information and statements given within the application, as well as all the documents that supply proof of the investments executed, and allow its consultation at any time by financing organisms, as well as the entities employed by them to that effect; h. Demonstrate the fulfilment of the conditions to be observed by the FB according to section 25 of this product data sheet; i. Provide quarterly reports of execution, to be sent via email to fcqc@ifd.pt or through any other Information System to be indicated by IFD; j. Provide annual reports, within 30 days of their approval, to be sent via email to fcqc@ifd.pt or through any other Information System to be indicated by IFD; k. Repay the programme's contributions affected by irregularities, including interest or any other gains. Nevertheless, the financial intermediary is not responsible for repaying these amounts if it can demonstrate that the irregularity in question fulfils the following conditions: i. The irregularity occurred at the level of the FB;

	ii. The financial intermediary acted according to article 6(1) of the Delegated Regulation (EU) No. 480/2014 of March 3, relative to the programme's contributions affected by the irregularity; iii. The amounts affected by the irregularity cannot be recovered, despite all legal and contractual efforts to that effect having been made by the financial intermediary. l. Periodically report on the monitoring of the projects invested in and, whenever applicable, use the available check-lists; m. Ensure the adequate publicity of Portugal 2020 and ERDF supports with potential recipients and the general public, through the creation and control of appropriate mechanisms, as defined in Annex XII to Regulation (EU) No. 1303/2013 of December 17.
19. Reporting	The SPV will provide information to IFD about its investments, periodically, in the terms and format to be defined in the financing agreement, fulfilling ESIF requirements.
20. Monitoring and Audit	The SPV and the SME it invests in (FB) should allow and facilitate access to FI related documents to IFD, competent authorities within Portugal 2020 and representatives of the European Commission duly authorized to perform control and audit activities. To ensure this authorization, the manager of the FI should ensure this measure is included in the investment agreements.
21. Eligibility conditions for the Financial Intermediaries	a. To be legally established; b. To have an updated tributary and contributory situation with, respectively, the fiscal authorities and social security, to be verified until the moment when the financing agreement is signed; c. To be legally authorized to develop activities in the territory covered by the OP and the type of operations and investments they apply to; d. To have, or be able to ensure, until the application's approval, the technical, physical and financial means and human resources necessary to develop the operation; e. To have an updated situation in terms of repayment, within ESIF financing; f. To present a balanced economic and financial situation or to demonstrate capacity of finance the operation; g. To have an effective and efficient internal control system; h. To not have presented the same application, over which there is still a pending decision process or where the decision was favorable, except in the situations where the application was dropped; i. To not hold, or have held, directly or through a spouse or partner from whom they are not divorced or legally separated, or first degree relatives in the direct ascending or descending line, in more than 50%, equity in a company that has not fulfilled a restitution notification relative to support within an operation financed through European funds; j. To ensure the independence of the members of the governing bodies, especially insofar as they can originate conflicts of interest with a FI to implement; k. The OP contributions to financial instruments should be kept in separate accounting systems and are destined to be used,

	according to the respective OP objectives, within operations contemplated in this call; l. The FI financial intermediaries do not establish or maintain business relationships with entities in territories whose jurisdictions do not cooperate with the EU in terms of application of international fiscal standards; m. To accept audits by the auditing entity of the Member-State, the Commission, the European Court of Auditors, as well as the national certification authority and commit to continuously supply all necessary elements to FI monitoring by IFD and the financing OP.
22. Financial Beneficiaries	FB are distinguished according to the appropriate Investment Priority: IP 3.1 – Seed, startup or early stage SME the address the economic exploitation of new ideas, technologies and/or products, and which do not, until the moment when the investment is made, have 3 full business years since the beginning of economic activity with eligible CAE according to the relevant legislation. IP 3.3 – SME in development stages (Second Round) of new products and/or services, focused on innovation and with eligible CAE according to the relevant legislation. The FB should fit the Investment Priorities and Operational Programmes that are the object of this call, as well as fulfil the conditions in sections 24 and 25.
23. Operational Programmes and Investment Priorities	a. Investment Priority 3.1 (Compete 2020, POR Lisboa and POR Algarve) o Creation of businesses and startup stage o Promote entrepreneurial spirit promoting, among others, the support of economic exploitation of new ideas and providing incentives to creating new businesses, preferably within national or regional Research and Innovation Strategies for Smart Specialization (RIS3), or in mid to high-technology industries and in knowledge intensive services, or in tradable industries or those with a high internationalization potential. b. Investment Priority 3.3 (POR North): o Reinforce the region's SME skills to develop new products and services. o Projects with innovations at the level of processes, products, organization or marketing. The projects to be supported should, preferably, be articulated with the regional RIS3 thematic objectives, whether at the level of differentiating domains, whether in terms of the interconnection areas/innovation platforms. The applicant must propose SPV resource distribution by OP and IP, according to the table presented in the application form, which will serve as the basis to the FI's investment plan. This plan may be modified by IFD as a consequence of the evaluation of the applications and/or the execution of the FI prior to the eventual signature of the financing agreement.
24. Eligibility conditions for the FB	a. To be legally established; b. To have an updated tributary and contributory situation with, respectively, the fiscal authorities and social security, to be

	verified until the moment when the financing agreement with the financial intermediary is signed; c. To be legally authorized to develop activities in the territory covered by the OP and the type of operations and investments they apply to; d. To have or be able to ensure, until the application's approval, the technical, physical and financial means and human resources necessary to develop the operation; e. To have an updated situation in terms of repositions, within ESIF financing; f. To not hold, or have held, directly or through a spouse or partner from whom they are not divorced or legally separated, or first degree relatives in the direct ascending or descending line, in more than 50%, equity in a company that has not fulfilled a restitution notification relative to support within an operation financed through European funds; g. To be SME in accordance to the definition within the Recommendation 2003/361/CE of the Commission, and provide evidence of this status until the date of financing by the financial intermediaries through Electronic Certification of SME, emitted according to Decree-Law No. 372/2007, of November 6; h. To not have ended the same activity or a similar one within the European Economic Space up to two years before the approval of the financing by the FI or that, at the time of this approval, has specific plans to end such activity up to two years after the end of the business plan which is being financed; i. To not be officially listed in a stock exchange, with the exception of alternative negotiation platforms; j. To not be considered an undertaking in difficulty, as set in Regulation (EU) No. 651/2014, of June 16.
25. Conditions applicable to investments in FB	a. The FB to be financed fulfills, at least, one of the following conditions: i. Has not operated in any market; ii. Has operated in any market for less than seven years since the first commercial sale; iii. Requires an initial investment of risk financing which, based on a business plan prepared in order to enter a new product market or a new geographic market, is higher than 50% of its average annual turnover in the previous five years. b. Risk financing aid can also include complementary investments in eligible companies, even after the seven year period mentioned in a)ii. above, if the following cumulative conditions are met: i. The total amount of risk financing does not exceed €15 million euros; ii. The possibility of complementary investments was a part of the initial plan; iii. The beneficiary company has not become associated, as defined in article 3(3) of Annex I to the Regulation (EU) No. 651/2014 (GBER), with another company other than the financial intermediary or independent private investor

	which supplies risk financing under this measure, except if the new entity complies with all the conditions in the definition of SME. c. With respect to investments in equity and quasi-equity in eligible companies, a FI can only finance replacement capital if combined with new equity representing at least 75% of each investment cycle in eligible companies; d. With respect to investments in equity and quasi-equity in eligible companies, a maximum of 30% of the total capital contributions from the FI and the committed and unpaid capital may be used for liquidity management; e. The total amount of aid to risk financing from FI (given as investment in equity, quasi-equity, loans or guarantees), attributed under Regulation (EU) No. 651/2014, cannot exceed € 15 million per eligible company; f. The investments to be supported through financial instruments cannot be materially concluded or completely executed on the financing decision date; g. Aid to activities related to exports to third countries or Member-States, namely aids directly linked to exported quantities, to the creation and maintenance of a distribution network or other current costs linked to the export activity, fall outside the scope of this measure; h. Aid subordinated to the use of national products over imported ones fall outside the scope of this measure; i. The accumulation of an equity or quasi-equity investment through financial instruments financed with ESIF with other incentives of the Programme Portugal 2020 must comply with accumulation rules within community regulations, namely GBER.
26. Minimum private financing	The SPV must ensure the compliance of the following minimum levels of total private financing to the FB object of investment: o 10% of risk financing to FB that have not yet achieved their first commercial sale in any market; o 40% of risk financing to FB that have operated in any market for less than seven years since their first commercial sale; o 60% of risk financing for investments in FB: • With an initial risk financing that, based on a business plan prepared in order to enter a new product market or a new geographic market, is higher than 50% of its average annual turnover in the previous five years, and • For complementary investments in eligible companies after the initial seven year period after the first commercial sale. When the FI finances eligible companies in different stages of development, the private participation rate should represent, at least, the weighted average based on individual investments in the underlying portfolio and resulting from the application of the minimum participation rates to those investments. **Note**: The total private participation from risk financing corresponds to the percentage of private funds invested by all

	investors in a FB. For example, if a SPV with 60% of FC&QC funds and 40% private funds is the only investor in a FB, this investment incorporates intrinsically 40% of private funds.
27. Excluded Industries and Activities	Projects which include the following activities are excluded (Classificação Portuguesa de Atividades Económicas - CAE, reviewed by Decree-Law No. 381/2007, of November 14): a. Financial and insurance – divisions 64 to 66; b. Defence – sub-classes 25402, 30400 e 84220; c. Lottery and other betting games – division 92. d. Due to specific European restrictions in terms of state aid, the following FB projects are also excluded: i. In fishing and aquiculture, as described in the Regulation (EU) No. 1379/2013, of December 11, that establishes the common organisation of the fishing and aquiculture products, alters the Regulations (EU) No. 1184/2006 and (EU) No. 1224/2009 of the Council and revokes the Regulation (EU) No. 104/2000 of the Council; ii. In primary agricultural production, as defined in Regulation (EU) No. 651/2014, of January 16; iii. Companies with intragroup activities and whose main activities fall into subdivisions 70.10 "Activities of headquarters" or 70.22 "Consulting activities for business and other management consulting activities" of NACE Rev. 2; iv. In processing and marketing of agricultural products included in Annex I of the Treaty and forestry, as established in the Partnership Agreement within the delimitation between Cohesion Funds and EEAFRD and EMFF, when concerning business investment projects: developed in farms (when the raw materials comes mostly from the farm itself), or developed by Organizations of Producers, or with a total investment up to € 4 million.
28. Other additional requirements	The FB should be informed that the financing is granted within the ESIF co-funded programmes, as stated in article 115 of the Regulation (EU) No. 1303/2013 and that it is subjected to European rules in terms of State aid, namely the requirements and maximum aid thresholds established in Regulation (EU) No. 651/2014.
29. Applicable laws and regulations	Decree-Law No. 225/2015, of October 9 (FC&QC) Decree-Law No. 159/2014, of October 27, with the alterations introduced by Decree-Law No. 215/2015 of October 6 Decree-Law No. 18/2008, of January 29 (Portuguese Public Procurement Code) Decree-Law No. 372/2007, of November 6 Regulation (EU) No. 1303/2013, of December 17 (CPR) Regulation (EU) No. 480/2014, of March 3 (CDR) Regulation (EU) No. 651/2014, of June 16 (GBER)

<u>Annex 4</u>: Line of Financing for Venture Capital Funds (VCF)

1. FI Management	The management of the FI is to be assured by Managing Companies licensed to manage Venture Capital Funds in Portugal, provided that both managing company and VCF fulfil the requirements of the Venture Capital Legal Regime (Law No. 18/2015, of March 4) and Regulation (EU) No. 345/2013, of April 17.
2. Maximum amount for the FI	Up to €98,297,044.01 from ERDF. IP 3.1 – Creation of companies and start-up stage (qualified and creative entrepreneurship) – € 29,279,962.58. IP 3.3 – Strengthen SME capabilities in the development of new products and services – €69,017,081.43.
3. Duration of the FI	Up to 10 years after the date of the financing agreement. At the end of this period, the participations financed by FC&QC within this call will have to be sold, with the possibility of a two-year extension to the VCF.
4. FI Investment Period	The investments in eligible SME should be completed until December 31, 2019. This deadline may be extended, pending authorisation by IFD in articulation with the respective Managing Authorities.
5. Minimum VCF size	The VCF must have a capital of no less than €5,000,000 (five million euros).
6. Maximum financing per VCF	FC&QC's financing per operation (VCF) must not exceed €10,000,000 (ten million euros), and the FC&QC's participation shall not exceed the following percentages of the eligible expenses: o Compete (IP 3.1) – 50% o OP North (IP 3.3) – 50% o OP Centre (IP 3.3) – 50% o OP Lisbon (IP 3.3) – 40% o OP Alentejo (IP 3.3) – 50% o OP Algarve (IP 3.3) – 50% The remaining capital must be private and the Managing Company of the VCF is responsible for securing them. When evaluating the applications, projects with more private capital than the required minimum will be valued. If demand by Financial Intermediaries, within this call, is lower than the available endowment, IFD may assign endowments higher than €10,000,000 per application to eligible applicants, if the applicants request it. However, the maximum limit of participation of FC&QC cannot exceed €20,000,000 (twenty million euros) per applicant.
7. VCF Eligible Expenses	FC&QC considers eligible the following expenses: a. Participation of the VCF in Final Beneficiaries (FB) as defined in section 18 of this product data sheet; b. Management costs and fees, as defined in Regulation (EU) No. 480/2014, of March 3, and summarised in section 9 of this product data sheet.
8. VCF Management Costs and Fees	Two types of Management Costs and Fees are eligible for the VCF, corresponding to the base remuneration and performance-based remuneration. The base remuneration is calculated according to the subscribed capital (VCF) and cannot, in any case, exceed 2,5% in years 1 and 2 and 1% in year 3 and following. The costs with services, such as banks, accounting, auditing, *due diligence*, legal and others, are included in the limits defined for the base remuneration

component of management costs and fees. The payment of the base remuneration will follow the rules set out in Regulation (EU) No. 480/2014, of March 3.

FC&QC defines as a minimum target return for the VCF an annual rate of return equal to Euribor 12M + 5% (hurdle rate). Consequently, if the effective VCF return exceeds that level, a performance-based remuneration may be considered, to be proposed by the financial intermediary, up to a maximum of 25% of the excess over the hurdle rate, calculated as indicated above. This component of the remunerations can only be acknowledged and paid after the end of the eligibility period, within Portugal 2020, and provided the minimum target return (hurdle rate) defined in section 12 is ensured.

Regardless of the level of performance-based remunerations proposed, it must be calculated based on the following performance criteria:

a. Payment of contributions by the ESIF programme;
b. Repayment of funds from investments;
c. Quality of investment monitoring, before and after the investment decision, to maximize its impact;
d. Contribution of the financial investment to the Programme's objectives and results.

The ponderations and levels required for each criterion are in the table below:

Criterion	Ponderation	Level required for 100%
A	15%	Investment of the capital into FB linearly with time
B	40%	Repayment of the capital invested plus the minimum target rate of return
C	15%	Business Plan in line with the programme's objectives (50%) + Presence of the financial intermediary in the management of the FB (50%)
D	30%	Number of companies, Gross Value Added and employment per € 1 million ESIF (CAE Rev. 3, B to H, J, K, M and Q)

Therefore, the calculation formula for performance-based management costs and fees is:

$$MCF_{performance} = 0.15 * A + 0.40 * B + 0.15 * C + 0.30 * D$$

The financial intermediaries must propose the level of base and performance-based management costs and fees within the application, respecting the rules defined above and in accordance with the Regulation (EU) 480/2014, of March 3. The proposed management fee is part of the evaluation criteria of the application.

9. VCF payment methodology

FC&QC financing is implemented through a financing agreement signed between IFD and the VCF's Managing Company. The payment of FC&QC's financial component should obey the following criteria:

	i. The first payment, in a minimum amount equivalent to the first year of management costs and fees relative to the base remuneration and a maximum of 25% of the full participation, will be paid on the date of signature of the financing agreement; ii. The second payment request can only be submitted when at least 60% of the first payment is expended in eligible expenses, as defined in section 8 of this product data sheet; iii. The third and subsequent request for payment can only be submitted when at least 85% of the amounts in previous payments have been expended in eligible expenses, as defined in section 8 of this product data sheet; iv. The payment of the planned tranches will be *pari passu* with private investment in the VCF and will consider the conditions in paragraph g) of section 7 of this product data sheet.
10. Evaluation of VCF's execution	The VCF's execution rate by financial intermediaries will be evaluated in three moments during the investment period: 30/06/2017 (M1), 30/06/2018 (M2) and 30/06/2019 (M3). If the accumulated execution is below 30% on M1, 50% on M2 and 80% on M3, IFD may reduce FC&QC's endowment to the VCF up to the difference between executed and planned amounts at that moment. If the accumulated execution is above the reference values on each of these moments, IFD may increase FC&QC's participation in the VCF, if there is an expression of interest by the financial intermediary and financial capability within FC&QC to that end. The reference for assessing the execution rates is the VCF's subscribed capital. If there is a reduction in participation, the eligible management costs and fees will be adjusted accordingly. These provisions will be included in the financing agreement to be signed with financial intermediaries.
11. Preferential remuneration	If the VCF's effective return exceeds the hurdle rate defined in section 9, there may be a distribution of the part above it, up to a maximum of 15%, as preferential remuneration to private investors. The payment of preferential remuneration, if it occurs, is to happen only upon the FI's closure, never before the end of the execution period of Portugal 2020, after all the divestments are finished and all other VCF responsibilities are paid, after validation by FC&QC of the compliance with regulation requirements. The financial intermediaries must propose the level of preferential remuneration in the application, respecting the rules defined above. The proposed preferential remuneration is part of the evaluation criteria of the application.
12. VCF profits distribution	The VCF's profits must be distributed *pari passu* to the investors up to the hurdle rate and after the payment of performance-based (management) and preferential (private investors) remunerations. The sum of performance-based management fees and preferential remuneration cannot exceed 30% of the excess over the hurdle rate. VCF's profits (sale of participations, dividends or others), when not distributed by the investors, should be reused for the same purposes and priorities initially defined by FC&QC's financiers.
13. Maximum investment in FB	The VCF's investment in each FB, within the respective Investment Priority, cannot exceed:

	o 25% of the VCF's endowment for IP 3.1; o 25% of the VCF's endowment for IP 3.3. **Example**: If the VCF has €3,000,000 for IP 3.1 and €7,000,000 for IP 3.3, the maximum investment per SME is €750,000 within IP 3.1 and €1,750,000 within IP 3.3. The VCF may invest in more than one investment round of a FB, provided the above limits are not exceeded. In each round other than the first, and provided the same VCF has previously invested in the same project, the VCF will have to be accompanied by one or more investors in, at least, 10% of the round.
14. Management Model and Regulation	The VCF's management model must include a body that takes part in the decision to invest in a company, and which may include representatives of the private investors, other VCF shareholders and the VCF's managing company. The VCF must approve a management regulation that will include the provisions set within this product data sheet. The financial intermediaries must be managed on a commercial basis. This requirement is considered to be met when the financial intermediary satisfies the following conditions: o They should be required, by law or by contract, to act with the diligence of a professional manager acting in good faith and avoid conflicts of interest; best practices should be put in place, as well as regulation supervision; o Their remuneration is in accordance with market practices. This requirement is assumed to be met whenever the manager or financial intermediary is selected through an open, transparent, proportionate and non-discriminatory procedure, based on objective criteria related to experience, skills and operational and financial capability; o They should have a performance-based remuneration, or take part of the investment risks, co-investing their own funds, in order to guarantee that their interests are permanently aligned with those of the public investor; o They should define an investment strategy, investment criteria and a proposed schedule for investing; o The investors should have the possibility to be represented in the investment fund's governing bodies, such as the supervisory council or the consulting committee.
15. Involvement of VCF's Management Team	The level of commitment of the VCF's management team to the project, namely financially and/or through the holding of an equity stake in the Managing Company and/or directly in the VCF, will be valued in the analysis of the project merit within criteria C (Demonstrated capabilities by the management team to manage the FI) and D (Demonstrated ability to mobilise resources).
16. VCF's Call option	During the first year of a VCF created under this call, i.e., one whose date of constitution and registry with CMVM is later than the date of this call, FC&QC grants the remaining investors, or someone indicated by them, a call option allowing them to purchase FC&QC's share in the VCF.

	The exercise price of the option is equal to the value invested by FC&QC until the moment of the purchase, plus the hurdle rate defined in section 12 of this product data sheet.
17. Conditions of VCF participation in projects	VCF participation in each project must include a minimum of 70% equity and quasi-equity instruments. VCF financing is mandatorily associated to project development, no consolidation or financial restructuring operations are allowed.
18. *Due diligence* prior to investments	VCF management will make investment decisions based on their knowledge and evaluation of the projects and respective business plans, that must include a description of the products/services, forecast revenues and returns, a viability analysis and an exit strategy.
19. Obligations of the VCF's Managing Company	The VCF's Managing Company, before IFD/FC&QC, undertakes to: a. Execute the VCF's business plan in the terms and schedules within the approved application; b. Comply, in a timely manner, with the legal obligations demanded of it, namely to the fiscal authorities and the social security, and demonstrate or allow access to the verification of the compliance to these obligations by the competent authorities; c. Communicate any relevant change or occurrence that may endanger the assumptions relative to the operation's approval; d. Maintain an accounting system in accordance with the Accounting Normalisation System (SNC) or other applicable regulations; e. Ensure the existence of updated information adequate to report the execution of the VCF; f. Cooperate in developing the evaluation of results and impact of the operation; g. Maintain a dossier, during the operation and for at least three years after the closure of the financing programmes of Portugal 2020, containing all the documents that support the information and statements given within the application, as well as all the documents that supply proof of the investments executed, and allow its consultation at any time by financing organisms, as well as the entities employed by them to that effect; h. Demonstrate the fulfilment of the conditions to be observed by the FB according to section 26 of this product data sheet; i. Provide quarterly reports of execution, to be sent via email to fcqc@ifd.pt or through any other Information System to be indicated by IFD; j. Provide annual reports, within 30 days of their approval, to be sent via email to fcqc@ifd.pt or through any other Information System to be indicated by IFD; k. Repay the programme's contributions affected by irregularities, including interest or any other gains. Nevertheless, the financial intermediary is not responsible for repaying these amounts if it can demonstrate that the irregularity in question fulfils the following conditions: o The irregularity occurred at the level of the FB; o The financial intermediary acted according to article 6(1) of the Delegated Regulation (EU) No. 480/2014 of March

	3, relative to the programme's contributions affected by the irregularity; o The amounts affected by the irregularity cannot be recovered, despite all legal and contractual efforts to that effect having been made by the financial intermediary. l. Periodically report on the monitoring of the projects invested in and, whenever applicable, use the available check-lists; m. Ensure the adequate publicity of Portugal 2020 and ERDF supports with potential recipients and the general public, through the creation and control of appropriate mechanisms, as defined in Annex XII to Regulation (EU) No. 1303/2013 of December 17.
20. Reporting	The VCF's Managing Company will provide information to IFD about the VCF's execution, periodically, in the terms and format to be defined in the financing agreement, fulfilling ESIF requirements.
21. Monitoring and Audit	The VCF's Managing Company and the SME it invests in (FB) should allow and facilitate access to VCF related documents to IFD, competent authorities within Portugal 2020 and representatives of the European Commission duly authorized to perform control and audit activities. To ensure this authorization, the manager of the VCF should ensure this measure is included in the investment contracts.
22. Eligibility conditions for the Financial Intermediaries	a. To be legally established when the financing agreement is due to be signed; b. To have an updated tributary and contributory situation with, respectively, the fiscal authorities and social security, to be verified until the moment when the financing agreement is signed; c. To be legally authorised to develop activities in the territory covered by the OP and the type of operations and investments they apply to; d. To have or be able to ensure, until the application's approval, the technical, physical and financial means and human resources necessary to develop the operation; e. To have an updated situation in terms of repayments, within ESIF financing; f. To present a balanced economic and financial situation or to demonstrate capacity to finance the operation; g. To have an effective and efficient internal control system; h. To not have presented the same application, over which there is still a pending decision process or where the decision was favourable, except in the situations where the application was dropped; i. To not hold, or have held, directly or through a spouse or partner from whom they are not divorced or legally separated, or first degree relatives in the direct ascending or descending line, in more than 50%, equity in a company that has not fulfilled a restitution notification relative to support within an operation financed through European funds; j. To ensure the independence of the members of the governing bodies, especially insofar as they can originate conflicts of interest with a FI to implement; k. The OP contributions to financial instruments should be kept in separate accounting systems and are destined to be used,

	according to the respective OP objectives, within the operations contemplated in this call; l. The FI financial intermediaries do not establish or maintain business relationships with entities in territories whose jurisdictions do not cooperate with the EU in terms of application of international fiscal standards; m. To accept audits by the auditing entity of the Member-State, the Commission, the European Court of Auditors, as well as the national certification authority and commit to continuously supply all necessary elements to FI monitoring by IFD and the financing OP.
23. Financial Beneficiaries	FB are distinguished according to the appropriate Investment Priority: IP 3.1 – Seed, startup or early stage SME the address the economic exploitation of new ideas, technologies and/or products, and which do not, until the moment when the investment is made, have 3 full business years since the beginning of economic activity with eligible CAE according to the relevant legislation. IP 3.3 – SME in development stages (Second Round) of new products and/or services, focused on innovation and with eligible CAE according to the relevant legislation. The FB should fit the Investment Priorities and Operational Programmes that are the object of this call, as well as fulfil the conditions in sections 24 and 25.
24. Operational Programmes and Investment Priorities	a. <u>Investment Priority 3.1 (Compete 2020)</u> o Creation of businesses and start-up stage; o Promote entrepreneurial spirit promoting, among others, the support of economic exploitation of new ideas and providing incentives to creating new businesses, preferably within National Research and Innovation Strategies for Smart Specialisation (RIS3), or in mid to high-technology industries and in knowledge intensive services, or in tradable industries or those with a high internationalisation potential. b. <u>Investment Priority 3.3 (POR North, POR Centre, POR Alentejo, POR Lisbon and POR Algarve)</u> o Reinforce the region's SME skills to develop new products and services. o Projects with innovations at the level of processes, products, organisation or marketing. The projects to be supported should, preferably, be articulated with the regional RIS3 thematic objectives, whether at the level of differentiating domains, whether in terms of the interconnection areas/innovation platforms. The applicant must present a proposed VCF resource distribution by OP and IP, according to the table presented in the application form, which will serve as the basis to the VCF's investment plan. This plan may be modified by IFD as a consequence of the evaluation of the applications, prior to the eventual signature of the financing agreement.
25. Eligibility conditions for the FB	a. To be legally established; b. To have an updated tributary and contributory situation with, respectively, the fiscal authorities and social security, to be verified until the moment when the financing agreement is signed;

	c. To be legally authorised to develop activities in the territory covered by the OP and the type of operations and investments they apply to; d. To have or be able to ensure, until the application's approval, the technical, physical and financial means and human resources necessary to develop the operation; e. To have an updated situation in terms of repositions, within ESIF financing; f. To not hold, or have held, directly or through a spouse or partner from whom they are not divorced or legally separated, or first degree relatives in the direct ascending or descending line, in more than 50%, equity in a company that has not fulfilled a restitution notification relative to support within an operation financed through European funds; g. To be SME in accordance to the definition within the Recommendation 2003/361/CE of the Commission, and provide evidence of this status until the date of financing by the financial intermediaries through Electronic Certification of SME, emitted according to Decree-Law No. 372/2007, of November 6; h. To not have ended the same activity or a similar one within the European Economic Space up to two years before the approval of the financing by the FI or that, at the time of this approval, has specific plans to end such activity up to two years after the end of the business plan which is being financed; i. To not be officially listed in a stock exchange, with the exception of alternative negotiation platforms; j. To not be considered an undertaking in difficulty, as set in Regulation (EU) No. 651/2014, of June 16.
26. Conditions applicable to investments in FB	a. The FB to be financed fulfils, at least, one of the following conditions: i. Has not operated in any market; ii. Has operated in any market for less than seven years since the first commercial sale; iii. Requires an initial investment of risk financing which, based on a business plan prepared in order to enter a new product market or a new geographic market, is higher than 50% of its average annual turnover in the previous five years. b. Risk financing aid can also include complementary investments in eligible companies, even after the seven year period mentioned in a)ii. above, if the following cumulative conditions are met: i. The total amount of risk financing does not exceed €15 million euros; ii. The possibility of complementary investments was a part of the initial plan; iii. The beneficiary company has not become associated, as defined in article 3(3) of Annex I to the Regulation (EU) No. 651/2014 (GBER), with another company other than the financial intermediary or independent private investor which supplies risk financing under this measure, except if

	the new entity complies with all the conditions in the definition of SME. c. c) With respect to investments in equity and quasi-equity in eligible companies, a VCF can only finance replacement capital if combined with new equity representing at least 75% of each investment cycle in eligible companies; d. d) With respect to investments in equity and quasi-equity in eligible companies, a maximum of 30% of the total capital contributions from the FI and the committed and unpaid capital may be used for liquidity management; e. e) The total amount of risk financing aid from FI (as equity, quasi-equity, loans or guarantees) attributed under Regulation (EU) 651/2014 cannot exceed € 15 million per eligible company; f. f) The investments to be supported through financial instruments cannot be materially concluded or completely executed on the financing decision date; g. g) Aid to activities related to exports to third countries or Member-States, namely aids directly linked to exported quantities, to the creation and maintenance of a distribution network or other current costs linked to the export activity, fall outside the scope of this measure; h. h) Aid subordinated to the use of national products over imported ones fall outside the scope of this measure; i. i) The accumulation of an equity or quasi-equity investment through financial instruments financed with ESIF with other incentives of the Portugal 2020 Programme should comply with community regulations, namely GBER.
27. Minimum private financing to FB	The VCF must ensure the compliance of minimum total private financing in the FB (FB) object of investment: o 10% of risk financing to FB that have not yet achieved their first commercial sale in any market; o 40% of risk financing to FB that have operated in any market for less than seven years since their first commercial sale; o 60% of risk financing for investments in FB: • With an initial risk financing that, based on a business plan prepared in order to enter a new product market or a new geographic market, is higher than 50% of its average annual turnover in the previous five years, and • For complementary investments in eligible companies after the initial seven year period after the first commercial sale. When the VCF finances eligible companies in different stages of development, the financial intermediary should reach a private participation rate that represents at least the weighted average based on individual investments in the underlying portfolio and resulting from the application of the minimum participation rates to those investments. **Note**: The total private participation from risk financing corresponds to the percentage of private funds invested by all investors in a FB. For example, if a VCF with 40% of FC&QC

	funds and 60% private funds is the only investor in a FB, this investment incorporates intrinsically 60% of private funds.
28. Excluded Industries and Activities	Projects which include the following activities are excluded (Classificação Portuguesa de Atividades Económicas - CAE, reviewed by Decree-Law 381/2007, of November 14): a. Financial and insurance – divisions 64 to 66; b. Defence – sub-classes 25402, 30400 e 84220; c. Lottery and other betting games – division 92. d. Due to specific European restrictions in terms of state aid, the following FB projects are also excluded: i. In fishing and aquiculture, as described in the Regulation (EU) No. 1379/2013, of December 11, that establishes the common organisation of the fishing and aquiculture products, alters the Regulations (EU) No. 1184/2006 and (EU) No. 1224/2009 of the Council and revokes the Regulation (EU) No. 104/2000 of the Council; ii. In primary agricultural production, as defined in Regulation (EU) No. 651/2014, of January 16; iii. Companies with intragroup activities and whose main activities fall into subdivisions 70.10 "Activities of headquarters" or 70.22 "Consulting activities for business and other management consulting activities" of NACE Rev. 2; iv. In processing and marketing of agricultural products included in Annex I of the Treaty and forestry, as established in the Partnership Agreement within the delimitation between Cohesion Funds and EEAFRD and EMFF, when concerning business investment projects: developed in farms (when the raw materials comes mostly from the farm itself), or developed by Organizations of Producers, or with a total investment of up to €4 million.
29. Other additional requirements	The FB should be informed that the financing is granted within the ESIF co-funded programmes, as stated in article 115 of the CPR and that it is subjected to European rules in terms of State aid, namely the requirements and maximum aid thresholds established in Regulation (EU) No. 651/2014.
30. Applicable laws and regulations	Decree-Law No. 225/2015, of October 9 (FC&QC) Decree-Law No. 159/2014, of October 27, with the alterations introduced by Decree-Law No. 215/2015 of October 6 Decree-Law No. 372/2007, of November 6 Law No. 18/2015, of March 4 Regulation (EU) No. 651/2014, of June 16 (GBER) Regulation (EU) No. 345/2013, of April 17 Regulation (EU) No. 1303/2013, of December 17 (CPR) Regulation (EU) No. 480/2014, of March 3 (CDR)